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dino south-1 exploration drilling environment plan

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Approvals

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1 environment plan summary

In accordance with regulations 28 and 35 of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 Commonwealth (Cth) (OPGGS(E)R) all Environment Plans (EPs) are published (with the sensitive information part removed) on the National Offshore Petroleum Safety and Environment Management Authority (NOPSEMA) website.

To fulfil the requirements of an EP summary for public disclosure, as required by regulations 35(6) and 35(7), this *Dino South-1 Exploration Drilling Environment Plan Summary* (Table 1-1) has been prepared from material provided in this EP, and in the EP summary statement format preferred by NOPSEMA (Ref. 1).

Table 1-1: Environment Plan summary

Regulation	EP summary material requirement	Relevant section of this EP
35(7)(a)(i)	the location of the activity	Section 2.2, Section 3.1.2
35(7)(a)(ii)	a description of the receiving environment	Section 4
35(7)(a)(iii)	a description of the activity	Section 3
35(7)(a)(iv)	details of environmental impact and risks	Section 7
35(7)(a)(v)	a summary of control measures for the activity	Section 7
35(7)(a)(vi)	a summary of the arrangements for ongoing monitoring of the titleholder's environmental performance	Section 8
35(7)(a)(vii)	a summary of the response arrangements in the oil pollution emergency plan	Section 7.16, Ref. 2
35(7)(a)(viii)	details of consultation already undertaken, and plans for ongoing consultation	Section 6, Section 8.3.4
35(7)(a)(ix)	details of the titleholder's nominated liaison for the activity	Section 2.4

2 introduction

2.1 Overview

Chevron Australia Pty Ltd (CAPL) is planning to conduct exploration drilling within the Northern Carnarvon Basin off the northwest coast of Western Australia (WA) between 2024 and 2025. The proposed exploration well, Dino South-1 (DS-1), is targeting a dry gas reservoir.

This EP documents the assessment and management of potential environmental impacts and risks associated with the DS-1 exploration drilling activities in Commonwealth waters.

This EP has been prepared in accordance with the requirements of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGS Act) and OPGGS(E)R, as administered and for regulatory acceptance by NOPSEMA.

2.2 Location

The proposed DS-1 exploration well, including bottom hole, is located within exploration permit WA-392-P in Commonwealth waters, ~150 km northwest of Onslow and ~100 km west-northwest of Barrow Island (Table 2-1, Figure 2-1). The Operational Area (OA) (Section 3.1.2) is located within exploration permit WA-392-P and extends into adjacent areas that overlap retention leases WA-73-R, WA-82-R and WA-87-R (Figure 2-1). Note that although there is overlap with the adjacent retention leases, the activity will be conducted under the authority of WA-392-P and not the retention leases.

Table 2-1: Approximate coordinates and water depth for the proposed DS-1 exploration well

Well	Petroleum title	Latitude^	Longitude^	Water depth
Dino South-1	WA-392-P	20º29’58.51” S	114º25’2.96” E	~958 m

^ *Coordinates provided in GDA94.*

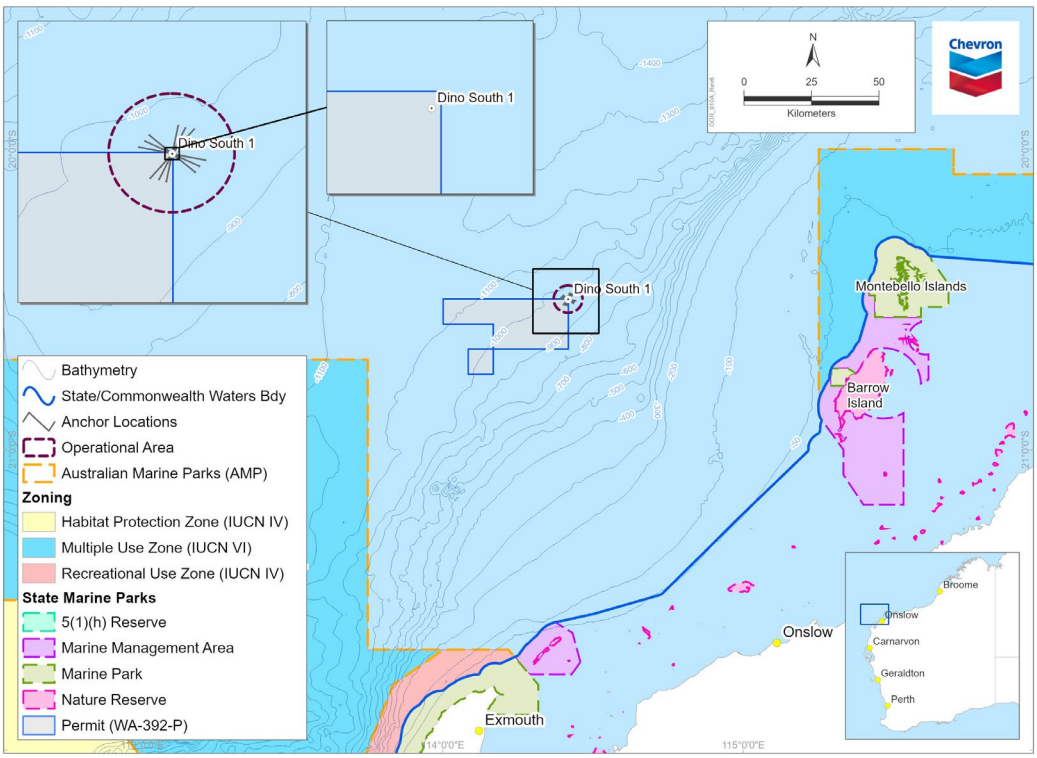


Figure 2-1: Location of proposed DS-1 exploration well

2.3 Scope

2.3.1 In scope

This EP relates to a petroleum activity to be undertaken by CAPL consisting of operations and works required for the proposed DS-1 exploration well, including:

- mobile offshore drilling unit (MODU) operations (Section 3.2)
- drilling (Section 3.3)
- formation evaluation (Section 3.4)
- well abandonment (Section 3.5)
- field support (Section 3.7).

2.3.2 Out of scope

The following activities are excluded from the scope of this EP:

- vessels (including emergence response vessels) transiting to or from the Operational Area (OA) (i.e. outside of the OA); these vessels are subject to the *Navigation Act 2012* (Cth) and not performing the petroleum activity
- helicopters transiting to or from the OA (i.e. outside of the OA); these aircraft are subject to the *Air Navigation Act 1920* (Cth) *and* Civil Aviation Act1998 (Cth) and not performing the petroleum activity.

2.4 Titleholder details

Chevron Australia (EP WA-392-P) Pty Ltd is the titleholder of the exploration permit WA-392-P (Table 2-2). As outlined in Section 2.2, the OA extends outside

of WA-392-P and into adjacent areas that overlap retention leases WA-73-R, WA-82-R and WA-87-R. The activity will be conducted under the authority of WA-392-P and not the retention leases. For reference, Chevron Australia (WA-374-P) Pty Ltd is the nominated titleholder of WA-73-R, WA-87-R, and Chevron Australia (RL WA-82-R) Pty Ltd is the nominated titleholder of WA-82-R. Chevron Australia (EP WA-392-P) Pty Ltd, Chevron Australia (WA-374-P) Pty Ltd, and Chevron Australia (RL WA-82-R) Pty Ltd are subsidiaries of CAPL. If required, CAPL or the relevant subsidiary will obtain any necessary permit or authorisation for works in areas of the OA that are outside of WA-392-P. The contact details for the nominated liaison for this EP are listed in Table 2-3.

Regulation 23(3) of the OPGGS(E)R requires that CAPL notifies NOPSEMA of a change in the titleholder, a change to the titleholder's nominated liaison, or a change in the contact details for either the titleholder or the nominated liaison.

Regulation 286A of the OPGGS Act requires notification is provided to NOPSEMA and the National Offshore Petroleum Titles Administrator (NOPTA) if there is a change to a registered titleholder or contact details for the registered titleholder; this notification is to occur within 30 days of such a change.

Table 2-2: Titleholder details

Title	Detail	Titleholder	Nominated Titleholder	Address
WA-392-P	Exploration Permit	Chevron Australia (EP WA-392-P) Pty Ltd	Chevron Australia (EP WA-392-P) Pty Ltd (ACN: 641 878 748)	1 The Esplanade, Perth WA 6000

Table 2-3: Nominated liaison

Name and Position	Ian Nott - Wells Manager
Company	Chevron Australia Pty Ltd
ACN	086 197 757
Business Address	1 The Esplanade, Perth WA 6000
Telephone	+61 8 9216 4000
Email	feedback@chevron.com

2.5 Environmental management framework

CAPL's operations are managed in accordance with Chevron Corporation's Operational Excellence Management System (OEMS), which is described in Section 8.

2.5.1 Environment policy

CAPL's commitment to environmental management in all aspects of operations is documented in Chevron Corporations' Operational Excellence Policy 530 (Appendix a).

2.5.2 Relevant requirements

In accordance with regulation 21(4) of the OPGGS(E)R, the legislative requirements and other requirements that apply to the petroleum activity and are

relevant to the environmental management of the activity are provided in Table 2-4 and Table 2-5.

Table 2-4: Commonwealth legislative requirements

Legislation	Description	Requirements relevant to the risks associated with the petroleum activity	Demonstration of how requirements are met
Australian Maritime Safety Authority Act 1990	Aims to promote maritime safety, protect the marine environment from pollution from ships or other environmental damage caused by shipping, and provide for a national search and rescue service.	Requirements include the involvement of the Australian Maritime Safety Authority (AMSA) in response to relevant spill events.	Roles and responsibilities are described in the Oil Pollution Emergency Plan (OPEP) (Ref.2).
Biosecurity Act 2015 Biosecurity Regulations 2016	This Act is about managing diseases and pests that may cause harm to human, animal, or plant health or the environment. The Act provides for managing biosecurity risk in Australia and its external territories. It also provides for managing risks related to ballast water.	Pre-arrival reporting (PAR) before arrival in Australian territory.	Section 7.6.2.
		Ballast water management plans and certificates, and reporting of ballast water discharges.	Section 7.6.2.
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) EPBC Regulations 2000	Provides for the protection and management of nationally and internationally important flora, fauna, ecological communities, and heritage places.	The EP must describe matters protected under Part 3 of the EPBC Act and assess any impacts and risks to these protected matters.	Section 4, and Section 7.
		EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans.	Section 7.2, and Section 7.6.
		Injury or fatality caused to EPBC listed fauna shall be reported.	Section 8.4.2.
Navigation Act 2012	Provides standards regarding collision prevention for vessels.	Notice to Mariners.	Section 7.1, and Section 7.14.
Navigation Act 2012 *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*	These Acts give effect to international conventions where Australia is a signatory, including: • International Regulations for	Marine Order 30—Prevention of collisions.	Section 7.14.
		Marine Order 91—Marine pollution prevention—oil.	Section 7.8, Section 7.13, and Section 7.14.

Legislation	Description	Requirements relevant to the risks associated with the petroleum activity	Demonstration of how requirements are met
Protection of the Sea (Harmful Anti-fouling Systems) Act 2006 Marine Orders	Preventing Collisions at Sea (COLREGS) • International Convention for the Safety of Life at Sea (SOLAS) • International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).	Marine Order 95—Marine pollution prevention—garbage.	Section 7.8, and Section 7.12.
		Marine Order 96—Marine pollution prevention—sewage.	Section 7.8.
		Marine Order 97—Marine pollution prevention—air pollution.	Section 7.4.
		Marine Order 98—Marine pollution prevention—antifouling systems.	Section 7.6.2.
OPGGS Act OPGGS(E)R	The OPGGS(E)R under the OPGGS Act requires a titleholder to have an accepted EP in place prior to commencement of a petroleum activity. The regulations ensure petroleum activities are undertaken in an ecologically sustainable manner in accordance with an EP.	An EP for a petroleum activity must be accepted by NOPSEMA before activities commence.	This EP, including the OPEP (Ref. 2) and Operational and Scientific Monitoring Plan (OSMP) (Ref. 3).
OPGGS (Resource Management and Administration) Regulations 2011	These regulations require a titleholder to have an accepted Well Operations Management Plan (WOMP) in place. The purpose of a WOMP is to ensure systems are in place to manage well integrity and well activities.	A WOMP for a petroleum well activity must be accepted by NOPSEMA before activities commence.	CAPL will develop a WOMP for the exploration drilling activities described in this EP (Ref. 4). The WOMP will be accepted by NOPSEMA before activities commence.
Underwater Cultural Heritage Act 2018 (UCH Act)	Provides protection for shipwrecks, sunken aircraft, and other cultural heritage sites in Australian waters.	Identification of the presence of protected cultural heritage sites and assessment of any impacts and risks to these sites.	Section 4, and Section 7.

Table 2-5: Standards and guidelines

Standard / guideline	Description	Requirements relevant to the risks associated with the petroleum activity	Demonstration of how requirements are met
Australian Ballast Water Management Requirements (Ref. 5)	Provides guidance on how vessel operators should manage ballast water when operating within Australian seas in order to comply with the *Biosecurity Act 2015* (Cth). They also align to the International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004 (the Ballast Water Management Convention).	Ballast water management requirements for vessels, including having a ballast water management plan and certificate (unless an exemption applies).	Section 7.6.2.
Australian Biofouling Management Requirements (Ref. 6)	Sets out vessel operator obligations for the management of biofouling when operating vessels under biosecurity control within Australian territorial seas.	Biofouling management for vessels, including PAR, and having biofouling management plans.	Section 7.6.2.
Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species (Ref. 7)	International Maritime Organization (IMO) guidelines for global management of biofouling.	Requires a biofouling management plan and record book to be available and maintained.	Section 7.6.2.
Minamata Convention on Mercury	The Minamata Convention on Mercury is an international treaty that seeks to protect human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds. Australia ratified the Convention in December 2021.	Article 9 of the Convention concerns controlling, and where feasible, reducing releases of mercury or mercury compounds to land and water. Article 11 of the Convention concerns disposal of mercury contaminated waste.	Section 7.9.
National Biofouling Management Guidance for the Petroleum Production and Exploration Industry (Ref. 8)	Commonwealth guidance document has been developed to assist industry manage the risk of marine pest translocation and introduction via biofouling.	Requires biofouling risk assessments to be completed.	Section 7.6.2.

Standard / guideline	Description	Requirements relevant to the risks associated with the petroleum activity	Demonstration of how requirements are met
National Light Pollution Guidelines for Wildlife (Ref. 9)	Outlines the process to be followed where there is the potential for artificial lighting to affect wildlife. Applies to new projects, lighting upgrades, and where there is evidence of wildlife being affected by existing artificial light.	The EP must assess if artificial lighting is likely to affect wildlife and identify the management tools to minimise and mitigate impacts and risks.	Section 7.4.

3 description of the petroleum activity

3.1 Overview

This section provides a description of the petroleum activity as required under regulation 21(1) of the OPGGS(E)R. The description of the petroleum activity is presented in the following sections:

- MODU—includes positioning, and general (non-drilling) operation activities (Section 3.2)
- drilling—includes drilling and contingency activities (Section 3.3)
- formation evaluation—reservoir appraisal activities (Section 3.4)
- well abandonment—plug and abandonment activities, including wellhead removal (Section 3.5)
- field support—includes use of support vessels, helicopters, and remotely operated vehicles (ROVs) (Section 3.7).

3.1.1 Purpose

The purpose of the proposed petroleum activity is to explore and evaluate the gas reservoir within WA-392-P.

There is no recovery of hydrocarbons associated with the exploration drilling activities, and as such no gas processing, transport, or third party end-use of hydrocarbons would occur as a result of the petroleum activity within scope of this EP.

3.1.2 Operational area

The nominal location of the DS-1 exploration well is described in Section 2.2 (with coordinates and approximate water depth shown in Table 2-1).

The OA for the petroleum activity is defined as a 5 km radius buffer around the DS-1 exploration well (Figure 2-1). The OA is located wholly within Commonwealth waters, and within exploration permit WA-392-P, and areas adjacent to WA-392-P which overlap retention leases WA-73-R, WA-82-R and WA-87-R. There are no islands or other emergent features within or adjacent to the OA.

The petroleum activity described within Section 3 of this EP will be undertaken wholly within the OA. As outlined in Section 2.2, the proposed DS-1 exploration well, including bottom hole, is located within exploration permit WA-392-P. The activity will be conducted under the authority of WA-392-P and not the adjacent retention leases. Mooring lines will be laid in the adjacent retention leases and support vessels may be on stand-by within the retention leases within a 5 km radius of the DS-1 exploration well. The OA encompasses a 500 m safety exclusion zone that will be requested around the MODU for the duration of activities.

3.1.3 Timing

The DS-1 exploration drilling activities are planned to commence between 2024 and 2025 (pending MODU and vessel availability, regulatory approvals, or other CAPL project requirements). The activity is estimated to take ~50 days to

complete. However, this duration is indicative and subject to potential operational delays (e.g. caused by weather conditions).

Activities covered within this EP will be conducted 24 hours/day and 7 days/week.

3.1.4 Reservoir properties

As the petroleum activity is exploration drilling, the exact fluid composition and properties of the objective reservoir intervals are not known. However, the reservoir characteristics (e.g. depth, thickness, porosity, permeability, pressure, condensate gas ratio) have been predicted using known information from previously drilled wells, and from geologic and seismic data, to predict gas and condensate flow rates from the proposed DS-1 exploration well.

CAPL have identified the most appropriate analogue as Isosceles-1, a previous gas exploration well located ~4 km to the east of DS-1. Isosceles-1 was a dry gas well and based on the available data CAPL interpret that DS-1 fluids will be comparable to the previous Isosceles-1. A partial assay report for the Isosceles-1 condensate was used by RPS to identify an appropriate proxy from the Spill Impact Mapping and Analysis Program (SIMAP) database (Ref. 10). Gorgon condensate was chosen as the most appropriate proxy condensate. The physical properties, boiling point ranges, weathering, and behaviour of the condensate is further discussed in the unplanned release spill modelling in Section 7.15.

3.2 Mobile offshore drilling unit

3.2.1 Positioning

A semi-submersible MODU will be used for the exploration drilling activities at DS-1. With much of a semi-submersibles bulk below the water surface, the MODU becomes a stable platform for drilling, moving only slightly with wind and currents.

The MODU will be positioned using an 8- to 12-point mooring system. Anchors may be pre-deployed and tested at the site by the support vessels prior to the MODU arriving. The mooring spread will encroach on the adjacent retention leases within the OA (Section 3.1.2, Figure 2-1). Disturbance footprints from anchoring systems vary, however it is estimated that for a semi-submersible MODU with an 8- to 12-point mooring system, the anchoring system (allowing for both anchor footprint and disturbance from anchor chains) could be up to ~13,000 m^2 (Ref. 11). Mooring systems will be removed at the end of the drilling campaign. Installation and removal of MODU anchors will be supported by vessels (as identified in Section 3.7.1).

An array of long baseline (LBL) and/or ultra-short baseline (USBL) transponders may be used to accurately position the MODU over the proposed well location. Transponder systems work by emitting short pulses of medium to high frequency sound. Transmissions are not continuous but consist of short ‘chirps’ when active and do not emit any sound when on standby. When required for general positioning, they will emit one chirp every five seconds, and for precise positioning, they will emit one chirp every second. Transponders may be used for positioning the MODU for a period of up to ~48 hours.

Transponders are lowered to the seabed (with a clump weight if required). Both the transponder and clump weight (if used) are retrieved to the surface by a ROV following use.

Due to their size, MODU's have constrained manoeuvrability and as such, will have the right-of-way over other vessels in the area (as per the 500 m safety exclusion zone that is proposed around the MODU for the duration of activities).

3.2.2 Operations

The MODU is fitted with various equipment to support exploration drilling activities including:

- power generation systems
- fuel storage
- cooling water and freshwater systems
- drainage, effluent, and waste systems
- primary and secondary (cuttings dryer etc.) solids control equipment.

Non-drilling activities occurring on the MODU include:

- bunkering or bulk transfer of fuel, chemicals, and supplies
- transfer of waste to supply vessels
- discharge of:
  - sewage, greywater, food waste
  - cooling water, reverse osmosis brine
  - deck drainage and bilge.
- helicopter operations.

A contract with a semisubmersible MODU is in place for this exploration drilling. It is expected the MODU will operate with up to 140 persons on board (POB). Estimates of sewage and grey water volumes are ~0.04–0.45 m^3 per person per day, and estimates of putrescible food waste are in the order of ~1–2 kg per person per day (Ref. 12). Based on an indicative 140 POB, this gives an estimated discharge of sewage and greywater of up to 63 m^3/day and ~280 kg/day for food waste from the MODU.

Several different materials will be transferred from support vessels to the MODU for the exploration drilling campaign. For example, cement, barite, and bentonite are transported as dry bulk, and are pneumatically blown from the support vessels to the MODU storage tanks using compressed air. The MODU dry bulk storage tanks vent excess compressed air to atmosphere and this venting process also discharges small amounts of solids. Based upon previous programs it is estimated that during each bulk transfer a dry bulk loss in the order of ~0.005% is expected to be recorded. Based on an estimated storage capacity for bulk cement, barite, and bentonite on the MODU, this equates to <0.05 m^3 of solids discharged for the entire exploration program.

3.3 Drilling

3.3.1 Well design and drilling method

An indicative overview of the base-case drilling design and method for DS-1 is provided in Table 3-1. The proposed drilling method uses water-base fluids (WBFs). However, non-aqueous drill fluids (NADFs) may be used as a contingency during the activity (Table 3-1). Should the proposed base-case

design not reach the required depths, contingency reduced hole and casing sizes may be adopted; these sections may also be drilled with NADFs or WBFs.

The design and methods are subject to change, depending on individual well design requirements and final location of the well. Final well design and well schematics will be provided in the WOMP (Ref. 4), which will be submitted to NOPSEMA for acceptance prior to drilling activities commencing. Any changes to well design between Table 3-1 to the final accepted WOMP, will be evaluated as per the Management of Change (MoC) process described in this EP (Section 8.3.2.2).

Table 3-1: Summary of the DS-1 well base case drilling methodology

Hole size		Casing size		Depth below seabed	Length of hole section	Estimated volume of cuttings		Cuttings discharge location	Drill fluid type
in	mm	in	mm	m MD	m	bbl	m^3		
42	1,067	36	914	62	62	340	54	Seabed	WBF
17½	444	13⅝	346	1,292	1,230	1,258	200	Seabed	WBF
12¼	311	9⅝	244	2,392	1,100	528	84	MODU	NADF or WBF
8½	216			4,042	1,650	371	59	MODU	NADF or WBF
				Total	**4,042**	**2,497**	**397**		

MD = measured depth

3.3.2 Drilling fluids and cuttings handling and disposal

The top-hole (42” and 17½”) sections are to be drilled with seawater and WBFs, with cuttings circulated to the seabed. Both sections will be drilled with seawater and pre-hydrated bentonite and/or polymer high viscosity hole cleaning sweeps. The open hole will be displaced with pre-hydrated bentonite mud.

The high viscosity sweeps and bentonite mud will comprise ~96% v/v drill water, with the remaining ~4% v/v made up of drilling fluid additives that are either completely inert in the marine environment, naturally occurring benign materials, or readily biodegradable organic polymers with a very fast rate of biodegradation in the marine environment. Drilling additives typically used include potassium chloride, bentonite (clay), water soluble polymers, barite, and calcium carbonate.

Once the top-hole sections are complete, installation of the riser and blowout preventor (BOP) provides a conduit back to the MODU, forming a closed circulating system. As such, primary and secondary solids control equipment onboard the MODU removes cuttings from drilling fluids before being recirculated back to the well. Solids control equipment shall include:

- shale shakers
- centrifuge(s)
- cuttings dryer (if NADF is used).

Various shaker screen mesh sizes can be used to remove a specific cuttings particle size, thereby optimising drilling fluid physical properties. Cuttings discharged are expected to range from very fine (20 µm) to very coarse (<1 cm diameter) after removal from the drilling fluid.

Cuttings are expected to comprise predominantly claystone, and calcareous formations from the upper sections and sandstone and siltstone from the lower

sections of the well. An indicative cuttings volume of ~397 m^3 (based on the volume of the base-case well design) is expected to be generated, but actual volumes will depend on the final depth and drilling of the well (e.g. actual total depth, lost circulation, well washout, potential re-spud, etc.).

If contingency NADF use is required, during the displacement of WBF to NADF, the fluids will mix, and this mixture, or interface fluid, will be isolated in a MODU tank and will be tested for composition (i.e. % NADF, % WBF, and % solids content). Interface fluids tested to contain <1% v/v NADF (synthetic base oil) content may be discharged to the ocean.

The NADF tanks on the MODU are cleaned when drilling operations are completed. Volumes of residual NADF are consolidated and recovered by mechanical means (e.g. squeegee, mud vacuum, etc.) before tank washing. NADF tank washing residue will be tested for composition. Residual tank cleaning fluids containing tested to <1% v/v NADF (synthetic base oil) content will be discharged to the ocean.

In the instance of lost circulation, it may be controlled with the use of fluid control materials such as bentonite, polymers, and/or other additives. In a severe case, it might be required to pull back and cement the area where the losses occurred, before drilling through the cement and recommencing.

Indicative volumes of NADFs (if required) and WBFs discharged for the well have been estimated based on historical data and well planning (Table 3-2).

3.3.3 Cementing operations

On completion of the top-hole sections, a casing is to be inserted and the annulus between the casing and the hole sealed with cement. For the conductor and surface casing, a cementing product is pumped until returns are observed at the seabed. When cementing top-hole sections (without a riser in place), the water-based spacer fluid is displaced by the cement slurry and discharged directly to the seabed at the mudline.

For the remainder of the drill hole, after a string of casing or liner has been installed into the well, a cementing spacer is pumped to flush drilling fluids and filter cake from the well to allow a good cement bond to be formed with the formation. All cementing operations will be conducted with all returns to the MODU via a riser. Depending on volumes of cement and spacer pumped, the spacer will either remain downhole or returned to the MODU and discharged to sea.

Cement slurry is pumped down the inside of the landing string and then casing (or liner). A displacement fluid is then pumped into the casing with a wiper plug to displace the cement out of the bottom of the casing and up into the annular space between the pipe and the borehole wall. For all casing and liner cementations the cement will predominantly remain downhole, with minor excess cement returned to the MODU and discharged into the sea. When the wiper plug is pumped and reaches the bottom of the casing string it stops and allows the casing to be pressure tested.

Wherever possible, the cement line flush volumes are included in the planned cement jobs. When a job is completed, the cement unit is cleaned, and the residual cement discharged overboard from the MODU. The estimated discharge volumes of residual cement products are ~10 m^3. In the rare event that the cement products become contaminated, the entire volume (~48 m^3) may need to be discharged to sea.

Indicative volumes of discharges from cementing operations are provided in Table 3-2.

3.3.4 Blowout preventer installation and testing

A BOP is installed after completion of the top-hole sections. A BOP consists of a series of hydraulically operated valves and sealing mechanisms (annular preventers and ram preventers) that are normally open to allow the drill fluid to circulate up the marine riser to the MODU during drilling.

A BOP is to be used for the exploration drilling program to provide an additional barrier to prevent a loss of well control event. The BOP is used to close in the well in the event of an influx or kick, in which the hydrostatic pressure of the wellbore fluid is exceeded by the formation pressure. The MODU's high-pressure circulating system would be used in this event, after closing of the BOP, to remove the influx from the well and regain hydrostatic overbalance. The annular and ram preventers are used to shut in around various tubulars in the well, while the blind shear rams are designed to shear the pipe and seal the well.

Once installed, regular function and pressure tests are undertaken; function tests will be undertaken weekly and pressure tests every three weeks (except in exceptional circumstances). Function testing is undertaken by activating the hydraulic control system onboard the MODU to pressurise and activate the rams within the BOP stack.

The BOP control system discharges water-based hydraulic control fluids into the sea upon operation. A full function test, which closes and opens all rams and annulars, discharges ~2,500 L of diluted control fluid. The control fluid is a water-soluble product and is diluted to ~1–3% with potable water. The control fluid is fully biodegradable and expected to readily disperse after discharge from the BOP to the marine environment.

3.3.5 Contingency activities

In the event of technical or operational issues during the drilling activity, contingency activities may be required. The activities are not expected to cause additional risks or impacts but may generate additional volumes of drilling fluids, cuttings, cement, or seabed disturbance.

Indicative volumes of discharges from contingency operations are provided in Table 3-2.

3.3.5.1 Well re-spud

If technical or operational issues are encountered while drilling, such as a failure to meet installation criteria, a well re-spud may be required. The well re-spud will be located within exploration permit WA-392-P (i.e. same exploration permit as the proposed well). This activity could involve moving the MODU within the immediate area of the primary well and to recommence drilling. A well re-spud would result in an increase in the volume of cuttings and cement generated. No movement of the MODU anchors would be required for a re-spud, and as such there is no change to the area of seabed temporarily disturbed from anchoring.

3.3.5.2 Sidetrack

A sidetrack is an alternative to a well re-spud, which involves drilling a secondary wellbore away from the primary wellbore. This may be done to avoid an unusable section of the primary wellbore, or if it is otherwise inaccessible. A sidetrack would

be expected to result in an increase of cuttings generated and potentially cement discharges. If a sidetrack is required, it will be undertaken within exploration permit WA-392-P (i.e. same exploration permit as the proposed well).

3.3.5.3 Well suspension

Well suspension involves the application of suitable barriers, the removal of the riser and disconnecting the MODU from the well. Well suspension activities would be undertaken in accordance with the NOPSEMA-accepted WOMP. In some cases, the BOP may be left in place. Well suspension may be required in the instance of extreme weather events. The process of a planned disconnection of the riser would result in the riser being displaced with seawater prior to disconnection and therefore no planned discharge of drilling fluids and cuttings.

3.3.5.4 Emergency disconnect sequence

If the MODU is required to rapidly disengage from the well, an emergency disconnect sequence may be required. The sequence consists of closing the BOP and disconnecting the riser. The process of disconnecting the riser would result in discharge of drilling fluids and cuttings.

3.3.6 Cementing operations

Additional cementing operations may be required as a contingency activity due to unplanned events (e.g. kick-off plugs, failed formation integrity test, lost circulation remediation). The discharges are expected to be no different from those described in cementing operations (Section 3.3.3)

3.4 Formation evaluation

A standard data acquisition program is planned for the evaluation of the DS-1 well. During drilling both ‘mudlogging’ and ‘logging while drilling’ data will be collected for the entire well.

In a success case, additional wireline logs will be run at target depth (i.e. where the reservoirs are predicted to be located) to further evaluate formation and fluids. No vertical seismic profile is planned as part of the wireline logs.

3.5 Well abandonment

Once the exploration drilling activities are complete, the DS-1 well will be permanently plugged and abandoned in accordance with the requirements of section 572 of the OPGGS Act and the NOPSEMA-accepted WOMP.

Plug and abandonment procedures are designed to permanently isolate the well and mitigate the risk of a potential release of wellbore fluids to the marine environment. A combination of mechanical plugs and cement plugs will be installed to serve as permanent barrier elements in accordance with the *Chevron Global Technical Standard – Well Barriers* (Ref. 13).

A small discharge of cement contaminated seawater may be required upon completion of this activity. Once in place, the wellbore contents above the reservoir barrier will be displaced and circulated to inhibited WBF of appropriate density. Wellbore content (weighted drilling fluid and cement contaminated mud, water, barite, cement polymer) will be discharged from the surface. The discharges are expected to be no different from those described in cementing operations (Section 3.3.3).

Once the permanent plugs have been set and tested, the BOP stack can be detached from the wellhead and recovered back to the MODU. Prior to disconnecting the BOP stack from the wellhead, the system will be flushed with seawater.

A wellhead cutting tool is then landed onto the wellhead to sever the casing just below the seabed (~1.5 m below the seabed). Cutting wellheads is anticipated to take ~12 hours per location. Cutting will generate metal swarf (<0.01 m^3) and some cement cuttings at the seabed. Cutting may also involve subsea discharges of grit and flocculent. The wellhead is then pulled free and recovered to the MODU through the moonpool.

Once the wellhead is removed, an ROV is deployed from the MODU to conduct a post-activity survey. This survey records the condition of the seabed at the completion of the program, to ensure that no dropped objects or subsea equipment intended for removal remain on the seabed. This as-left survey involves an ~50 m radius visual check from the wellhead location.

3.6 Summary of discharges

A summary of the discharges associated with the drilling activities for the DS-1 exploration well is provided in Table 3-2.

Table 3-2: Summary of planned and contingency discharges

Discharge Type	Indicative volumes (m^3)	Discharge location
Drilling fluids and cuttings		
WBFs (riserless / riser in place)	5163 / 2526	Seabed / Surface
NADFs (riser in place)*	100	Surface
Wellbore clean-up fluid discharge (NADF/WBF interface) (riser in place)*	100	Surface
NADF residual tank washing*	100	Surface
Cuttings (riserless / riser in place)	368 / 180	Seabed/Surface
Cementing operations		
Cement slurry (riserless / riser in place)	80/20	Seabed/Surface
Spacer fluids (riserless / riser in place)	30/60	Seabed/Surface
Residual cement (line flushing)	10	Surface
Blowout preventer installation and function testing		
BOP fluid (per function test)	2.1	Seabed
BOP fluid (per pressure test)	1	Seabed
Contingency activities		
Cuttings–well re-spud (riserless / riser in place)	368 / 180	Seabed/Surface
Cement – well re spud (riserless / riser in place)	80/20	Seabed/Surface
Cuttings–sidetrack (riser in place)^	161	Surface
Cuttings–emergency disconnect (riser in place)	12	Seabed
WBF or NADF drill fluids–emergency disconnect (riser in place)*	180	Seabed

Discharge Type	Indicative volumes (m^3)	Discharge location
Failed cement job / cement contamination (riser in place)	48	Surface
Cementing operations (riser in place)	60	Surface
Cement – excess bulk (refer to Figure 7-1)	25	Seabed
Barite – excess bulk (refer to Figure 7-1)	25	Seabed
Well abandonment		
Contaminated cement	100	Surface
Wellbore content	<130	Subsurface
Metal swarf, cement cuttings, grit, flocculant (wellhead removal)	<0.1	Seabed

** Indicative volume if NADF is used as contingency.*

^ Indicative volume based on a worst-case 12¼" side-track hole.

3.7 Field Support

3.7.1 Vessels

Vessels will be used during the exploration drilling activities, for several support functions, including to:

- install and remove MODU anchors, mooring lines, and rig positioning support during mooring operations (if required)
  - each activity (i.e. to position the MODU and install or remove anchors and mooring lines) may take two to three days to complete
- supply and transfer goods and materials (e.g. food, fuel, bulk products, drilling fluids, etc.) to or from the MODU
  - resupply activities will be undertaken routinely and only as required during the exploration drilling activity and typically takes up to ~8 hours to complete; however, there may be exceptions based on operational needs (e.g. loading marine riser and casing to or from the MODU).
- transfer of waste or other material from the MODU
- assist in monitoring the 500 m radius safety exclusion zone around the MODU.

Given the different support functions (e.g. use of cranes, or bunkering equipment), vessels of different sizes and specifications will be used.

During rig mobilisation to the well location, rig positioning, and mooring operations up to three support vessels may be on site. Typically, one vessel is initially connected to the towing bridle/line to maintain the position of the MODU over the well location whilst the additional vessels are utilised for running out the mooring lines and anchor handling/setting operations within the OA. Once the four primary mooring lines are run, anchors set, and cross tensioning of lines is completed, the vessel on the towing bridle will be released and assist with mooring operations for the remaining secondary and/or storm lines.

For the main drilling activity, up to two vessels will remain within the OA at any time performing supply logistics, standing by, or for emergency support, noting that vessel presence may vary during different stages of the activity. Vessels only enter the 500 m safety exclusion zone around the MODU under specific

instruction from the MODU, such as for supporting specific activities, or when transferring goods and materials to the MODU.

Support vessel anchoring within the OA shall not be permitted except during emergencies (if required).

Vessels will not use Heavy Fuel Oil but will utilise a lighter marine fuel such as marine diesel oil (MDO) or marine gas oil. All support vessels will return to port to bunker; there is no refuelling at sea for the support vessels.

Vessels routinely discharge a variety of wastewater streams to the marine environment including sewage, greywater, food waste, cooling water, brine, and oily bilge water; vessels may also incinerate solid wastes.

In the event of unsafe environmental conditions (e.g. a cyclone passing over or close to survey area), the support vessels may transit away from the OA to a safer location. As per Section 2.3, once a vessel leaves the OA, it is no longer undertaking a petroleum activity.

3.7.2 Helicopters

The MODU is serviced by helicopters, with an expected routine flight frequency of ~6 flights per week, with additional flights as required to meet operational demands. Helicopter flights will primarily be used for passenger transfers/crew changes and minor supplies. Helicopters will be refuelled onshore, should helicopters have to refuel on the MODU, this will be undertaken in accordance with MODU specific procedures.

3.7.3 Remotely operated vehicles

Underwater remotely operated vehicles (ROVs) will be deployed and controlled from either the MODU or support vessel to support or undertake:

- pre- or post-activity site surveys
- mooring/anchoring placement
- equipment deployment, monitoring, or retrieval
- tool deployment and operation.

ROVs are generally equipped with a video camera and lighting. ROVs are also used to deploy specialist tooling and equipment. ROVs are closed systems, such that hydraulic fluids are circulated to move components, but these are not released to the environment.

ROVs will typically be stored on the deck of the vessels and/or MODU, but may be wet parked between activities, resulting in a temporary disturbance to a small area of the seabed.

4 description of the environment

4.1 Environment that may be affected

The environment that may be affected (EMBA) by the petroleum activity within scope of this EP has been defined as the area where a change to environmental receptors may potentially occur as a result of planned activities or unplanned events.

For the purposes of this EP, CAPL have also defined sub-areas of the EMBA that are used to support the subsequent impact and risk assessments (Table 4-1, Figure 4-1). Receptors present within the EMBA (and relevant to purpose of each of the specific sub-areas) are described in the following sections.

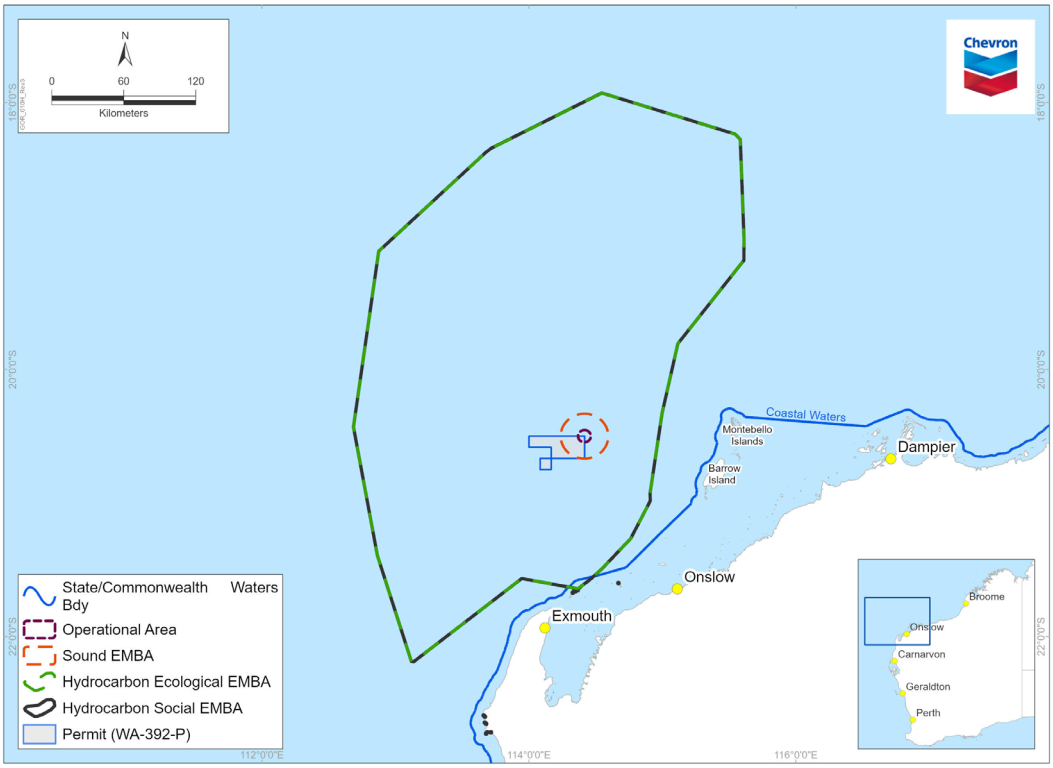
For the following sections, the document refers to the EMBA when it is applicable to all the sub-areas identified in Table 4-1.

Table 4-1: Description of EMBA sub-areas for DS-1 exploration drilling

EMBA sub-area	Description and purpose
OA	The OA is defined as the area in which the petroleum activity will be undertaken (Section 3.1.2). The OA is relevant to the impact and risk assessments for all planned activities and unplanned events (except where specified by an aspect-specific EMBA), as the exposure area associated with these impacts and risks is considered to occur within the spatial extent of the OA.
Underwater Sound EMBA (Sound EMBA)	The Sound EMBA is relevant to the impact and risk assessments for planned underwater continuous (non-impulsive) and impulsive sound emissions (Section 7.6), and determined by the predicted spatial extent of acoustic exposure at the relevant thresholds (Table 7-3).
Unplanned Hydrocarbon Release Ecological EMBA (Hydrocarbon Ecological EMBA)	The Hydrocarbon Ecological EMBA is relevant to the risk assessments for ecological receptors from unplanned hydrocarbon release events (Sections 7.14 and 7.15), and determined by the predicted spatial extent of hydrocarbon exposure at the relevant thresholds for surface, entrained, dissolved, and shoreline components (Table 7-10).
Unplanned Hydrocarbon Release Social EMBA (Hydrocarbon Social EMBA)	The Hydrocarbon Social EMBA is relevant to the risk assessments for social, economic, and cultural receptors from unplanned hydrocarbon release events (Sections 7.14 and 7.15), and determined by the predicted spatial extent of hydrocarbon exposure at the relevant thresholds for surface, entrained, dissolved, and shoreline components (Table 7-10). The Hydrocarbon Social EMBA incorporates lower thresholds for surface and shoreline hydrocarbon exposure that are associated with visible oil but are below concentrations at which ecological impacts are expected to occur.

The Planning Area for Scientific Monitoring is determined by the predicted spatial extent of hydrocarbon exposure at the relevant thresholds for surface, entrained, and dissolved components (Table 7-10). The values and sensitivities of this area, are described within Appendix D of the *Operational and Scientific Monitoring Plan: Environmental Monitoring in the Event of an Oil Spill to Marine or Coastal Waters* (Ref. 3). The Planning Area covers the spatial boundary of the EMBA.

The above approach to defining the spatial extent of the EMBA is considered to be consistent with NOPSEMA's advice in their oil spill modelling environment bulletin (Ref. 14).



Note: The Hydrocarbon EMBAs are shown as separate in-water (surface, entrained, dissolved) and shoreline components. Shorelines are only part of a Hydrocarbon EMBA where stochastic spill modelling predicts that shoreline loading above the relevant threshold occurs.

Figure 4-1: EMBA for DS-1 exploration drilling

4.2 Matters of national environmental significance

Matters of national environmental significance (MNES) are protected under the EPBC Act (Cth). The presence of MNES within the EMBA has been determined from the Australian Government's online Protected Matters Search Tool (PMST) (Ref. 15). Table 4-2 summarises the presence of relevant marine and/or coastal MNES within the EMBA; the full PMST reports[1] are included in Appendix b.

It should be noted that the EPBC Act PMST is a general database that conservatively identifies areas in which protected species have the potential to occur.

Table 4-2: Presence of MNES within the EMBA

MNES	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
World Heritage properties^	×	✓	✓
National Heritage places^	×	✓	✓
Wetlands of international importance (Ramsar wetlands)^	×	×	×

[1] The PMST is a general database that includes all MNES, including species or features (such as terrestrial based species or features) that are not expected to credibly occur within the EMBA.

MNES	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
Nationally listed threatened species and communities^	✓species ×communities	✓species ×communities	✓species ×communities
Nationally listed migratory species^	✓	✓	✓
Commonwealth marine area^	✓	✓	✓
Great Barrier Reef Marine Park	×	×	×
Nuclear actions (including uranium mining)	—	—	—
Water resources (in relation to coal seam gas or large coal mining development)	—	—	—

^ *These MNES are also identified as relevant values and sensitivities under the OPGGS(E)R.*
Where ✓ = present, × = not present, and — = not relevant to the petroleum activity.

4.3 Ecosystems and their constituent parts, including people and communities

4.3.1 Benthic communities and habitats

Benthic communities are biological communities that inhabit the seabed and are important for primary or secondary production. Benthic habitats are areas of seabed that do, or can, support these communities. Benthic communities play an important role in maintaining the integrity of marine ecosystems and the supply of ecological services. There is strong evidence that benthic communities are also important for the maintenance of biological diversity as they provide structurally complex and diverse habitat, refuge for vulnerable life stages and a varied and increased food supply (Ref. 18).

The EMBA occurs within the North-west Marine Region (NWMR), which is typically characterised by shallow-water tropical marine ecosystems and high species richness (Ref. 72; Ref. 26). The high species richness is thought to be associated with the diversity of habitats available, such as limestone pavement, coral reefs, and pinnacles (Ref. 72).

The geomorphology of Australia's continental margin is varied. Based on Geoscience Australia's geomorphic classification of seabed within Australia's exclusive economic zone (EEZ) (Ref. 19), the geomorphic features present within the OA and Sound EMBA are the 'slope' and 'trench/trough'. Within the broader Hydrocarbon EMBAs, the following geomorphic features have been identified: canyon, deep/hole/valley, plateau, slope, terrace, and trench/trough. The Hydrocarbon Social EMBA also intersects with shelf geomorphic features.

The composition, distribution, and movement of marine sediments is an important component of a marine ecosystem. These sediments can influence the primary biological production in the water column as well as the evolution and distribution of benthic habitats. The north-west WA comprises bio-clastic, calcareous, and organogenic sediments deposited from relatively slow and uniform sedimentation rates (Ref. 20). Sediments in the NWMR generally become finer with increasing water depth, ranging from sand and gravels on the continental shelf to mud on the continental slope and abyssal plain (Ref. 21).

Based on CSIRO's marine benthic substrate database (Ref. 22), the predominant seafloor sediment type within the OA and Sound EMBA is "calcareous gravel,

sand and silt". Within the Hydrocarbon EMBAs three seafloor sediment types were identified: "calcareous gravel, sand and silt", "calcareous ooze", and "mud and calcareous clay".

The Integrated Marine and Coastal Regionalisation of Australia (IMCRA) is a biogeographic regionalisation of oceanic waters within Australia's EEZ (Ref. 23). The OA and Sound EMBA occur within the Northwest Province provincial bioregion[2]. The Hydrocarbon EMBAs also intersects with four additional provinces. The geomorphology characteristics and biological communities for each of these bioregions, as described in T*he North-west Marine Bioregional Plan: Bioregional Profile* (Ref. 26) are summarised in Table 4-3.

Listed threatened ecological communities (TECs) are a MNES under the EPBC Act, and a relevant value and sensitivity under the OPGGS(E)R. There are no known TECs within the EMBA.

Table 4-3: Features of provincial bioregions

IMCRA Provincial Bioregion^	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
Central Western Shelf Transition			✓
Characteristics of the geomorphology and biological communities of the Central Western Shelf Transition include: • bioregion is located entirely on the continental shelf and is comprised mainly of sandy sediments • this bioregion includes both State and Commonwealth waters between water depths of 0 m to ~80 m – Commonwealth waters in this bioregion represent <1% of the total area of the NWMR • the benthic ecological communities of the bioregion, include both tropical and temperate species transitioning along a north-south gradient • Ningaloo Reef[3] is the most significant geomorphic feature of this bioregion: – it extends along the Cape Range Peninsula for over 260 km, and is the only example in the world of an extensive fringing coral reef on the west coast of a continent – it is marked by a well-developed spur and groove system of fingers of coral formations penetrating into the ocean with coral sand channels in between – a lagoon on the inshore side separates Ningaloo reef from the mainland – the biological communities of the Ningaloo Reef differ from the hard coral reefs located elsewhere in the NWMR • a large proportion of this bioregion is covered by the State and Commonwealth Ningaloo Marine Parks, which are one of the most significant hotspots of biodiversity within the NWMR • the Ningaloo Marine Parks incorporate a diversity of habitats including the seabed of the continental slope and shelf that supports demersal and benthic plants and animals including fish, molluscs, algae, sponges, soft corals and burrowing bivalves; as well as coral reefs and intertidal areas such as rocky shores and mangroves in State waters. Features and areas of ecological importance within the Central Western Shelf Transition have been identified as:			

[2] Provincial bioregions were classified based on fish, benthic (seabed) habitat and oceanographic data at a scale that is useful for regional conservation planning and management (Ref. 26)

[3] Ningaloo Reef also extends into the Northwest Province, Central Western Transition Province, and a small portion of the Northwest Shelf Province. The geomorphology and biological communities of Ningaloo Reef are discussed in this bioregion summary.

IMCRA Provincial Bioregion^	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
• Ningaloo Marine Park – North West Cape. Of these features and areas within the Central Western Shelf Transition, the shoreline component of the Hydrocarbon Social EMBA intersects with the State Ningaloo Marine Park (refer to Section 4.5.2).			
Central Western Transition			✓
Characteristics of the geomorphology and biological communities of the Central Western Transition include: • the bioregion is characterised by large areas of continental slope, with sediments dominated by muds and sands that decrease in grain size with increasing depth • about 40% of the bioregion occurs in waters depths greater than 4,000 m and the deepest areas of the bioregion occur within the Cuvier Abyssal Plain at ~5,330 m • a large part of the bioregion comprises the Cuvier Abyssal Plain • Wallaby Saddle is another important topographic feature within this bioregion and is the most extensive area of this type of topographic feature in the NWMR • the benthic slope communities of this bioregion comprise both tropical and temperate species along a north-south gradient • the biological communities of the Central Western Transition are thought to be distinctive owing to the proximity of deep ocean areas to the continental slope and shelf, resulting in close interaction between pelagic species of the Cuvier Abyssal Plain and those of the slope and shelf • the harder substrate of the slope in waters of 200–2,000 m deep is likely to support populations of epibenthos such as bryozoans, sponges and encrusting coralline algae; these support larger infauna and benthic animals such as crabs, cephalopods, echinoderms and other suspension-feeding epibenthic organisms • in the deeper waters of the abyss, the benthic communities are likely to be sparse and include meiofauna (e.g. nematodes). Features and areas of ecological importance within the Central Western Transition have been identified as: • Wallaby saddle • Cape Range Canyon and Cloates Canyon. Of these features and areas within the Central Western Transition, the Cape Range Canyon and Cloates Canyon occur within the Hydrocarbon EMBAs. Refer to Section 4.3.6.1 for further descriptions of this features.			
Northwest Province	✓	✓	✓
Characteristics of the geomorphology and biological communities of the Northwest Province include: • bioregion occurs entirely on the continental slope and is comprised of muddy sediments • distinguished by a number of topographic features, such as the Exmouth Plateau, terraces and canyons (including the Swan and Cape Range canyons), as well as deep holes and valleys on the inner slope (including the Montebello Trough) • the benthic shelf and slope communities of this bioregion comprise both tropical and temperate species with a north-south gradient • the continental slope between North West Cape and the Montebello Trough has been identified as one of the most diverse slope habitats of Australia • the Exmouth Plateau is also likely to be an important area for biodiversity as it provides an extended area offshore for communities adapted to depths of ~1,000 m • information available on sediments in the bioregion indicates: – benthic communities are likely to include filter feeders and other epifauna			

IMCRA Provincial Bioregion^	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
– soft-bottom environments are likely to support patchy distributions of mobile epibenthos, such as sea cucumbers, ophiuroids, echinoderms, polychaetes and sea pens – biological communities within canyons in the bioregion are also poorly understood. Features and areas of ecological importance within the Northwest Province have been identified as: • Exmouth Plateau • canyons on the slope, including the Cape Range Canyon • demersal fish communities associated with the slope. Of these features and areas within the Northwest Province, the demersal fish communities associated with the slope occurs within the OA, Sound EMBA, and Hydrocarbon EMBAs. The Exmouth Plateau and canyons on the slope also occur within the Hydrocarbon EMBAs. Refer to Section 4.3.6.1 for further descriptions of these features.			
Northwest Shelf Province			✓
Characteristics of the geomorphology and biological characteristics of the Northwest Shelf Province include: • bioregion occurs almost entirely on the continental shelf, except for a small area to the north of Cape Leveque that extends onto the continental slope • this bioregion includes more than 60% of the continental shelf in the NWMR • continental shelf gradually slopes from the coast to the shelf break, but displays a number of seafloor features such as banks/shoals and holes/valleys, including: – Glomar Shoals occur in ~26–70 m water depth and are distinguished by highly fractured molluscan debris, coralline rubble and coarse carbonate sand – Leveque Rise (large plateau), which is one of only two shelf plateaux within the NWMR – significant areas of tidal sandwaves or sandbanks (ranging in height ~5–10 m) occur on the inner-most reaches of Exmouth Gulf, and are one of only three major occurrences of this type of feature in the NWMR – shelf also contains several terraces and steps that extend into adjacent bioregions and reflect ancient coastlines from when the sea level in the NWMR was lower; the most prominent of these occurs at a water depth of ~125 m • sediment differentiation occurs on a north-south gradient – south of Broome, sediment is relatively homogenous and dominated by sands with small proportion of gravel – north of Broome, sediment is highly variable with sand or gravel dominance in no discernable spatial pattern – mud increases within ~100 km of the coast, and within ~100 km of the shelf break, but is mostly absent from other areas • sandy substrates on the shelf withing this bioregion are thought to support low density benthic communities of bryozoans, molluscs, and echinoids • sponge communities are also sparsely distributed on the shelf, but are found only in areas of hard substrate Features and areas of ecological importance within the Northwest Shelf Province have been identified as: • Browse Island and surrounding waters • Lacepede Islands and surrounding waters • Quondong Point, north of Broome and surrounding waters • West coast of the Dampier Peninsula, including Beagle and Pender bays and surrounding waters • Pilbara coast (between Exmouth and Broome) and surrounding waters			

IMCRA Provincial Bioregion^	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
• Exmouth Gulf—Muiron Islands and surrounding waters • ancient coastline at 125 m depth contour • Glomar Shoals. Of these features and areas within the Northwest Shelf Province, the ancient coastline at 125 m depth contour occurs within the Hydrocarbon EMBAs. Refer to Section 4.3.6.1 for further descriptions of this features.			
Northwest Transition			✓
Characteristics of the geomorphology and biological communities of the Northwest Transition include: • around half (52%) of the bioregion occurs on the continental slope, with smaller areas in the north-west of the bioregion located on the Argo Abyssal Plain and continental rise • encompasses a range of water depths, from the shelf break (~200 m water depth) to ~5,980 m over the Argo Abyssal Plain • other topographic features within the bioregion include areas of rise, ridges, canyons and apron/fans • sediments of the slope are dominated by sands, whereas the sediments of the abyssal plain/deep ocean floor are dominated by muds • the bioregion also has reefs such as Mermaid, Clerke, and Imperieuse reefs, which are collectively known as the Rowley Shoals • the benthos of the deep ocean areas are likely to support meiofauna (e.g. nematodes), larger infauna (e.g. polychaete worms, ispods), and sparsely distributed epibenthic communities (e.g. sea pens) • mobile benthic species (e.g. deepwater sea cucumbers, crabs, polychaetes) are likely to be associated with the seafloor, and bioregion may support sparse populations of bentho-pelagic fish and cephalopods in low densities Features and areas of ecological importance within the Northwest Transition have been identified as: • Rowley Shoals—Mermaid Reef Marine National Nature Reserve, Clerke and Imperieuse reefs and surrounding waters • Fish communities associated with the slope Of these features and areas within the Northwest Transition, the demersal fish communities associated with the slope occurs within Hydrocarbon EMBAs. Refer to Section 4.3.6.1 for further descriptions of these features.			

^*Source: Ref. 26*

4.3.2 Coastal habitats and communities

Coastal communities are biological communities that inhabit the coastal zone. Coastal habitats are areas of shoreline types that do or can support these communities. Similarly, to benthic communities (as described in Section 4.3.1), coastal communities are likely to play roles in maintaining the integrity and diversity of coastal ecosystems, and the supply of ecological services.

The OA and Sound EMBA occur offshore and do not have any interface with the coast. The Hydrocarbon EMBAs do interface with the coast (due to predicted shoreline loading associated with unplanned hydrocarbon release events; Table 4-1). The Hydrocarbon Ecological EMBA interfaces with the west coast of North Muiron Island only. The Hydrocarbon Social EMBA also interfaces with the west coast of North Muiron, South Muiron, and Serrurier Islands, as well as

around the Point Cloates / Ningaloo Station area (Figure 4-1). The coastal communities and habitats that may be present within the Hydrocarbon EMBAs are summarised below.

Based on Smartline (Ref. 24), a spatial database containing geomorphic classifications for Australia's coasts, the types of shoreline present within the Hydrocarbon EMBAs include rocky coasts and sandy beaches (Muiron and Serrurier islands), sandy tidal flats (Point Cloates / Ningaloo Station).

The Seamap Australia spatial database collates and classifies marine and coastal habitats on the Australian continental shelf (Ref. 25). Review of this dataset did not identify any sensitive marine or coastal habitats (such as mangroves) within the Hydrocarbon EMBAs.

Listed TECs and wetlands of international importance (Ramsar wetlands) are MNES under the EPBC Act, and a relevant value and sensitivity under the OPGGS(E)R. There are no known TECs or Ramsar wetlands within the Hydrocarbon EMBAs.

4.3.3 Marine fauna

Listed threatened or migratory species are MNES under the EPBC Act, and a relevant value and sensitivity under the OPGGS(E)R. The following sections identify the presence of these species within the EMBA.

Note that the Commonwealth Climate Change, Energy, Environment and Water (DCCEEW) Australian Marine Spatial Information System (AMSIS) Map View (Ref. 326) and the dataset from the DCCEEW website (Ref. 327) were used to verify the presence of Biologically Important Areas[4](BIAs) and habitat critical to survival of the species within the OA and EMBAs.

4.3.3.1 Marine mammals

Based on searches of the online PMST (Ref. 15; Appendix b), the threatened and/or migratory mammal species shown in Table 4-4 may be present within the EMBA. The full list of marine species identified from the PMST is provided in Appendix b. BIAs associated with regionally significant marine mammal species are listed in Table 4-5.

For the threatened and/or migratory species with BIAs within the OA or Sound EMBA (i.e. EMBAs associated with planned activities), additional information has been provided in the following subsections. Additionally, for completeness, species with BIAs within the vicinity of the Sound EMBA have also been described in the following subsections. Further details on other threatened and/or migratory species are included in Appendix e.

The threatened and/or migratory cetaceans that may be present within the OA and Sound EMBA are predominantly low-frequency cetaceans[5] (Antarctic Minke Whale, Blue Whale, Bryde's Whale, Fin Whale, Humpback Whale, Sei Whale) and high-frequency cetaceans[6] (Sperm Whale, Killer Whale, Spotted Bottlenose

[4] Biologically important areas are spatially defined areas where aggregations of individuals of a species are known to display biologically important behaviour such as breeding, foraging, resting or migration.

[5] Low-frequency cetaceans are the functional cetacean hearing group that are specialised for hearing low frequencies (e.g. baleen whales).

[6] High-frequency cetaceans are the functional cetacean hearing group that are specialised for hearing mid frequencies (e.g. toothed whales, beaked whales, dolphins).

Dolphin). Very-high-frequency cetaceans[7] (e.g. Dwarf Sperm Whale, Pygmy Sperm Whale) were also identified within the PMST (Ref. 15; Appendix b) as species or species habitat that may occur within the OA and Sound EMBA, these species are not listed as threatened and/or migratory under the EPBC Act. As shown in Table 4-5, except for Pygmy Blue Whales, there are no other known BIAs or aggregation areas for other cetacean species that intersect with the OA or Sound EMBA; as such, it is expected that any presence cetacean species within the OA and Sound EMBA would be of a transitory nature.

Table 4-4: Presence of threatened and/or migratory marine mammals

Common name	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
Cetaceans (whales)			
Antarctic Minke Whale *(Migratory)*	✓	✓	✓
Blue Whale *(Endangered, migratory)*	✓	✓	✓
Bryde's Whale *(Migratory)*	✓	✓	✓
Fin Whale *(Vulnerable, migratory)*	✓	✓	✓
Humpback Whale *(Migratory)*	✓	✓	✓
Sei Whale *(Vulnerable, migratory)*	✓	✓	✓
Southern Right Whale *(Endangered, migratory)*			✓
Sperm Whale *(Migratory)*	✓	✓	✓
Cetaceans (dolphins)			
Australian Humpback Dolphin *(Migratory)*			✓
Australian Snubfin Dolphin *(Migratory)*			✓
Killer Whale *(Migratory)*	✓	✓	✓
Spotted Bottlenose Dolphin *(Migratory)*	✓	✓	✓
Sirenians			
Dugong *(Migratory)*			✓

Table 4-5: Prescence of BIA's for marine mammals

Common name	BIA behaviour	Seasonal presence	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
Dugong	Breeding	Year round				✓

[7] Very-high-frequency cetaceans are the functional cetacean hearing group that are specialised for hearing high frequencies (e.g. *Kogia* spp.).

Common name	BIA behaviour	Seasonal presence	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
	Calving	Year round				✓
	Foraging (high density seagrass beds)	Year round				✓
	Nursing	Year round				✓
Humpback Whale[8]	Migration (north and south)	Northern migration, late July to September.			✓	✓
Pygmy Blue Whale	Foraging	(Not defined in database)			✓	✓
	Migration	Northern migration (enter Perth canyon January to May; pass Exmouth April to August; continue north to Indonesia). Southern migration (follow Western Australia (WA) coastline from October to late December)	✓	✓	✓	✓
Southern Right Whale	Migration	April to October				✓
	Reproduction	May to September				✓

^*Source: Ref. 64*

4.3.3.1.1 Pygmy blue whales

Pygmy Blue Whales migrate along the west coast of Australia in the northern direction to their breeding grounds near the Indonesian Archipelago from mid-February to early June, and in the southern direction to the feeding grounds in the Southern Ocean from mid-November to early January (Ref. 65). Recent information collected from satellite tags shows that the Banda and Molucca seas in Indonesia are the likely destination for the northern migration of whales that feed off the Perth Canyon (Ref. 66; Ref. 67; Ref. 68). These seas are considered the northern terminus of the migration and potentially the breeding and calving ground, but may also act as a feeding area (Ref. 69; Ref. 70).

Acoustic monitoring conducted by McCauley and Jenner (Ref. 71) in the Exmouth and northern Montebello Islands region identified a peak period in the northern migration of Pygmy Blue Whales from April to August, and from November through to late-December during the southern migration. It was estimated by

[8] Although the PMST report (Appendix b) indicates the Migration (north and south) BIA for Humpback Whales overlaps the OA and Sound EMBA, the PMST webserver (figure attached in Appendix b), the DCCEEW AMSIS Map View, and the dataset from the DCCEEW website do not show any overlap. The OA and Sound EMBA are ~28 km and ~15 km northeast of the BIA, respectively.

McCauley and Jenner (Ref. 71) that between 700 and 1,500 Pygmy Blue Whales migrated southward past Exmouth in 2004.

It is known the Pygmy Blue Whales tend to follow the WA continental shelf edge between their feeding grounds at the Perth Canyon and the North West Cape. However, the migratory pathway of whales north of the North West Cape is less defined.

The migration BIA for Pygmy Blue Whales has been historically described as occurring along the continental shelf edge between 500 m and 1,000 m water depths (Ref. 72; Ref. 59). However, more recent studies (e.g. Ref. 65; Ref. 66) suggest that Pygmy Blue Whales are likely to transit through deeper and further offshore waters north of the North West Cape. Satellite tracking data showed Pygmy Blue Whales on their northern migration travelled relatively near to the Australian coast (100±1.7 km) in water depths of 1,369.5±47.4 m, until reaching the North West Cape, after which they travelled further offshore (238±14 km) into progressively deeper water (2,617±143.5 m) (Ref. 66). Data from tagged Pygmy Blue Whales also indicates that during their northern migration, the width of the migration path increases north of Montebello Islands, from ~175 km to ~690 km at its widest point (Ref. 201). Gavrilov et al. (Ref. 65) conducted a study using an array of ocean bottom seismographs to detect Pygmy Blue Whales traversing the area to the northwest of the North West Cape during their southern migration. This study found that Pygmy Blue Whales migrated southward much further from the WA coast compared to the northbound migration, at distances of up to 400 km from shore (Ref. 65). Pygmy Blue Whales have demonstrated extensive use of continental slope habitat off Western Australia and only limited use of shelf waters (Ref. 201). This contrasts with southern Australia, where use of the shelf and shelf break by Pygmy Blue Whales is more common.

McCauley and Jenner (Ref. 71) recorded 24-hour average counts of Pygmy Blue Whales along the WA coast during their migrations periods and found that the migratory habits are short and sharp pulses for the southbound Pygmy Blue Whales and a more protracted pulse of northbound Pygmy Blue Whales. This suggests that the southern migration Pygmy Blue Whales are swimming purposefully through the area to reach their southern feeding grounds, thus resulting in the data collected for Pygmy Blue Whales migrating through the area is not confounded by lingering Pygmy Blue Whales but they are swimming steadily past. A difference in travel speed was also reported by Thums et al (Ref. 201), where median speed during northward migration was 2.4 km/h (<0.1–15.4 km/h, n=22), and southward migration was 4.0–5.0 km/h (n=2).

A recent study incorporating data collected from both passive acoustic monitoring and satellite telemetry data, was analysed and determined the ‘most important areas’ for migration[9] along the WA coast as an almost continuous stretch from southern WA to around the latitude of Rowley Shoals, and thereafter was more dispersed (Ref. 201). The OA is situated ~6 km north of an area classified as part of this most important area for migration; however, the southern section of the Sound EMBA intersects with this most important area for migration (Figure 4-2).

Ferreira et. al (Ref. 302) compiled satellite tracking data for 38 Pygmy Blue Whales and used movement models to distinguish between low and high move persistence and correlated the data with environmental variables. Typically high move persistence is indicative of migration, while low move persistence is

[9] Grid cells with overlap between two metrics: largest percentage of whales and high move persistence, were designated as the ‘most important areas’ for migration (Ref. 201).

generally indicative of foraging or reproduction (Ref. 201). In alignment with other studies, the continental slope off the north-west Australian coast was predicted to be suitable habitat for migration (Ref. 302).

Predictions from modelling based on passive acoustic data indicate greatest numbers of Pygmy Blue Whales during April and June/July (northern migration), and November and December (southern migration) (Ref. 201). Monthly spatial predictions indicated higher densities around the Montebello Island region during May and June (northern migration) and November and December (southern migration) (Ref. 201, Ref. 302). As the DS-1 exploration drilling activities are planned to commence between 2024 and 2025, the activity could overlap with the months of predicted higher densities of Pygmy Blue Whales.

Pygmy Blue Whales aggregate in the Austral summer to feed at known locations on or adjacent to the continental shelf including the Perth Canyon, Great Southern Australian Coastal Upwelling System, and the sub-tropical convergence zone (Ref. 201). The areas around the Perth Canyon and Australian Coastal Upwelling System correspond to 'Foraging Areas' and 'Known Foraging Areas' within the *Conservation Management Plan for the Blue Whale* (Ref. 59). The *Conservation Management Plan for the Blue Whale* (Ref. 59) also identifies 'Possible Foraging Areas'[10], including two in WA, one off the Ningaloo coast, and another around Scott Reef. These 'Possible Foraging Areas' have been characterised as foraging BIAs and occur ~140 km southwest and ~960 km northeast of the OA respectively.

Thums et al (Ref. 201) determined that Pygmy Blue Whale movement off north-west WA was predominantly relatively fast, directed travel (high move persistence) interspersed with relatively short (median 28 h) periods of low move persistence (Ref. 201).

The satellite tracking data reviewed in the recent study by Ferreira et. al., indicates 17 out of 38 tracked whales (~45%) displayed foraging movement behaviour in north-west WA (Ref. 302). Suitable foraging habitat was identified as a large semi-continuous area from the southern extent (28°S) to the northeastern edge of the modelled region (11.5°S) (Ref. 302). This area occurred almost exclusively on slope (91%), with a small amount of suitable habitat in deep ocean floor (7%) and on the shelf (2%) (Ref. 302). The OA and Sound EMBA are located within the area identified as suitable for foraging.

Owen et. al. (Ref. 293) deployed a multi-sensor tag on a single Pygmy Blue Whale, tracked its movement from the Perth Canyon region to Geraldton, and examined its dive behaviour. The whale completed a total of 1,677 dives over the duration the tag was attached (7.6 days). A total of 21 feeding dives were identified, with a mean maximum depth of 129 ± 183 m (range 13–505 m). Feeding behaviour appears to be largely a function of prey availability (krill) and their associated oceanographic drivers (i.e. surface currents, light attenuation, upwellings and seabed features) (Ref. 294, Ref. 301).

Data collected from both passive acoustic monitoring and satellite telemetry data, was analysed and determined the 'most important areas' for foraging[11] along the

[10] "Evidence of feeding is based on limited direct observations or through indirect evidence, such as occurrence of krill in close proximity to whales, or satellite tagged whales showing circling tracks. Blue whales travel through on a seasonal basis, possibly as part of their migratory route" (Ref. 59).

[11] Grid cells with overlap between three metrics: greatest time spent, largest percentage of whales, and lowest move persistence, were designated as the 'most important areas' for foraging (and/or resting/breeding) (Ref. 201).

WA coast included the Perth Canyon and vicinity, the shelf edge off Geraldton, and discontinuous use of the shelf edge from Ningaloo Reef to Rowley Shoals (Ref. 201). Although foraging areas are described as static, they are likely to be dynamic given their dependence on presence of prey (Ref. 201; Ref. 73). Studies (Ref. 294, Ref. 301, Ref. 302) have identified that variability in chlorophyll-a and oceanographic conditions (e.g. sea surface temperature, surface height anomaly) had a moderate to strong influence on probability of occurrence of whales suggesting suitable habitats and migratory occurrence may vary.

The OA and Sound EMBA intersect with an area classified as this most important area for foraging (Figure 4-3).

Data from a tagged Pygmy Blue Whale off Exmouth (Ref. 295) suggests that Pygmy Blue Whales within the waters off the North West Cape (i.e. within the EMBA) demonstrate preferential surface foraging in response to the vertical distribution of krill within these waters, primarily within the upper 100 m of the water column. Thums et al. (Ref. 201) states that ten of the 24 Pygmy Blue Whales that were encountered during the 2020 field trip were observed to be surface feeding (implied by the visible baleen and pleats on the surface).

Biologically, surface feeding is an optimal behavioural response for Pygmy Blue Whales, given the significantly reduced energetic costs associated with this strategy over lunge feeding at depth, which requires a significant oxygen and energetic demand (Ref. 293). Studies in several locations where Pygmy Blue Whales are known to aggregate (New Zealand [Ref. 296]; California [Ref. 297], South Australia [Ref. 298]; Canada [Ref. 299]; Chile [Ref. 300]) have demonstrated evidence of surface or sub-surface (<100 m) foraging, determined through visual observations of lunge feeding and/or analysis of tagged data. In these instances, surface foraging was driven by the aggregation of krill at the surface (or sub-surface). Torres et al. (Ref. 296) noted that surface foraging adheres to the principles of the ‘optimal foraging theory’, which states that to maximise fitness, an animal adopts a foraging strategy that provides the most benefit (i.e. energy) for the lowest cost, thereby maximising the net energy gained.

The OA is located in water depths of ~940–1,020 m, and ~95 km from the mainland coast. The defined migratory BIA for Pygmy Blue Whales overlaps with the OA; however, it is expected based on satellite tracking and acoustic detection studies that Pygmy Blue Whales are likely to travel further offshore and/or within the continental slope, particularly on their southern migration (November to December), but also during the northern migration (April to August). While foraging BIAs have not been identified along the North West Shelf (NWS), recent analysis indicates that there may be short interspersed periods of foraging occurring along the shelf edge during migration (Ref. 201) primarily within the upper 100 m of the water column. The OA and Sound EMBA intersect with areas identified as important and suitable for foraging; however, the use of these areas is expected to be associated with migration (and associated timing).

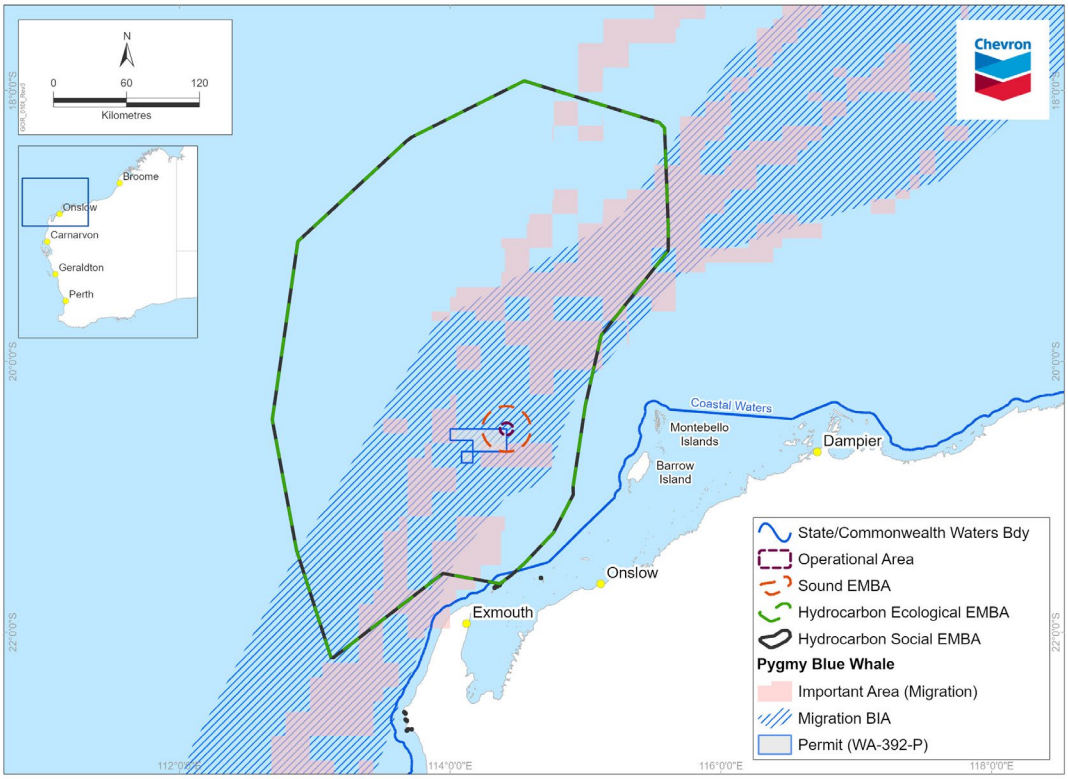


Figure 4-2: Most important areas for migration along WA coast as determined by Thums et al (Ref. 201)

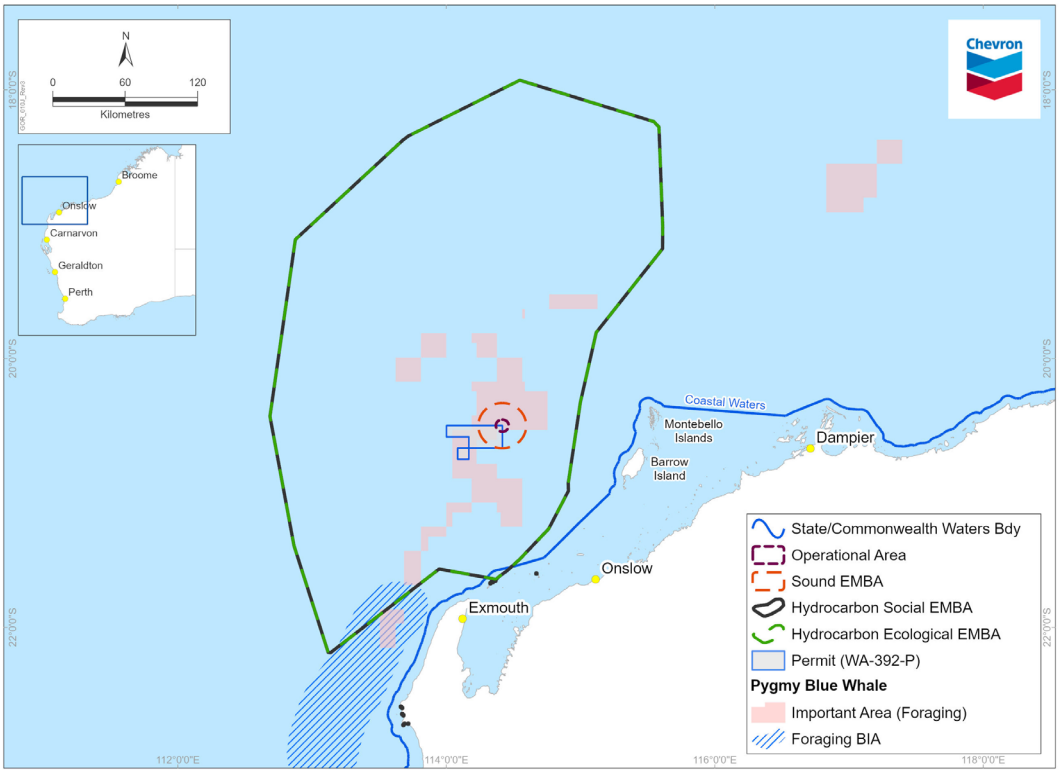


Figure 4-3: Most important areas for foraging along WA coast as determined by Thums et al (Ref. 201

4.3.3.1.2 Humpback Whales

Humpback Whales (WA subpopulation) migrate annually between their feeding grounds in Antarctic waters and their calving grounds in Kimberley waters (Ref. 328). The exact timing of the migration period can vary from year-to-year, however in general the species are sighted in southern Australian waters in May, they then migrate northwards and southwards along the coast, with sightings rare after November (Ref. 329; Ref. 309).

Northbound Humpback Whales tend to remain around the 200 m water depth contour, while southbound Humpback Whales tend to travel closer to Barrow Island and generally occur between 50 m and 200 m water depths (Ref. 328). The migration (north and south) BIA corridor extends from the coast to out to ~100 km offshore in the Kimberley and Pilbara regions; reducing to ~50 km offshore south of North West Cape.

The Humpback Whale breeding and calving grounds in the southern Kimberley region extend from Broome to the northern end of Camden Sound, particularly between Lacepede Islands and Camden Sound (Ref. 328). Breeding and calving occur in the region between mid-August and early-September (Ref. 328), followed by the start of the southern migration. Exmouth Gulf and Shark Bay are both important resting areas for migrating Humpback Whales, particularly for cow-calf pairs on the southern migration (Ref. 328). The southerly migration, from around the Lacepede Islands (north of Broome) extends parallel to the coast on approximately the 20–30 m depth contour (Ref. 328, Ref. 330). Southbound migration is more diffuse and irregular, lacking an obvious peak. An increase in southerly migrating individuals may be observed between the North West Cape and the Montebello Islands between August to early September (Ref. 328; Ref. 331). The predicted peaks in Humpback Whale migration in the Montebello Islands region are late-July (northern migration) and early-September (southern migration) (Ref. 328). Females and calves are known to stop and rest in Exmouth Gulf and Shark Bay (Ref. 328).

The OA and Sound EMBA occur in water depths >770 m and are ~28 km and ~15 km northeast of the BIA, respectively. Consequently, it is considered unlikely that Humpback Whale migration will occur within these areas.

4.3.3.2 Reptiles

Based on searches of the online PMST (Ref.15; Appendix b), the threatened and/or migratory reptile species shown in Table 4-6 may be present within the EMBA. The full list of marine species identified from the PMST is provided in Appendix b. Habitat critical to survival of marine turtle species, or BIAs associated with regionally significant marine reptile species, are listed in Table 4-7 and Table 4-8 respectively.

No threatened and/or migratory species with BIAs, or habitat critical to the survival of a species, were identified within the OA or Sound EMBA. However, for completeness, species with BIAs and/or habitat critical to survival of marine turtles within the vicinity of the Sound EMBA have been described in the following section. Further details on other threatened and/or migratory species are included in Appendix e.

The Salt-water Crocodile was identified within the PMST as potentially being present within the OA or Sound EMBA, however this species is not considered likely to be present. The Salt-water Crocodile inhabits Australian coastal waters, estuaries, lakes, inland swamps, and marshes (Ref. 346; Appendix e). The OA

and Sound EMBA occurs offshore and is ~100 km west-northwest of Barrow Island. There are no islands or other emergent features within or adjacent to the OA or Sound EMBA.

Table 4-6: Presence of threatened and/or migratory reptiles

Common name	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
Crocodiles			
Salt-water Crocodile (*Migratory*)	✓	✓	✓
Turtles			
Flatback Turtle *(Vulnerable, migratory)*	✓	✓	✓
Green Turtle *(Vulnerable, migratory)*	✓	✓	✓
Hawksbill Turtle *(Vulnerable, migratory)*	✓	✓	✓
Leatherback Turtle *(Endangered, migratory)*	✓	✓	✓
Loggerhead Turtle *(Endangered, migratory)*	✓	✓	✓
Seasnakes			
Leaf-scaled Seasnake *(Critically Endangered)*			✓
Short-nosed Seasnake *(Critically Endangered)*			✓

Table 4-7: Habitat critical to the survival of marine turtles

Common name	Nesting location	Internesting buffer	Seasonal presence	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
Flatback Turtle [12]	Barrow Island, Montebello Islands, coastal islands from Cape Preston to Locker Island	60 km	October to March			✓
Green Turtle	Barrow Island, Montebello Islands, Serrurier Island, and Thevenard Island	20 km	November to March			✓
	Exmouth Gulf and Ningaloo Coast	20 km	November to March			✓
Hawksbill Turtle	Cape Preston to mouth of Exmouth Gulf including	20 km	October to February			✓

[12] Although the PMST report (Appendix b) indicates the Internesting buffer BIA and habitat critical to the survival for Flatback Turtles overlaps with the Sound EMBA, the PMST webserver (figure attached in Appendix b), the DCCEEW AMSIS Map View, and the dataset from the DCCEEW website do not show any overlap. The Sound EMBA is ~21 km west of the BIA and habitat critical to the survival for Flatback Turtles.

Common name	Nesting location	Internesting buffer	Seasonal presence	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
	Montebello Islands and Lowendal Islands					
Loggerhead Turtle	Exmouth Gulf and Ningaloo Coast	20 km	November to May			✓

Table 4-8: Prescence of BIAs for marine reptiles

Common name	BIA behaviour	Seasonal presence	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
Flatback Turtle[12]	Internesting buffer	Early summer			✓	✓
		Summer			✓	✓
	Nesting	Summer				✓
Green Turtle	Internesting buffer	Summer			✓	✓
	Nesting	Summer			✓	✓
Hawksbill Turtle	Internesting buffer	(not defined in database)			✓	✓
	Nesting	(not defined in database)				✓
Loggerhead Turtle	Internesting buffer	(not defined in database)			✓	✓
	Nesting	(not defined in database)			✓	✓

^*Source: Ref. 64*

4.3.3.2.1 Flatback Turtles

The Montebello Islands and Barrow Island support Flatback Turtle nesting, occurring from October to March, with a peak in November to January (Ref. 347). The Montebello Islands and Barrow Island are identified as nesting habitat critical to the survival of the Pilbara stock, as is the 60 km internesting buffer around the Montebello Islands (Ref. 159).

Typically, Flatback Turtle nesting on Barrow Island occurs between October and March, with peak nesting activity occurring between November and January. On Barrow Island, nesting activity is concentrated on the central east coast on sandy, low-sloped, low-energy beaches with wide, shallow intertidal zones (Ref. 332; Ref. 333). Limited nesting activity has also been recorded on the south-west, north, and north-east beaches of Barrow Island (Ref. 334).

During internesting, turtles remain close to the nesting beach or rookery (Ref. 159). The 60 km internesting buffer defined within the Recovery Plan for Marine Turtles in Australia (Ref. 159) is based primarily on the movements of tagged internesting Flatback Turtles in WA (Ref. 109). The study tracked 56 turtles from four different rookeries, which demonstrated varying internesting movements, with distances ranging from 3–62 km, with some turtles at all four

rookeries remaining within 10 km of their nesting beaches. However, tracking data showed these movements were largely longshore movements in nearshore coastal waters or travel between island rookeries and the adjacent mainland, which represent the greater distances (Ref. 109). There is little evidence to suggest that Flatback Turtles move to deep offshore waters during internesting periods.

A habitat suitability modelling study for internesting Flatback Turtles in the NWS region of WA (Ref. 335) was conducted to identify areas of suitable Flatback Turtle internesting habitat and determine overlap with identified industrial hazards. The study used a turtle tracking dataset of 47 nesting female turtles from five important rookeries in the NWS study area, including Barrow Island, located ~55 km from the OA. The results showed internesting Flatback Turtles from all rookeries remained within water depths of <44 m, with a mean depth of <10 m (Ref. 335). Results also showed internesting turtles from all rookeries remained within <28 km of the nearest coast, with a mean distance from the coast of <6.1 km. The habitat suitability modelling study defined suitable Flatback Turtle internesting habitat as water depths of 0–16 m within 5–10 km of the coast. Unsuitable Flatback Turtle internesting habitat was defined as waters >25 m deep and >27 km from the coast (Ref. 335). The OA and Sound EMBA are located in waters classified as unsuitable for internesting Flatback Turtles.

Another recent study involving satellite tracking data for 11 Flatback Turtles following nesting on the Lacepede Islands (Ref. 336) found that Flatback Turtles remained at an average distance of 15.75±12.25 km from the nesting beach in water depths of <20 m.

Other previous studies (e.g. Ref. 337; Ref. 338; Ref. 339) have also presented findings that internesting behaviour was only observed in water depths of <40 m. One of these studies (Ref. 339) further indicates that internesting Flatback Turtles have relatively shallow dives, with 85% of the time during spent in ≤20 m water depth, of which most was spent in 5–10 m (27±2.7%) and 10–15 m (22.3±3.5%) water depths.

The OA and Sound EMBA are located in water depths >770 m, are ~80 km from Barrow Island, and are ~34 km and ~21 km west of the BIA and habitat critical to the survival for Flatback Turtles. In addition, the OA and Sound EMBA are in deeper waters and are further offshore than the areas in which internesting behaviours have been observed in studies (Ref. 109; Ref. 335; Ref. 336; Ref. 337; Ref. 338; Ref. 339). Therefore, it is considered highly unlikely that internesting behaviour will occur within the OA or Sound EMBA.

4.3.3.3 Fishes including sharks and rays

Based on searches of the online PMST (Ref. 15; Appendix b), the threatened and/or migratory fish species shown in Table 4-9 may be present within the EMBA. The full list of marine species identified from the PMST is provided in Appendix b. BIAs associated with regionally significant fish species are listed in Table 4-10.

No threatened and/or migratory species with BIAs were identified within the OA or Sound EMBA. However, for completeness, species with BIAs within the vicinity of the Sound EMBA have been described in the following section. Further details on other threatened and/or migratory species are included in Appendix e.

Table 4-9: Presence of threatened and/or migratory fishes, including sharks and rays

Common name	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
Sharks				
Dwarf Sawfish *(Vulnerable, migratory)*			✓	✓
Freshwater Sawfish *(Vulnerable, migratory)*		✓	✓	✓
Green Sawfish *(Vulnerable, migratory)*		✓	✓	✓
Grey Nurse Shark *(Migratory)*		✓	✓	✓
Grey Nurse Shark (west coast population) (Vulnerable)		✓	✓	✓
Longfin Mako *(Migratory)*	✓	✓	✓	✓
Narrow Sawfish *(Migratory)*	✓	✓	✓	✓
Oceanic Whitetip Shark *(Migratory)*	✓	✓	✓	✓
Scalloped Hammerhead *(Conservation dependent)*	✓	✓	✓	✓
Shortfin Mako *(Migratory)*	✓	✓	✓	✓
Whale Shark *(Vulnerable, migratory)*		✓	✓	✓
White Shark *(Vulnerable, migratory)*	✓	✓	✓	✓
Rays				
Giant Manta Ray *(Migratory)*	✓	✓	✓	✓
Reef Manta Ray *(Migratory)*		✓	✓	✓

Table 4-10: Prescence of BIAs for fishes, including sharks and rays

Common name	BIA behaviour	Seasonal presence	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
Whale Shark[13]	Foraging	Spring			✓

^*Source: Ref. 64*

4.3.3.3.1 Whale Shark

The BIA is associated with foraging behaviours during northward migration from Ningaloo Reef / North West Cape along the 200 m isobath during July to November (Ref. 161).

[13] Although the PMST report (Appendix b) indicates the Foraging BIA for Whale Sharks overlaps with the Sound EMBA, the PMST webserver (figure attached in Appendix b), the DCCEEW AMSIS Map View, and the dataset from the DCCEEW website do not show any overlap. The Sound EMBA is ~23 km west of the BIA.

Whale Sharks have a global distribution in tropical and warm temperate waters, including within Australian waters (mainly Northern Territory, Queensland and northern WA) (Ref. 340; Ref. 161). Within Australia, Whale Sharks form seasonal aggregations at Ningaloo Reef (March to July), Christmas Island (December to January), and in the Coral Sea (November to December) (Ref. 161). Ningaloo Reef is considered the main known seasonal aggregation area (Ref. 341). Whale Sharks aggregate off Ningaloo Reef between March and July each year to feed (Ref. 340; Ref. 342). Their presence off Ningaloo Reef has been linked to coral mass spawning timing (Ref. 340). The Whale Shark is a suction filter feeder, with a diet consisting of planktonic and nektonic prey, and feeds at or close to the water's surface by swimming forward with mouth agape, sucking in prey (Ref. 340). While the species is generally encountered close to or at the surface, it will regularly dive and move through the water column. Following the aggregation period around Ningaloo Reef, their movements are largely unknown, although three migration routes from Ningaloo reef have been identified through various surveys (Ref. 343):

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

No presence of Whale Sharks were identified within the OA (Table 4-9). Furthermore, the OA and Sound EMBA occur in water depths >770 m and are ~36 km ~23 km west of the BIA, respectively. Consequently, it is considered highly unlikely that Whale Shark foraging will occur within these areas.

4.3.3.4 Seabirds and shorebirds

Based on searches of the online PMST (Ref. 15; Appendix b), the threatened and/or migratory seabird and shorebird species shown in Table 4-11 may be present within the EMBA. The full list of marine species identified from the PMST is provided in Appendix b. BIAs associated with regionally significant seabird and shorebird species are listed in Table 4-12.

For the threatened and/or migratory species with BIAs within the OA (i.e. EMBA associated with planned activities), additional information has been provided in the following subsections. No other species with BIAs within the vicinity of the OA or Sound EMBA have been identified. Further details on other threatened and/or migratory species are included in Appendix e.

Table 4-11: Presence of threatened and/or migratory seabirds and shorebirds

Common name	OA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
Australian Fairy Tern *(Vulnerable)*	✓	✓	✓
Australian Painted Snipe *(Endangered)*		✓	✓
Barn Swallow *(Migratory)*		✓	✓
Bar-tailed Godwit *(Migratory)*			✓

Common name	OA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
Campbell Albatross *(Vulnerable, migratory)*		✓	✓
Christmas Island White-tailed Tropicbird *(Endangered)*	✓	✓	✓
Common Greenshank *(Endangered, Migratory)*			✓
Common Noddy *(Migratory)*	✓	✓	✓
Common Sandpiper *(Migratory)*	✓	✓	✓
Curlew Sandpiper *(Critically endangered, migratory)*	✓	✓	✓
Eastern Curlew *(Critically endangered, migratory)*	✓	✓	✓
Flesh-footed Shearwater *(Migratory)*		✓	✓
Fork-tailed Swift *(Migratory)*			✓
Great Frigatebird *(Migratory)*		✓	✓
Greater Sand Plover *(Vulnerable, Migratory)*			✓
Grey Wagtail *(Migratory)*		✓	✓
Indian Yellow-nosed Albatross *(Vulnerable, migratory)*		✓	✓
Lesser Frigatebird *(Migratory)*	✓	✓	✓
Little Tern (*Migratory*)		✓	✓
Northern Siberian Bar-tailed Godwit (*Endangered*)			✓
Oriental Plover (*Migratory*)			✓
Oriental Pratincole (*Migratory*)			✓
Osprey *(Migratory)*		✓	✓
Pectoral Sandpiper *(Migratory)*	✓	✓	✓
Red Knot *(Vulnerable, migratory)*	✓	✓	✓
Red-tailed Tropicbird (Indian Ocean) (*Endangered*)	✓	✓	✓
Roseate Tern *(Migratory)*			✓
Sharp-tailed Sandpiper *(Vulnerable, Migratory)*	✓	✓	✓
Soft-plumaged Petrel *(Vulnerable)*		✓	✓
Southern Giant-Petrel *(Endangered, migratory)*	✓	✓	✓
Streaked Shearwater *(Migratory)*	✓	✓	✓
Wedge-tailed Shearwater (*Migratory*)		✓	✓
White-tailed Tropicbird *(Migratory)*	✓	✓	✓
Yellow Wagtail (*Migratory*)		✓	✓

Table 4-12: Prescence of BIAs for Seabirds and Shorebirds

Common name	BIA Behaviour	Seasonal Presence	OA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
Roseate Tern	Breeding	Mid-March to July.			✓
Wedge-tailed Shearwater	Breeding	Mid-August to April (Pilbara) or mid-May (Shark Bay)	✓	✓	✓

^*Source: Ref. 64*

4.3.3.4.1 Wedge-tailed shearwater

Behaviours used to define BIAs for seabirds in Commonwealth marine areas include breeding with a foraging buffer, and roosting (Ref. 220). The BIAs for this species are buffers around islands that this species is known to nest on (Figure 4-4). Bird species may forage in the waters surrounding the islands during nesting seasons. The Wedge-tailed Shearwater 'foraging in high numbers BIA' is much further south (>590 km from the OA), near Carnarvon.

Wedge-tailed Shearwaters are a pelagic, migratory visitor to WA; estimates indicate more than one million shearwaters migrate to the Pilbara islands each year (Ref. 74); out of an estimated global population of five million (Ref. 75). The Wedge-tailed Shearwaters typically begin arriving at their WA colonies around August each year and will excavate burrows on vegetated islands for nesting; peak egg laying typically occurs during November; and they will typically leave nests in early-April to early-May and travel north to the Indian Ocean (Ref. 76; Ref. 77). Migration from the colony is very synchronous, but the return is less so (Ref. 77).The departure (early-April to early-May) and arrival (around August) of Wedge-tailed Shearwaters to WA may overlap with the timing of the DS-1 exploration drilling (which is planned to commence between 2024 and 2025). Once adults cease returning to feed their young, the young (fledgling) Wedge-tailed Shearwaters fledge and depart nests (Ref. 228; Ref. 229).

Known breeding locations in the NWMR include Forestier Island (Sable Island), Bedout Island, Dampier Archipelago, Passage Island, Lowendal Island, islands off Barrow Island (Mushroom, Double and Boodie islands), islands in the Onslow area (including Airlie, Bessieres, Serrurier, North and South Muiron and Locker islands), islands in Freycinet Estuary, and south Shark Bay (Slope, Friday, Lefebre, Charlie, Freycinet, Double and Baudin islands) (Ref. 75).

One of the closest colonies to the OA is Double Island (east of Barrow Island). Baseline monitoring (pre-construction of the Gorgon Gas Development) recorded ~20–50 Wedge-tailed Shearwater nesting burrows on North Double Island and ~300 on South Double Island (Ref. 78; Ref. 79). CAPL (Ref. 80; Ref. 79) provided an estimate of 500 burrows over a 2 ha portion of the north-eastern corner of South Double Island, supporting 5,000–10,000 pairs of Wedge-tailed Shearwaters.

This species forages relatively close to breeding islands and its diet consists of squid, fish, and crustaceans (Ref. 75). However, more recent studies have indicated bimodal foraging. A study on foraging behaviour of the Wedge-tailed Shearwaters during the 2018 nesting season on the Muiron Islands showed a bimodal foraging strategy that incorporated both short (<4 days) and long (>7 day)

trips (Ref. 77). The foraging trips of the Wedge-tailed Shearwaters from the Muiron Islands were recorded over a large area, extending from the Cape Range Canyon to the Indonesian Archipelago; and a consistent pattern of foraging near seamounts was observed (Ref. 77). It is noted that this same area is part of the foraging extent used by the Wedge-tailed Shearwaters from both Pelsaert and Houtman Abrolhos islands (Ref. 81; Ref. 77). The use of a bimodal foraging strategy suggests that prey availability close to the colony (i.e. areas that would be utilised on short trips) are inadequate for the large numbers of breeding shearwaters (Ref. 77).

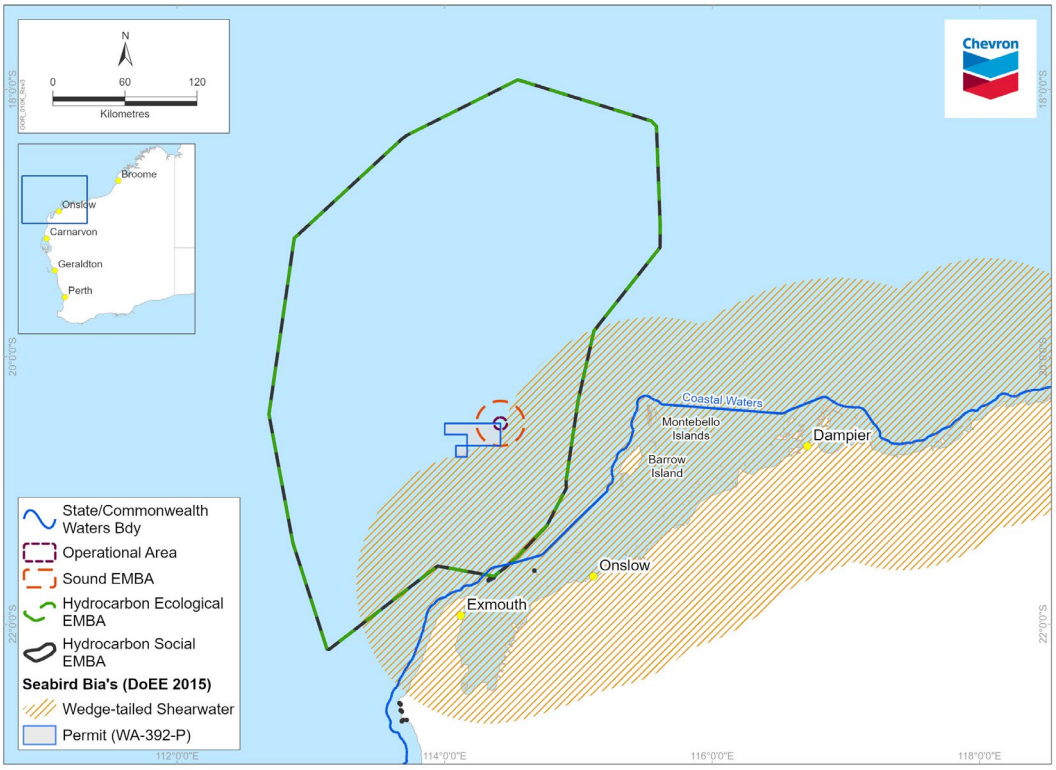


Figure 4-4: Biologically important areas for Wedge-tailed Shearwater

4.3.3.5 Summary of marine fauna seasonal sensitivities

Periods of the year coinciding with key biologically important behaviours for EPBC Act listed threatened and/or migratory species that may potentially be present within the OA are presented in Table 4-13.

Table 4-13: Seasonal presence of marine fauna with biologically important behaviours within the vicinity of the OA

Activity / Species	January	February	March	April	May	June	July	August	September	October	November	December
Petroleum activity												
Exploration drilling activity[1]												
Marine fauna with biologically important behaviour												
Pygmy Blue Whale northern migration[2]												

Activity / Species	January	February	March	April	May	June	July	August	September	October	November	December
Pygmy Blue Whale southern migration[2]												
Wedge-tailed Shearwater migration[3]												
Wedge-tailed Shearwater breeding[4]												
	Indicative activity timing											
	Species may be present and display biologically important behaviour in the region											
	Predicted peak period											

1. *As described in Section 3.1.3 the exploration drilling activity is planned to commence between 2024 and 2025; however, the activity is estimated to only take ~50 days to complete.*
2. *Pygmy Blue Whales migrate north along the WA coast between February and August (Ref. 67; Ref. 71), with predicted highest densities in the Montebello Island region during May and June (Ref. 201). Pygmy Blue Whales migrate south between November and January (Ref. 67; Ref. 71), with predicted highest densities in the Montebello Island region during November and December (Ref. 201).*
3. *Wedge-tailed Shearwaters typically begin arriving at their WA colonies around August; and then leave nests in early-April to early-May (Ref. 76; Ref. 77). Once adults cease returning to feed their young, the young (fledging) Wedge-tailed Shearwaters fledge and depart nests (Ref. 228; Ref. 229).*
4. *Wedge-tailed Shearwaters breed in the Pilbara region from November to April (Ref. 230); peak egg laying typically occurs during November (Ref. 76; Ref. 77).*

4.3.4 Marine environmental quality

The term ‘environmental quality’ refers to the level of contaminants, or changes to the physical or chemical properties relative to a natural state (Ref. 82).

4.3.4.1 Water quality

Marine water quality within the EMBA is expected to be representative of high-water quality found in offshore waters.

The NWS is characterised by a relatively clear water column; however, these waters sometimes have naturally higher levels of turbidity as a result of local current, tidal or wave-induced resuspension of fine sediments and seasonal fluvial inputs (Ref. 83, Ref. 221). In the waters off the east coast of Barrow Island[14], turbidity and concentrations of suspended sediments were generally low (<5 mg/L) and indicative of clear water environments (Ref. 221).

The nearshore waters on the east coast of Barrow Island are generally oligotrophic, with temporal fluctuations in nutrients (Ref. 221; Ref. 222). Nutrient concentrations were generally below the Australian and New Zealand guidelines for fresh and marine water quality (ANZG) default trigger values (nutrient enrichment) for tropical Australia, with occasional fluctuations of ammonia, nitrite+nitrate, and orthophosphate well above guideline values (Ref. 221; Ref. 222). Pre-construction water quality sampling off the east coast of Barrow Island showed that concentrations of metals were typically consistently below the

[14] Note: The proposed DS-1 exploration well is ~100 km west-northwest of Barrow Island (Section 2.2).

ANZG guideline trigger values for 99% species protection (Ref. 221). However, natural oil seeps are known to occur on the NWS (Ref. 83).

It is expected that these low levels of contamination would throughout the EMBA (unless within the immediate vicinity of an offshore point source).

4.3.4.2 Sediments quality

Marine sediment quality within the EMBA is expected to be representative of high-sediment quality typically found in offshore waters away from anthropogenic sources of contamination.

Sediment quality sampling during 2014 and 2015 off the east coast of Barrow Island[14] showed that except for nickel in one reference site sample, total metal concentrations of all sediment samples were below respective laboratory limit of reporting (LoR) and/or Interim Sediment Quality Guideline (ISQG)-Low trigger values (Ref. 221). Sediment tributyltin concentrations were all below the laboratory LoR and the ISQG-Low trigger value, except for one sample in each of the 2014 and 2015 surveys (Ref. 221). Total petroleum hydrocarbons and Total polycylic aromatic hydrocarbon (PAH) concentrations were all below the LoR in 2014 and at very low concentrations in 2015 samples (with a much lower LoR). Once normalised for (very low) organic carbon content, six samples from 2015 were above ISQG-Low concentrations for benzo(a)pyrene, but well below the ISQG-High concentrations (Ref. 221).

It is expected that these low levels of contamination would continue throughout the EMBA (unless within the immediate vicinity of an offshore point source).

4.3.4.3 Air quality

Air quality within the EMBA is expected to be representative of typically high air quality found in offshore areas, away from anthropogenic sources of contamination.

As part of the Ambient Air Quality Monitoring Program on Barrow Island, there were no recorded exceedances for nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), carbon monoxide (CO), hydrogen sulfide (H_2S), or aromatic hydrocarbons (benzene, toluene, ethylbenzene and xylene) against the relevant National Environmental Protection Measure (NEPM) standards (Ref. 223). There have been elevations of PM_{10} levels around facilities on Barrow Island, however these are likely associated with vehicle traffic and regional weather events (Ref. 223).

It is expected that these low levels of contamination would continue throughout the EMBA (unless within the immediate vicinity of an offshore point source).

4.3.5 People and communities

People and communities, and specifically their social, economic, and cultural features, are included in the definition of environment within the OPGGS(E)R. People and communities have been identified and described to the extent that they are directly affected, or are affected by the existing physical and biological environments.

The NWMR supports a range of economic, social, and cultural activities. At present, industries within the NWMR include petroleum exploration and production, commercial and recreational fishing, tourism, ports and shipping (Ref. 72). These uses of the NWMR make an important economic and social

contribution to settlements along the coast (Ref. 72). Industry activities present with the EMBA are identified and described in Section 4.4.6.

4.3.5.1 Land use

The OA and Sound EMBA occur offshore and do not have any interface with the coast. The Hydrocarbon Ecological EMBA interfaces with the west coast of North Muiron Island only. The Hydrocarbon Social EMBA interfaces with the west coast of North Muiron, South Muiron, and Serrurier Islands, as well as around the Point Cloates / Ningaloo Station area (Figure 4-1). Note: The Hydrocarbon EMBAs typically only extend landward to the high-water mark (HWM).

The land uses that may be present within the Hydrocarbon EMBAs are summarised below.

The Muiron Islands are designated as a State Nature Reserve (International Union for Conservation of Nature [IUCN] Ia) (Section 4.5.3), and the islands are surrounded by a State Marine Management Area (IUCN VI) (Section 4.5.2). The Muiron Islands are also within The Ningaloo Coast World Heritage property and National Heritage place (Section 4.6.1). The Nature Reserve is gazetted to the HWM. Limited recreational activities may occur (i.e. diving, snorkelling and swimming). Recreational fishing can be enjoyed in most areas, but special rules apply in some zones (Ref. 84). Camping is permitted on South Muiron Island between April and October, however, a permit must be requested before visiting the Island (Ref. 85).

Serrurier Island is designated as a Nature Reserve (IUCN Ia) (Section 4.5.3). The Nature Reserve is gazetted to the HWM. Serrurier I Island is part of the Pilbara Inshore Islands Nature Reserves known as important breeding and resting places for migratory and resident shorebirds, seabirds and marine turtles (Ref. 86). Fishing, beach walks, and wildlife viewing are types of activities that may occur in Pilbara Inshore Islands Nature Reserve (Ref. 86). Camping is permitted on some of the Pilbara Inshore Islands with a permit; camping on Serrurier Island is seasonal in a designated ‘camping area’ (Ref. 87).

Point Cloates is a peninsula southwest of North West Cape, along the Ningaloo Coast. The coast is part of the The Ningaloo Coast World Heritage property and National Heritage place (Section 4.6.1). The waters surrounding Point Cloates / Ningaloo Station are protected under WA jurisdiction as the Nyinggulara (Ningaloo) Marine Park (IUCN II and IUCN Ia) (Section 4.5.2). Given the natural and heritage values of the coast, recreational activities may occur. Shore-based fishing, beach walks, and wildlife viewing are types of activities that may occur (Ref. 88; Ref. 89).

A Native Title determination (WCD2019/016) extends over the Ningaloo Coast area (Section 4.6.4). The determination area contains places of special significance, such as spiritual and ceremonial sites and natural resources (Ref. 90).

There are no towns or cities located within the Hydrocarbon EMBAs.

4.3.5.2 Heritage

Heritage includes places, values, traditions, events and experiences that capture where we have come from, where we are now and gives context to where we are headed as a community (Ref. 91).

Where known heritage sites and/or artefacts are formally protected under specific heritage legislation, these are described within Section 4.6. The following sections summarise other known heritage values identified within the EMBA.

4.3.5.2.1 First Nations cultural activities, connections, and obligations

The land adjacent to the NWMR has been inhabited by First Nations people for at least 50,000 years, and they continue to use the NWMR and adjacent coastal resources, and have an ongoing connection to these areas (Ref. 72).

Although outside the EMBA, evidence from offshore waters near Murujunga (Burrup Peninsula) and on Barrow Island are indicative of the historical and ongoing connection of First Nations people to the NWMR.

Australia's first confirmed First Nations underwater archaeological sites were identified in 2020 in waters offshore from Murujuga (Burrup Peninsula) during the Deep History of Sea Country Project (Ref. 231). These findings confirmed an understanding that First Nations people would have lived on lands that are now submerged in water from rising seas after the last glacial maximum (LGM)[15]. At the LGM sea level was ~125 m below present (Ref. 233); this coincides with the ancient coastline at 125 m depth key ecological feature (KEF) (see Section 4.3.6.1 for a description of this KEF). The OA, which occurs in water depths >940 m, would therefore not have been emergent land during the history of First Nations occupation.

Recent studies at Murujuga have demonstrated that archaeological material remains on the seabed, predating inundation by rising seas (Ref. 231; Ref. 235). Previous geomorphological work (which was based on the analysis of available 3D seismic data) on the mid to outer shelf regions proximal to Barrow Island, demonstrated the presence of a highly complex and geomorphically mature coastal landscape preserved at depths of 70–75 m below sea level, including coastal barrier dunes, lagoonal systems, tidal flats, and estuarine channels. (Ref. 233). Such feature preservation has significant geoheritage value (Ref. 233). However, as described above, the OA (which occurs in water depths >940 m) would be located further offshore than these features of potential geoheritage value, and would not have been emergent land during the history of First Nations occupation.

Archaeological deposits from Boodie Cave on Barrow Island, reveal some of the oldest evidence for First Nations occupation of Australia, as well as illustrating the early use of marine resources (Ref. 232). First occupation on Barrow Island has been dated as occurring between 51.1 and 46.2 ka, overlapping with earliest dates for occupation of Australia (Ref. 232). There is evidence of marine resources (e.g. shellfish, fish) being incorporated into dietary assemblages by 42.5 ka on Barrow Island; which continued through all periods of occupation, despite fluctuating sea levels and associated extensions of the coastal plain (Ref. 232). The caves on Barrow Island (including Boodie Cave), and others on nearby Montebello Islands, were abandoned by 6.8 ka when rising sea levels reached their present levels, and the islands had become increasingly distant from the mainland coast (Ref. 232). Despite the isolation of Barrow Island from the mainland for most of the Holocene, Thalanyji knowledge holders refer to historic use of the island from both colonial-era fishing activities and indentured labour in the pearling grounds (Ref. 284).

[15] The period of the LGM in Australia is described as 24 to 18 ka (Ref. 234).

First Nations people have a culture that relates to a connectedness of land and sea in a holistic way (Ref. 241). The term ‘Country’ refers to more than just a geographical area, and includes values, places, resources, stories, and cultural obligations associated with that geographical area (Ref. 92). For First Nations peoples the term ‘Country’ includes both land and sea and the coastal areas that are connected with the traditional Country of a group or clan. Both Country and Sea Country, contain evidence of the ancient events by which all geographic features, animals, plants and people were created (Ref. 241). For example, Thalanyji knowledge holders reference Sea Country “between the islands of the shelf”, and “see the artifacts as an important manifestation of their ancestral use of, and connection to, the now-drowned coastal plain” (Ref. 284).

Cultural heritage is not only comprised of tangible values; it also includes intangible values. Tangible values are those with a physical nature (such as artefacts and engravings); while intangible values are those that do not have a physical component (such as songlines and dances). Songlines are a feature of First Nations culture, linking people, places, and practices (Ref. 236). Certain songlines are referred to as ‘Dreaming pathways’ because of the tracks forged by Creator Spirits during the Dreaming; these Dreaming songlines have specific ancestral stories attached to them (Ref. 237). Nunn and Reid (Ref. 238) discuss how First Nations oral traditions have documented sea level rise over the last 7,000 years. Kearney et al. (Ref. 239) also discusses how seabed mapping near Murujuga (Burrup Peninsula) identified two submerged waterholes that were identified by local senior elders as belonging to the Kangaroo songline. A song line from the mainland to Barrow Island has been referenced during studies involving Thalanyji knowledge holders (Ref. 284) and also identified by representatives of Mardathoonera Cultural Heritage Pty Ltd (MCH) during consultation (Table 4-14).

The cultural, customary, and spiritual significance of species and the ecological communities they form are diverse and varied for First Nations people and their stewardship of Country (Ref. 240). For example, some First Nations people have a strong connection to whales, which has significance as totemic ancestors to some groups (Ref. 240). The arrival of whales along Australia's coast marked the arrival of the "elders of the sea", which follows a songline that traces the journeys of ancestral spirits as they created the land, animals, and lore (Ref. 240).

First Nations people in northwest WA continue to rely on coastal and marine environments and resources of the region for their cultural identity, health and wellbeing, and their domestic and commercial economies (Ref. 242). Their commitment to their Sea Country is demonstrated through their native title claims and their many initiatives to regain their role as managers of the cultural and natural values of northwest WA (Ref. 242).

First Nations peoples of northwest WA engage in a diverse range of marine resource use activities, including hunting, egg collecting, fishing and gathering shellfish. Activities also continue on lands and waters where they have ceremonial and spiritual connections (Ref. 242).

Consultation with First Nations groups and individuals has identified that Sea Country is of importance to their people (Table 4-14). These values include coastal areas, offshore islands, marine fauna, and traditional stories (e.g. it is believed that the Dreamtime serpent which created the rivers and inland springs is now in its resting place off the Pilbara coast; and as such, if the sea is protected, then the serpent is also being protected). It is acknowledged that First Nations

people who are the custodians of this knowledge have the rights to decide how it is shared and used.

Underwater cultural heritage (UCH), including First Nations UCH, as protected under the UCH Act is discussed in Section 4.6.2.

Table 4-14: Cultural values or features identified through consultation

Source	Cultural value or feature
Baiyungu Aboriginal Corporation (BAC)	• Protecting land and Sea Country is a significant focus of the BAC • The Baiyungu coastal area, Sea Country, and adjacent islands are highly valuable to the Baiyungu people.
Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	• The Thalanyji people have a deep connection to Sea Country north of Onslow, extending out into the islands off the coast of the Pilbara including: – Montebello Islands^ – Barrow Island^ – Mackerel Islands^ – Direction Island^ – Airlie Island^ – Weld Island^ – North and South Islands^ – Ashburton Island^ – Twin Islands^ – any island or atoll proximate to the above islands – a general radius of 150 km from Onslow.
Mardathoonera Cultural Heritage Pty Ltd (MCH)	• Identified a connection with Barrow Island* and surrounding waters; specific values described include: – the creation story starts on Barrow Island – Barrow Island is a place that connects saltwater and freshwater together – Barrow Island is connected to Murujuga; both are considered by MCH as women's places – Biggada Creek* is significant and connected to the Fortescue River; and that the rock formations in the creek are protectors – women's sites and ancestor spirits are present on Barrow Island • Identified that Barrow Island was a hill in ancient times and is a sister hill to two hills on the mainland, and old people would walk across before the sea levels rose and the island drifted; because of this, there will be artefacts and stories underwater • Identified cultural importance of traditional stories, songlines ocean, and marine fauna – the sea is the source of energy for all life, it holds the codes that are encrypted in each person's body, the songlines, and is the lifeforce for the world – the places where the saltwater from the sea and the freshwater from the land connect are where the biggest energy lines are, and that connection is a force of creation relevant to a Dreaming story – songlines extend out from the land, through the sea, and around the globe

Source	Cultural value or feature
	– songlines connect places, people, and animals to each other, creating migratory patterns for animals and telling animals of the right time to birth and eat – freshwater that flows underneath the seabed carries the songlines – there is a large energy line that exists off the coast of Murujuga and runs through the area that CAPL operates in – there are songlines that go through Barrow Island and offshore and connect Barrow Island to the mainland; this includes a whale songline – Mardathoonera people are connected to songlines—if the songlines are disrupted, their widdart (heart) is disconnected, like the whales, their feet get lost and they don't know where to go anymore. • Country owns people and we are all connected by energy – different frequencies connect all beings on earth and everything on earth is connected – if you protect country, it will protect you – women hold the energy connected to water.
Murujuga Aboriginal Corporation (MAC)	• No specific areas have been identified through consultation however MAC has noted the cultural importance of Sea Country and the need to ensure it is protected.
Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)	• No specific areas have been identified through consultation however NTGAC has noted the cultural importance of Sea Country and the need to ensure it is protected • In addition CAPL understands the Ningaloo Coast is culturally significant to the groups NTGAC represents.
Ngarluma Aboriginal Corporation (NAC)	• NAC has noted that offshore islands are culturally significant.
Ngarluma Yindjibarndi Foundation Ltd (NYFL)	• The people from the land speak for and care about the marine animals, even if they are far out to sea • Identified that marine fauna, specifically whales, dugongs, and turtles are species of importance • The nature of many traditional narratives have origins and connection to the seascape, and that impacts to the seascape can have cultural repercussions • Presence and importance of intangible values, such as Barrimirndi (the serpent), which is an important part of dreaming for Ngarluma and Yindyibarndi people • Identified the interconnectedness of the cultural landscape, whereby Traditional Owners from the western Pilbara are held to account by other Nyambali (cultural bosses) when proponents impact land and sea • Cultural responsibilities transcend Native Title and other boundaries.
Robe River Kuruma Aboriginal Corporation (RRKAC)	• None identified within the EMBA • Values beyond the EMBA boundary included: – the area within their Kuruma Marthudunera native title claim, Jajiwurra (Robe River) and the waters extending seaward from the river mouth – ecological integrity of Jajiwurra.
Wirrawandi Aboriginal Corporation (WAC)	• The coastal area, Sea Country, and adjacent islands are highly valuable to the Yaburara and Mardudhunera people

Source	Cultural value or feature
	• Identified a connection to Barrow Island*.
Yinggarda Aboriginal Corporation (YAC)	• Bernier Island#, Dorre Island# and associated Sea Country have been identified as significant to the Yinggarda people.

^Montebello Island, Barrow Island, Mackerel Islands, Direction Island, Airlie Island, Weld Island, North and South Islands, Ashburton Island, and Twin Islands are located outside the EMBA for this EP (~55 km, ~40 km, ~34 km, ~48 km, ~40 km, ~78 km, ~65 km, ~37 km, and ~53 km inshore of the EMBA respectively).

** Barrow Island and Brigada Creek (located on Barrow Island) are located outside the EMBA for this EP (~40 km east of the EMBA)*

 # Both Bernier and Dorre islands (located in Shark Bay) are located outside the EMBA for this EP (~284 km and ~311 km south of the EMBA respectively).

4.3.5.2.2 European heritage

Early European exploration of the NWMR and adjacent coast occurred in the 1600s; however, it was concluded at the time that resources and conditions were not appropriate for settlement (Ref. 72). British colonisation didn't begin in the Pilbara until 1860s; pastoralism was the first major industry, followed by small ports and service centres (Ref. 72). The pearling industry began in the late-1800s, and remains a significant contributor to the economy of northwest WA (Ref. 72). Similarly, small fishing fleets were common from the 1860s onwards, and the commercial fishing industry also remains a significant economic input for northwest WA, particularly from prawn and demersal finfish fisheries (Ref. 72). Petroleum discovery and development commenced from the 1950s, with both onshore and offshore discoveries (Ref. 72).

The marine and coastal industries that still exist and operate within the NWMR are further described in Section 4.4.

4.3.6 Commonwealth marine areas

The Commonwealth marine area is a MNES under the EPBC Act, and a relevant value and sensitivity under the OPGGS(E)R. The EMBA for this activity intersects within Commonwealth waters off WA that are part of the NWMR.

The NWMR comprises the Commonwealth waters and seabed from the WA—Northern Territory border south to Kalbarri (Ref. 72). The NWMR is characterised by shallow-water tropical marine ecosystems with high species richness. Most of the region's species are tropical and are also found in other parts of the Indian and western Pacific oceans (Ref. 72). The region is a tropical carbonate margin that comprises an extensive area of shelf, slope, and abyssal plain/deep ocean floor, as well as complex areas of bathymetry such as plateau, terraces and major canyons (Ref. 19). The region experiences a tropical monsoonal climate towards the northern extent of the region, transitioning to tropical arid and subtropical arid within the central and southern areas of the region (Ref. 72).

Conservation values of the Commonwealth marine area include:

- protected species and/or their habitat (Section 4.3.3)
- protected places including Australian Marine Parks (Section 4.5.1) and heritage places (Section 4.6)
- KEFs (Section 4.3.6.1).

4.3.6.1 Key Ecological Features

KEFs are elements of the Commonwealth marine environment that are considered to be of regional importance for a region's biodiversity or its ecosystem function and integrity. KEFs are not MNES and have no legal status in their own right; however, they are considered as components of the Commonwealth marine area.

KEFs meet one or more of these criteria (Ref. 93):

- a species, group of species, or a community with a regionally important ecological role (e.g. a predator, or prey that affects a large biomass or number of other marine species)
- a species, group of species, or a community that is nationally or regionally important for biodiversity
- an area or habitat that is nationally or regionally important for:
  - enhanced or high productivity (such as predictable upwellings—an upwelling occurs when cold nutrient-rich waters from the bottom of the ocean rise to the surface)
  - aggregations of marine life (such as feeding, resting, breeding or nursery areas)
  - biodiversity and endemism (species that only occur in a specific area)
- a unique sea floor feature, with known or presumed ecological properties of regional significance.

KEFs have been identified by the Australian Government based on advice from scientists about the ecological processes and characteristics of the area (Ref. 93).

The presence of KEFs within the EMBA, and a description of the KEFs values, are shown in Table 4-15.

Table 4-15: Prescence of KEFs

Key ecological feature	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
Ancient coastline at 125 m depth contour			✓
Parts of the ancient coastline, particularly where it exists as a rocky escarpment, are thought to provide biologically important habitats in areas otherwise dominated by soft sediments. The topographic complexity of these escarpments may also facilitate vertical mixing of the water column, providing relatively nutrient-rich local environments (Ref. 72). The ancient submerged coastline provides areas of hard substrate and therefore may provide sites for higher diversity and enhanced species richness relative to surrounding areas of predominantly soft sediment. Little is known about fauna associated with the hard substrate of the escarpment but it is likely to include sponges, corals, crinoids, molluscs, echinoderms and other benthic invertebrates representative of hard substrate fauna in the North West Shelf bioregion (Ref. 72). **Values:** Unique sea floor feature with ecological properties of regional significance.			

Key ecological feature	OA	Sound EMBA	Hydrocarbon Ecological and Social EMBA
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula			✓
The canyons are associated with upwelling as they channel deep water from the Cuvier Abyssal Plain up onto the slope. This nutrient-rich water interacts with the Leeuwin Current at the canyon heads. Aggregations of whale sharks, manta rays, sea snakes, sharks, large predatory fish and seabirds are known to occur in this area (Ref. 72). The canyons on the slope of the Cuvier Abyssal Plain and Cape Range Peninsula are connected to the Commonwealth waters adjacent to Ningaloo Reef and may also have connections to Exmouth Plateau. The narrow shelf width (about 10 km) near the canyons facilitates nutrient upwelling. Thus the canyons probably play a part in the enhanced productivity of the Ningaloo Reef system (Ref. 72). The canyons are also repositories for organic and inorganic particulate matter from the shelf and serve as conduits for its transfer from the surface and shelf to greater depths. The hard substrates of canyons provide habitat for deepwater snapper and other species (Ref. 21). **Values:** Unique sea floor features with ecological properties of regional significance.			
Continental slope demersal fish communities	✓	✓	✓
The diversity of demersal fish assemblages on the continental slope in the Timor Province, the Northwest Transition and the Northwest Province is high compared to elsewhere along the continental slope. The continental slope between North West Cape and the Montebello Trough has more than 500 fish species, 76 of which are endemic, which makes it the most diverse slope bioregion in Australia (Ref. 92). The demersal fish species occupy two distinct demersal community types associated with the upper slope (water depth of 225–500 m) and the mid slope (750–1,000 m). Bacteria and fauna present on the continental slope are the basis of the food web for demersal fish and higher-order consumers in this system (Ref. 72). **Values:** High levels of endemism.			
Exmouth Plateau			✓
The Exmouth Plateau is a regionally and nationally unique deep-sea plateau (water depths of 800-4,000 m) in tropical waters. The plateau is a very large topographic obstacle that may modify the flow of deep waters, generating internal tides and may contribute to upwelling of deeper water nutrients closer to the surface, thus serving an important ecological role (Ref. 72). The topography of the plateau (with valleys and channels), in addition to potentially constituting a range of benthic environments, may provide conduits for the movement of sediment and other material from the plateau surface through the deeper slope to the abyss. The Exmouth Plateau is generally an area of low habitat heterogeneity; however, it is likely to be an important area of biodiversity as it provides an extended area offshore for communities adapted to depths of around 1000 m. Sediments on the plateau suggest that biological communities include scavengers, benthic filter feeders and epifauna (Ref. 72). Fauna in the pelagic waters above the plateau are likely to include small pelagic species and nekton (Ref. 21). **Values:** Unique sea floor feature with ecological properties of regional significance.			

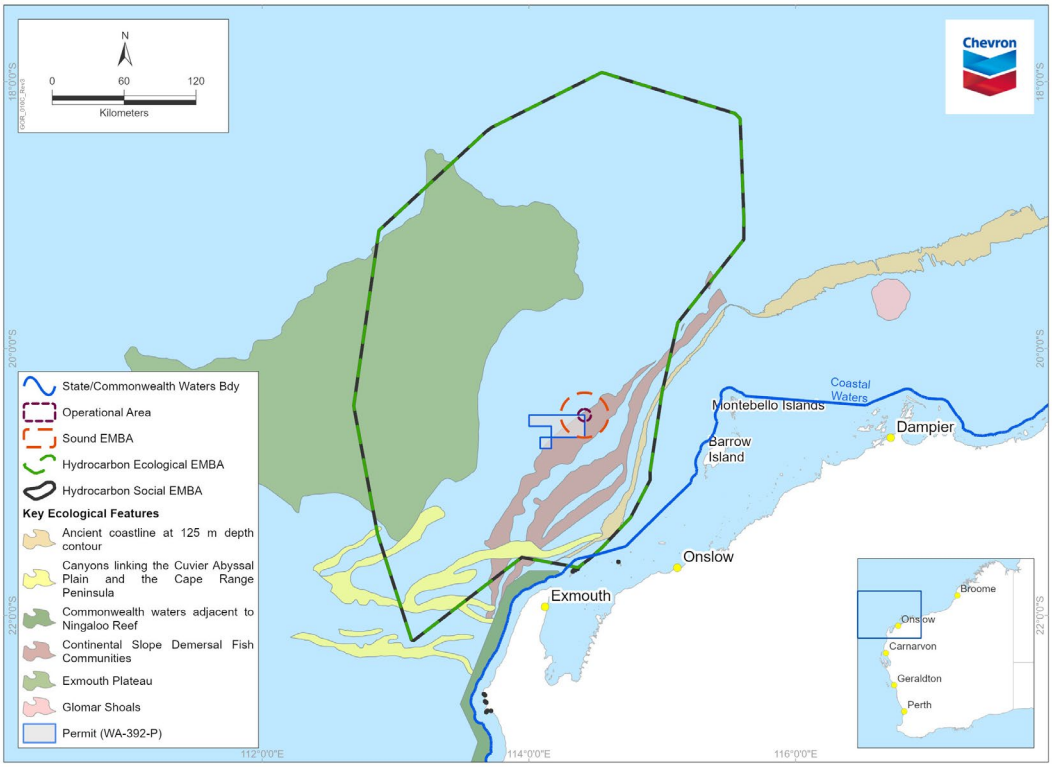


Figure 4-5: Key ecological features within the vicinity of the EMBA

4.3.7 Commonwealth land area

Commonwealth land[16] is a relevant value and sensitivity under the OPGGS(E)R. Based on spatial review and searches of the EPBC Act protected matters database (Ref. 15; Appendix b) there are no Commonwealth land areas within the EMBA.

4.4 Natural and physical resources

Natural and physical resources are described as substances occurring in nature which can be exploited for economic gain, and may include such resources as fishing stocks, petroleum reservoirs, or values of the Commonwealth marine area. Marine and coastal industries have been developed based on natural and physical resources, and where these industries may interest with the EMBA they have been identified and described in the following sections.

4.4.1 Commercial fisheries

4.4.1.1 Commonwealth managed fisheries

The Commonwealth-managed commercial fisheries with fishing management areas that intersect the EMBA, and that have fishing effort recorded during 2015–2020 (Ref. 30) are listed in Table 4-16.

[16] Commonwealth land includes land owned or leased by the Commonwealth or a Commonwealth agency, land in the Jervis Bay Territory, land in the Christmas Island, Ashmore and Cartier Islands, Coral Sea Islands, Cocos (Keeling) Islands, Australian Antarctic territory and Heard and McDonald Islands external territories, and any other area of land that is included in a Commonwealth reserve.

For the fisheries with fishing effort recorded within the OA or Sound EMBA (i.e. EMBAs associated with planned activities), additional information has been provided below.

Table 4-16: Presence of recent (2015-2020) fishing effort recorded within Commonwealth-managed commercial fisheries

Fishery	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
North West Slope Trawl Fishery (NWSTF)	✓	✓	✓	✓
Western Deepwater Trawl Fishery			✓	✓

The only fishery with fishing effort recorded within the OA and Sound EMBA was the North West Slope Trawl Fishery (Table 4-16, Figure 4-6). Relative fishing intensity data is not available for this fishery due to low vessel numbers and confidentiality.

The NWSTF uses bottom (or demersal) trawl methods to target deep-water prawn and scampi typically between the 200 m isobath and the outer boundary of the Australian Fishing Zone (Ref. 265). The primary species landed in the NWSTF is the Australian scampi (*Metanephrops australiensis*), with smaller quantities of velvet scampi (*M. velutinus*) Boschma's scampi (*M. boschmai*), and mixed scampi (*Metanephrops spp. and Nephropsis spp*.) (Ref. 265). A quantity of prawns is also harvested each season, and squids are becoming an increasingly significant component of the catch (Ref. 265). Mixed snappers (*Lutjanidae*) and redspot emperor (*Lethrinus lentjan)* have historically been an important component of the NWSTF catch (Ref. 265). Fishing for scampi occurs over soft, muddy sediments or sandy habitats, using demersal trawl gear on the continental slope. Fishing efforts decreased from 233 days, 4,420 trawl-hours and six fishing permits in 2020–21 season to 169 days, 3,950 trawl hours and seven fishing permits in 2021-22 season (Ref. 265).. Three vessels operated in the 2021–22 season (Ref. 265). Scampi stock are classified as not overfished and not subject to overfishing (Ref. 265).

The Southern Bluefin Tuna Fishery is active within waters in the Great Australian Bight and south-eastern Australia (i.e. not within the OA or EMBA). A known spawning ground for Southern Bluefin Tuna occurs in the Indian Ocean between Java and northern WA (Ref. 264; Ref. 265). The indicative spawning ground for the Southern Bluefin Tuna (based on geospatial data provided by Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), and as shown in annual Commonwealth fishery status reports [e.g. Ref. 31]) occurs ~60 km north of the OA, but does extend into the Hydrocarbon EMBAs.

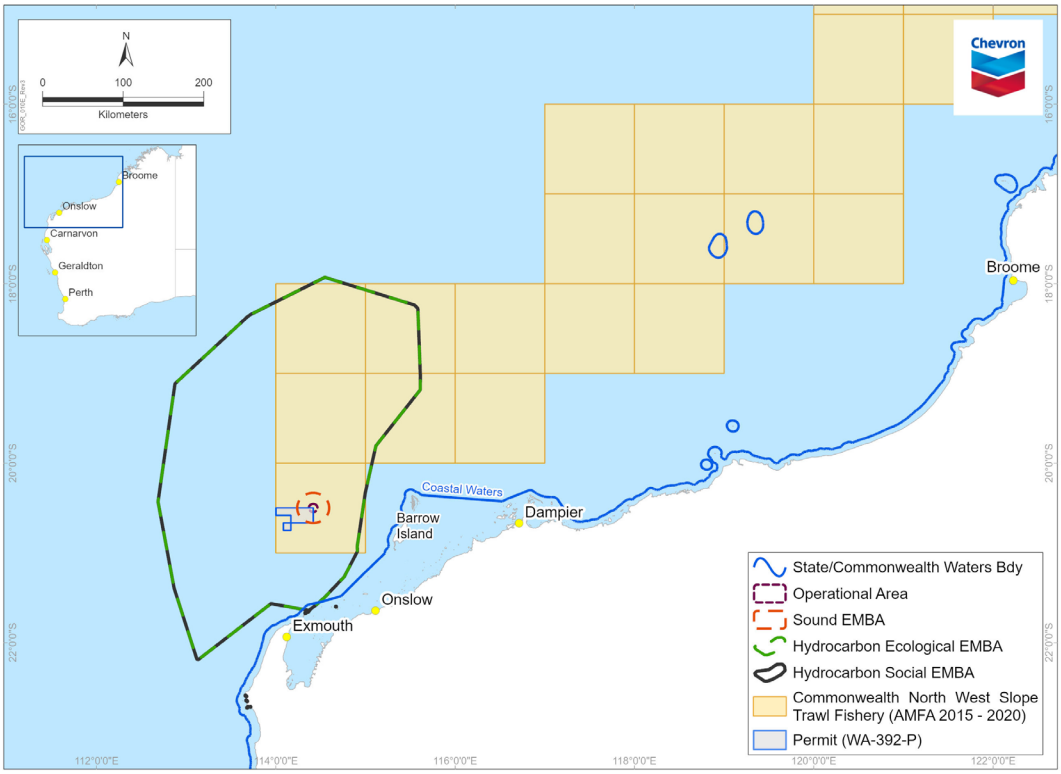


Figure 4-6: North West Slope Trawl Fishery—records of fishing activity (based on 60 nm graticular reporting blocks) for 2015–2020, within the vicinity of the EMBA

4.4.1.2 State managed fisheries

The State-managed commercial fisheries with fishery management areas that intersect the EMBA, and that have fishing effort recorded over a 10-year period (2012-2021) (Ref. 27) are listed in Table 4-17.

For the fisheries with fishing effort recorded within the OA or Sound EMBA (i.e. EMBAs associated with planned activities), additional information has been provided below.

Table 4-17: Presence of fishing effort recorded during 2012-2021 within State-managed commercial fisheries

Fishery	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
North Coast Bioregion				
Mackerel Managed Fishery			✓	✓
Pilbara Crab Managed Fishery			✓	✓
Pilbara Line Fishery	✓	✓	✓	✓
Pilbara Trap Managed Fishery	✓	✓	✓	✓
West Australian Sea Cucumber (Beche-De-Mer) Fishery			✓	✓

Fishery	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
Gascoyne Bioregion				
West Coast Deep Sea Crustacean Fishery			✓	✓
Statewide				
Marine Aquarium Fish Managed Fishery			✓	✓
Specimen Shell Managed Fishery			✓	✓

The Pilbara Line Fishery (line fishing methods) operates on an exemption basis which restricts vessels to operating within a nominated 5-month block period each year (typically May-September). The Pilbara Line Fishery catch is made up around 45-50 different fish species. The main species targeted by the fishery are bluespotted emperor (*Lethrinus punctulatus*), red emperor (*Lutjanus sebae*) and rankin cod (*Epinephelus multinotatus)*, as well as some deeper offshore species such as ruby snapper and eightbar grouper. The total catch of the Fishery in 2020/2021 was 167 t (Ref. 28). Fishing effort reported during 2012-2021 is shown in Figure 4-7.

The Pilbara Trap Managed Fishery (trap methods) is managed through area closures and effort allocations (Ref. 28). The main species targeted by the Pilbara Trap Managed Fishery are bluespotted emperor (*Lethrinus punctulatus*), red emperor (*Lutjanus sebae*) and rankin cod (*Epinephelus multinotatus*). The total catch for the fishery in 2020/2021 was 584 t (Ref. 29). Fishing effort reported during 2012-2021 is shown in Figure 4-8.

Both of these fisheries are part of the Pilbara Demersal Scalefish Fishery. For the 2021 fishing year, the bulk of the catch within the Pilbara Demersal Scalefish Fishery was landed by the trawl sector (which does not occur within the OA); with a smaller contributions from the trap (20%) and line (6%) sectors (Ref. 29).

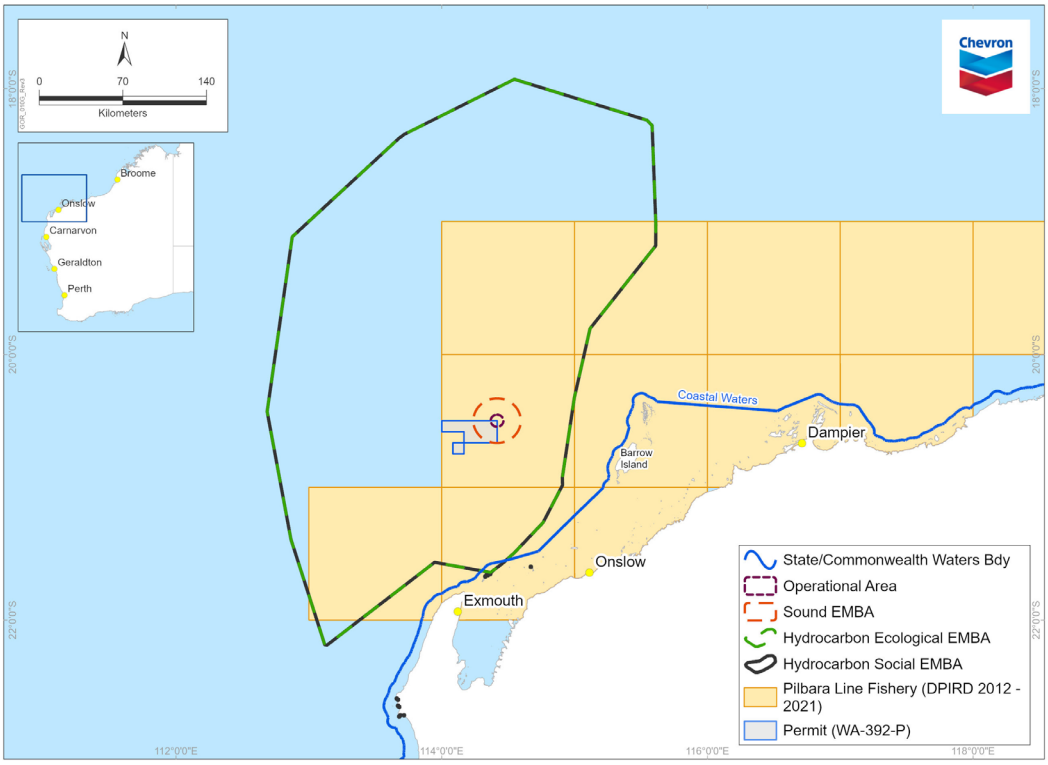


Figure 4-7: Pilbara Line Fishery—recorded fishing effort (based on 60 nm graiticular reporting blocks) for 2012–2021, within the vicinity of the EMBA

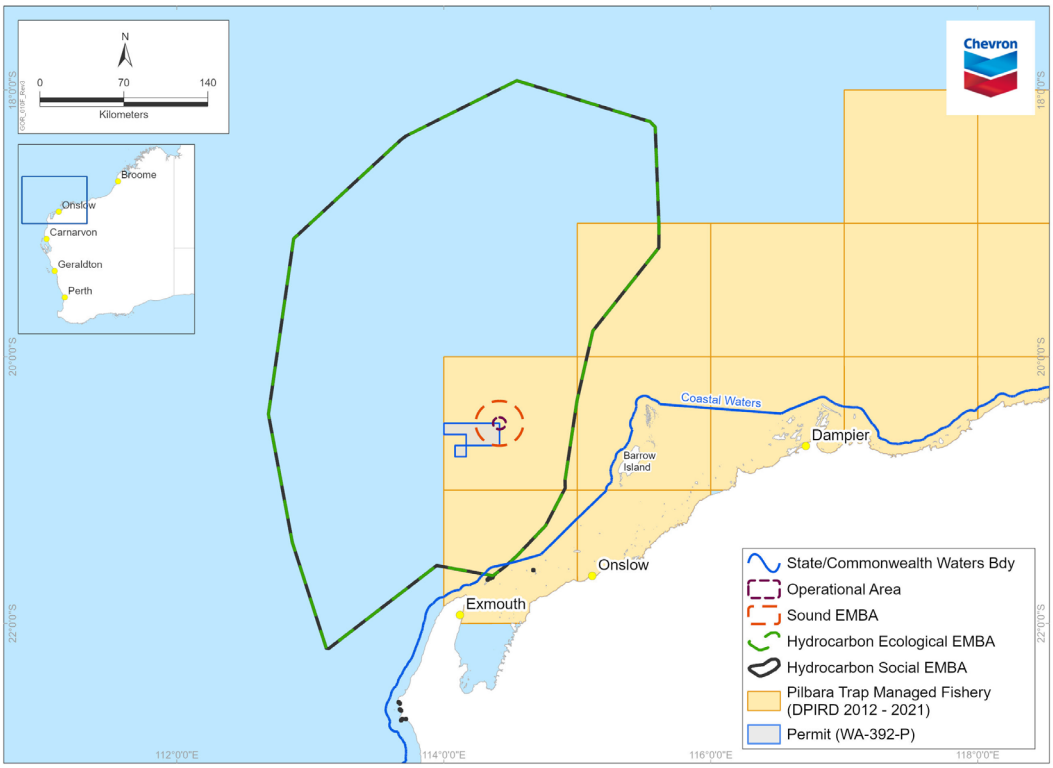


Figure 4-8: Pilbara Trap Managed Fishery—recorded fishing effort (based on 60 nm graiticular reporting blocks) for 2012–2021, within the vicinity of the EMBA

4.4.1.3 Pearling and aquaculture

Pearling and aquaculture operations in the northwest are typically restricted to inland and shallow coastal waters.

The OA and Sound EMBA occur offshore and do not have any interface with the coast or shallow coastal waters, and therefore there is no overlap with any known licenced aquaculture or pearling operations.

The Hydrocarbon Ecological EMBA interfaces with the west coast of North Muiron Island only. The Hydrocarbon Social EMBA interface with the west coast of North Muiron, South Muiron, and Serrurier islands, as well as around the Point Cloates / Ningaloo Station area (Figure 4-1). There are no known pearl farm leases or aquaculture sites within the Hydrocarbon EMBAs.

4.4.2 Recreational fisheries

Recreational fishing is one of the most popular activities in WA with an estimated third of the population fishing recreationally (Ref. 94). The WA Department of Primary Industries and Regional Development (DPIRD) conducts state-wide recreational fishing surveys every two years, with the first survey completed in 2011. The survey collects information from more than 3,000 recreational fishers who record their catches in logbooks over a 12-month period with DPIRD also conducting interviews throughout the State and monitoring the number of boat launches and retrievals using cameras at various boat ramps.

The 2020–2021 survey report (Ref. 95) identified that most boat-based recreational fishing effort occurred in nearshore habitat (46% and 54% for North-Coast and Gascoyne Coast respectively), followed by inshore demersal habitats (32% and 39% for North Coast and Gascoyne Coast respectively). Most fishing effort was attributed to line fishing (87% and 91% for North-Coast and Gascoyne Coast respectively).

Tour operator fishing efforts recorded over a 10-year period (2012–2021) (Ref. 27) identified limited previous activity within the OA. Fishing effort was reported in 2013 and 2017 only, with ≤3 vessels operating (the lowest classification for publicly released data).

Some shore-based fishing may occur in the coastal regions within the Hydrocarbon EMBAs (Section 4.3.5.1).

4.4.3 Traditional fisheries

Customary fishing applies to persons who have a traditional connection with the area being fished, and is fishing for personal, domestic, ceremonial, educational or non-commercial needs (Ref. 96). A Customary Fishing Policy has been incorporated into the *Fish Resources Management Act 1994* (WA), which allows for customary fishing by applicable persons to occur within a sustainable fisheries management framework. Customary fishing does not apply to other species of marine fauna (e.g. crocodile, turtle, or dugong).

Under amendments made in 2012 to the *Conservation and Land Management Act 1984* (WA) Aboriginal people can undertake customary activities which includes hunting (except in marine sanctuary zones or marine nature reserves) for dugong, turtle, or crocodiles in WA.

As described in Section 4.3.5.2.1, ongoing use of marine and coastal resources, including customary fishing, is expected to occur in NWMR and adjacent coastal waters. However, it is expected that much of this activity will occur within shallow

coastal waters and therefore would not intersect with the OA or Sound EMBA. Where shore-based fishing is undertaken, this may intersect with the Hydrocarbon EMBAs.

The EMBA does not intersect with the Memorandum of Understanding (MoU) Box that allows for traditional Indonesian fishers within Australian waters. The MoU Box is managed via a bilateral agreement between Australian and Indonesian governments.

4.4.4 Commercial shipping

AMSA collects vessel traffic data from a variety of sources, including satellite shipborne automated identification system data, across Australia's Search and Rescue region. This data has been used to develop Figure 4-9, which shows vessel traffic (from July 2023) within the vicinity of the EMBA.

Negligible vessel traffic has been recorded within the OA. The OA is located to the southeast of the nearest NWS shipping fairway (Figure 4-9). Commercial vessels transiting the NWS are expected to remain within the fairways and therefore will not typically coincide with the OA.

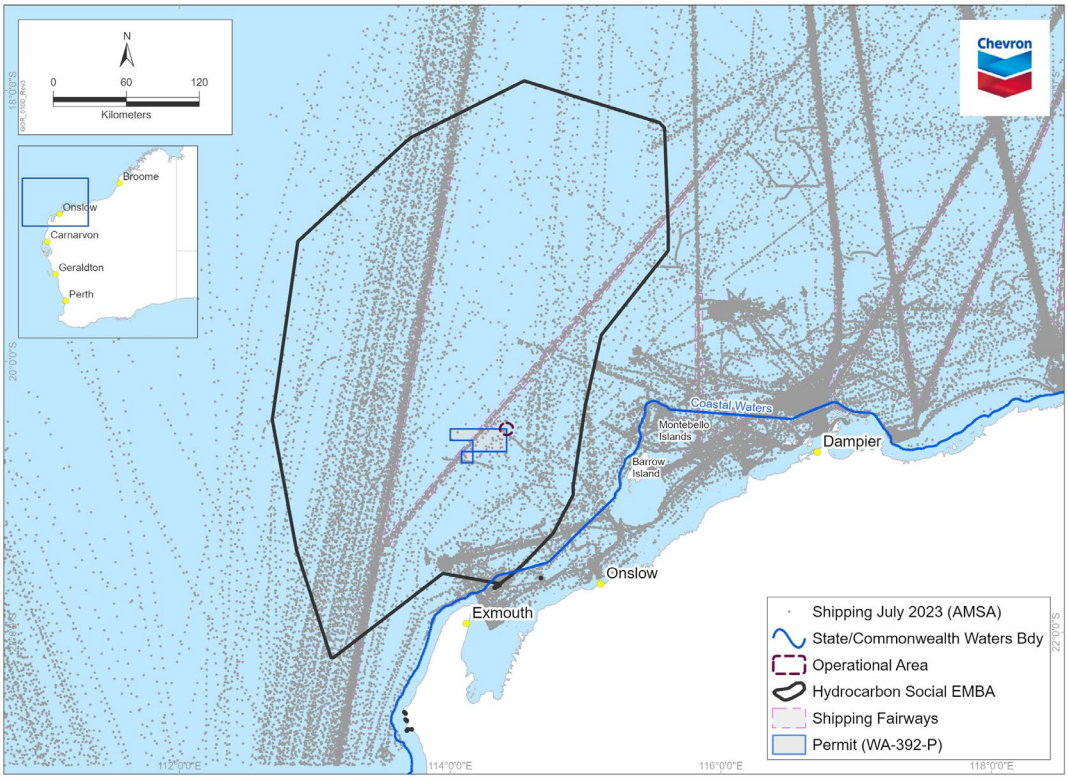


Figure 4-9: Vessel traffic within the vicinity of the EMBA

4.4.5 Tourism and recreation

Tourism is an important industry for WA, directly employing 56,300 people and indirectly employing a further 22,100 (Ref. 97). Charter fishing, diving, snorkelling, wildlife watching, and cruising are some of the commercial tourism activities in and adjacent to the NWMR (Ref. 72). With the exception of offshore fishing (Section 4.4.2), most marine tourism and recreational activities occur in the shallower State waters (Ref. 72).

The OA and Sound EMBA occur offshore and do not have any interface with nearshore waters or the coast, and as such limited tourism and recreational activities are expected (Section 4.4.2). The Hydrocarbon EMBAs only interest with small areas of the coast including the west coast of North Muiron, South Muiron, and Serrurier Islands and around the Point Cloates / Ningaloo Station area (Figure 4-1). As described in Section 4.3.5.1, tourism and recreational activities may occur around these places.

The Gascoyne and Pilbara regions are popular visitor destinations for both Australian and international tourists. The main marine nature-based tourist activities within the Gascoyne Region are concentrated around and within the Ningaloo Coast World Heritage property (~114 km south of the OA; Section 4.6). Activities undertaken include recreational fishing, snorkeling and scuba diving, wildlife watching and encounters (including Whale Sharks, Manta Rays, Humpback Whales and turtles) (Ref. 98), as well as beach access, surfing and paddling sports. Recreational fishing within the Pilbara region tends to be concentrated in State waters adjacent to population centres.

4.4.6 Other marine and coastal industries

Several other marine and coastal industries may be present within the EMBA (Table 4-18). There were no offshore renewable energy facilities, ports, salt mines, or onshore processing facilities identified within the EMBA.

Table 4-18: Presence of industries

Industry	OA	Sound EMBA	Hydrocarbon Social EMBA
Petroleum exploration and production			✓
Defence			✓
Submarine cable			✓

The Northern Carnarvon Basin is one of the most heavily explored and developed petroleum basins in Australia. The Northern Carnarvon, Browse and Bonaparte basins together comprise most of Australia's natural gas reserves (Ref. 26). The Carnarvon Basin supports >95% of WA's oil and gas production, and accounts for ~63% of Australia's total production of crude oil, condensate, and natural gas (Ref. 26).

The OA extends into four petroleum titles: WA-392-P, WA-73-R, WA-82-R and WA-87-R. No other petroleum activities have been identified within these petroleum titles.

The Royal Australian Air Force have a base located at Learmonth, and there is a designated maritime firing practices and exercise area associated with this base (Ref. 99). There are no known sites of unexploded ordnance within the OA (Ref. 100).

Submarine telecommunications cables are underwater infrastructure linking Australia with other countries; the submarine communications cables carry the bulk of Australia's international voice and data traffic. One known submarine cable intersects with the Hydrocarbon EMBAs, the Darwin-Jakarta-Singapore Cable. This cable links the existing Australia Singapore Cable to the North-West Cable

System. Under Part 2 of the *Telecommunications Act 1997* (Cth), the Australian Communications and Media Authority can declare protection zones covering the cables to prohibit and/or restrict activities that may damage them. The protection zones are generally the area within 1.85 km (1 nm) either side of the cable and include both the waters and seabed within the area. No protection zone has been declared for the Darwin-Jakarta-Singapore Cable.

4.5 Qualities and characteristics of locations, places and areas

The qualities and characteristics of the protected places present within the EMBA are described in the following sections.

4.5.1 Australian marine parks

Marine parks help conserve marine habitats and the marine species that live within and rely on these habitats. Marine parks also provide places for people to watch wildlife, dive, and go boating, snorkelling, or fishing (Ref. 101).

The North-west Marine Parks Network Management Plan (Ref. 189) defines the following types of values for the Marine Parks in the North-west Network:

- natural values—habitats, species and ecological communities, and the processes that support their connectivity, productivity and function
- cultural values—living and cultural heritage recognising Indigenous beliefs, practices and obligations for Country, places of cultural significance and cultural heritage sites
- heritage values—non-Indigenous heritage that has aesthetic, historic, scientific or social significance
- socioeconomic values—the benefits for people, businesses and/or the economy.

The objectives of the North-west Marine Parks Network Management Plan (Ref. 189) are to provide for:

1. the protection and conservation of biodiversity and other natural, cultural and heritage values of marine parks in the North-west Network
2. ecologically sustainable use and enjoyment of the natural resources within marine parks in the North Network, where this is consistent with objective (a).

Australian Marine Parks (AMPs), occur within Commonwealth waters and have been proclaimed under the EPBC Act in 2007 and 2013. The presence of AMPs within the EMBA, and a summary of values, is described in Table 4-19 and Figure 4-10.

There are no AMPs within the OA; the closest is the Gascoyne Marine Park boundary located ~62 km southwest of the OA.

Table 4-19: Prescence of AMPs

Australian Marine Park^	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
Gascoyne (Multiple use zone [IUCN VI])]			✓	✓
The Gascoyne Marine Park is located ~20 km off the west coast of the Cape Range Peninsula, adjacent to the Ningaloo Reef Marine Park and the Western Australian Ningaloo Marine Park, and				

Australian Marine Park^	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA

extends to the limit of Australia's EEZ. The Marine Park covers an area of 81,766 km² and water depths between 15 m and 6,000 m.

Natural values

The Marine Park includes examples of ecosystems representative of:

- Central Western Shelf Transition—continental shelf with water depths up to 100 m, and a significant transition zone between tropical and temperate species
- Central Western Transition—characterised by large areas of continental slope; a range of topographic features such as terraces, rises, and canyons; seasonal and sporadic upwelling; and benthic slope communities comprising tropical and temperate species
- Northwest Province—an area of continental slope comprising diverse and endemic fish communities.

The marine park includes four KEFs characterised by seasonal and sporadic upwelling, nutrient-rich water and aggregations of marine life and high diversity of demersal fish assemblages. The Marine Park supports a range of species including species listed as threatened, migratory, marine, or cetacean under the EPBC Act. BIAs within the Marine Park include breeding habitat for seabirds; internesting habitat for marine turtles; a migratory pathway for Humpback Whales; and foraging habitat and migratory pathway for Pygmy Blue Whales.

Cultural values

Sea Country is valued for Indigenous cultural identity, health and wellbeing. Across Australia, Indigenous people have been sustainably using and managing their Sea Country for tens of thousands of years. The Baiyungu, Thalanyji and Yinikurtura People have responsibilities for sea country in the marine park.

Heritage values

No World, Commonwealth or national heritage listings apply to the Marine Park, however the Marine Park is adjacent to the Ningaloo Coast World heritage area.

Social and economic values

Commercial fishing, mining and recreation are important activities in the Marine Park. These activities contribute to the wellbeing of regional communities and the prosperity of the nation.

^*Source: Ref. 189.*

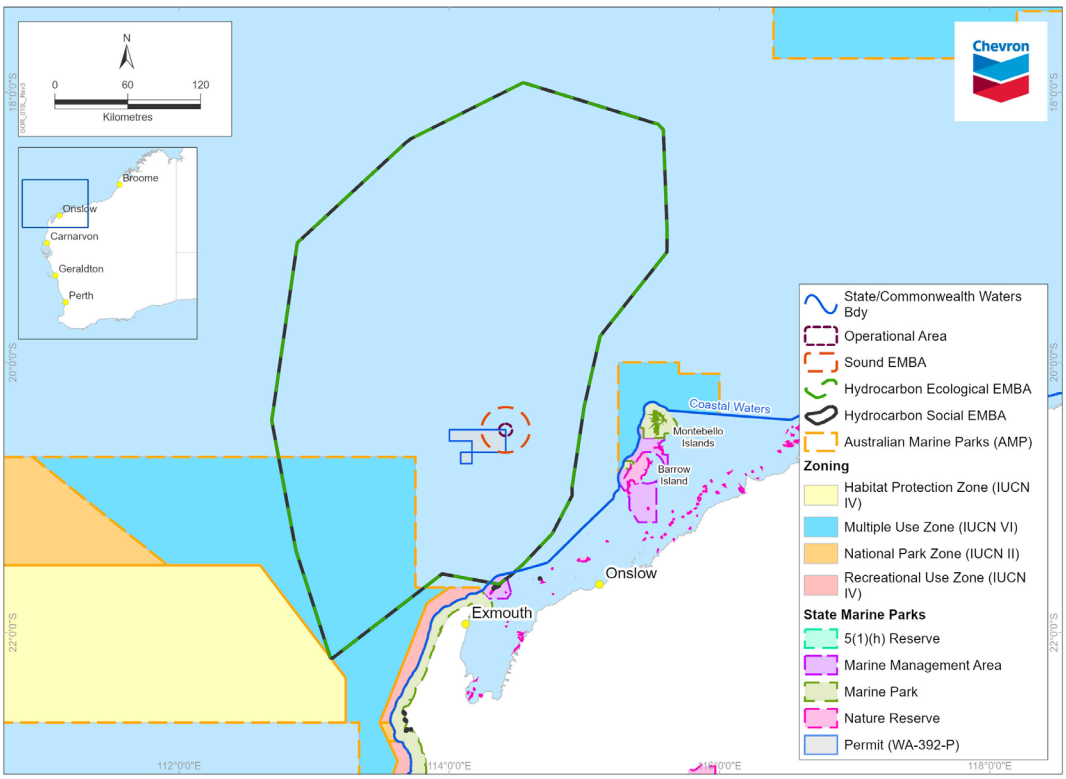


Figure 4-10: Commonwealth and State marine protected areas within the vicinity of the EMBA

4.5.2 State marine protected areas

State Marine Parks, Management Areas and Reserves, proclaimed under the *Conservation and Land Management Act 1984* (WA) (CALM Act), are located in State waters and are vested in the WA Conservation and Parks Commission.

The presence of marine parks or management areas within the EMBA is shown in Table 4-20 and Figure 4-10. There are no State marine parks or management areas within the OA; the closest is the Barrow Island Marine Management Area, located ~90 km southwest from the OA.

Table 4-20: Presence of state marine parks, management areas and reserves

State marine parks protected areas	IUCN Zones	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
Muiron Islands - Marine Management Area	Unassigned (IUCN VI)			✓	✓
	Conservation area (IUCN Ia)				✓
Ningaloo – Marine Park	Sanctuary Zone (IUCN Ia)				✓
	Special Purpose Zone (Shore Based Activities) (IUCN II)				✓
	Unassigned (IUCN II)				✓

The Muiron Islands consist of the South Muiron and North Muiron islands which serve as important nesting sites for seabirds and green turtles (Ref. 315). These islands and surrounding waters are also within the Muiron Islands Marine Management Area and the Ningaloo Coast World Heritage property and National Heritage place (Section 4.6.1). The Muiron Islands Marine Management Area is recognised for its rich marine biodiversity, coral reefs, filter-feeding communities and macroalgal beds (Ref. 370).

4.5.3 State terrestrial protected areas

Terrestrial protected areas, proclaimed under the CALM Act, are located in State lands and are vested in the WA Conservation and Parks Commission.

The OA occurs offshore and does not have any interface with the coast. The Hydrocarbon Ecological EMBA interfaces with the west coast of North Muiron Island only. The Hydrocarbon Social EMBA interface with the west coast of North Muiron, South Muiron, and Serrurier Islands, as well as around the Point Cloates / Ningaloo Station area (Figure 4-1) The State terrestrial protected areas that intersect with the Hydrocarbon EMBAs are shown in Table 4-21.

Table 4-21: Presence of State terrestrial protected areas

Lands protected areas	Zone Type (IUCN category)	OA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
Pilbara Islands Nature Reseves [17]^	Nature Reserve (IUCN Ia)		✓	✓
Nyinggulara National Park^	Nature Reserve (IUCN Ia)			✓

^ *Protected area is landward of HWM.*

4.6 Heritage value of places

Listed World Heritage properties, and National Heritage places, are MNES under the EPBC Act, and a relevant value and sensitivity under the OPGGS(E)R. Table 4-22 identifies the presence of these, and other marine or coastal heritage protected places, within the EMBA.

Table 4-22: Presence of heritage value

Feature	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
World Heritage property				
Ningaloo Coast			✓	✓

[17] The Pilbara Inshore Islands management plan includes 20 existing nature reserves, with several small unallocated Crown Land islands proposed to become nature reserves. Of the existing nature reserves, the Hydrocarbon Ecological EMBA intersects with Muiron Islands, and the Hydrocarbon Social EMBA intersects with Muiron and Serrurier Islands.

Feature	OA	Sound EMBA	Hydrocarbon Ecological EMBA	Hydrocarbon Social EMBA
National Heritage place				
Ningaloo Coast			✓	✓
Commonwealth Heritage place				
N/A	*(none identified within EMBA)*			
Indigenous Protected Areas				
N/A	*(none identified within EMBA)*			
Sites or artefacts protected under the *Underwater Cultural Heritage Act 2018* (Cth)				
Historic shipwrecks (>75 years old)			✓	✓
Shipwrecks			✓	✓
Sunken aircraft	*(none identified within EMBA)*			
In situ artefacts	*(none identified within EMBA)*			
Sites or artefacts protected under the *Aboriginal Cultural Heritage Act 1972* (WA)[18]				
Ningaloo Station (Skeletal Material / Burial)				✓
Determined areas under the *Native Title Act 1993* (Cth)				
Native Title determination WCD2019/016				✓
Claim areas under the *Native Title Act 1993* (Cth)				
N/A	*(none identified within EMBA)*			

4.6.1 Ningaloo Coast

The Ningaloo Coast is located in WA adjacent to the East Indian Ocean. The area has a high level of terrestrial species endemism, and high marine species diversity and abundance (Ref. 103). The integration of the Ningaloo Reef and Exmouth Peninsula karst system as a cohesive limestone structure is at the heart of the natural heritage significance of the Ningaloo Coast (Ref. 104).

The marine portion of the World Heritage property contains a high diversity of habitats that includes lagoon, reef, open ocean, the continental slope, and the continental shelf (Ref. 103). Intertidal systems such as rocky shores, sandy beaches, estuaries, and mangroves are also present (Ref. 103). The most dominant marine habitat is Ningaloo Reef, which sustains both tropical and temperate marine fauna and flora, including marine reptiles and mammals (Ref. 103).

The main terrestrial feature of the Ningaloo Coast is the extensive karst system and network of underground caves and water courses of the Cape Range (Ref. 103). The karst system includes hundreds of separate features such as

[18] Only Aboriginal Sites, being a place described under Section 5 of the *Aboriginal Heritage Act 1976* (WA), with a potential coastal and/or marine interface that intersect with the geographic extent of the EMBA (including areas of predicted shoreline loading) have been included. This is considered a conservative approach, as the heritage sites within the Department of Planning, Lands and Heritage spatial dataset (Ref. 102) include a buffer around sites to protect privacy regarding the location. As such, the identified heritage sites may not be present within the EMBA.

caves, dolines, and subterranean water bodies and supports a rich diversity of highly specialised subterranean species (Ref. 103). Above ground, the Cape Range Peninsula belongs to an arid ecoregion recognised for its high levels of species richness and endemism, particularly for birds and reptiles (Ref. 103).

In addition to the natural values of the Ningaloo Coast, Indigenous values are identified under the National Heritage listing (Ref. 104). Archaeological deposits in the rock shelters on Cape Range show First Nations people sophisticated knowledge of marine resources between 35,000 and 17,000 years ago. The rock shelters are considered to provide the best evidence in Australia for the use of marine resources during the Pleistocene (Ref. 104).

4.6.2 Underwater cultural heritage

Australia's UCH is protected under the UCH Act; this legislation protects shipwrecks, sunken aircraft and other types of underwater heritage, including First Nations UCH in Australian waters[19].

Under section 15 of the UCH Act, UCH is defined as "any trace of human existence that has a cultural, historical, or archaeological character, and is located under water". The UCH Act protects physical sites and artefacts; intangible heritage values with no physical component are not protected under the Act (Ref. 224).

A desktop analysis was undertaken to determine the presence of UCH within the EMBA. This analysis included:

- searches of the online *Australasian Underwater Cultural Heritage Database* (Ref. 225) for known UCH
- consultation with First Nations people and/or representative bodies (relevant persons) to identify presence of UCH artefacts.

Based on the database searches, both historic (>75 years old) shipwrecks and other shipwreck sites were identified in the EMBA (Table 4-22). No sunken aircraft, or other types or artefacts, were identified within the EMBA from the database searches.

The consultation undertaken during the preparation of this EP is summarised in Section 6. During this consultation, no specific First Nations UCH has been identified within the EMBA.

4.6.3 Aboriginal cultural heritage

The *Aboriginal Cultural Heritage Act 1972* (WA) recognises Aboriginal cultural heritage in the WA, including within State waters. A desktop analysis was undertaken to determine the presence of Aboriginal cultural heritage within the EMBA to the extent that it extends into State waters and land. This analysis included:

- searches of heritage sites within the Department of Planning, Lands and Heritage spatial dataset (Ref. 102)
- consultation with First Nations people and/or representative bodies (relevant persons) to identify the presence of Aboriginal cultural heritage.

[19] The UCH Act applies to all Australian waters, including both State waters (coastal waters) and Commonwealth waters (extending from coastal waters to the edge of continental shelf).

Aboriginal Heritage places within the Department of Planning, Lands and Heritage spatial dataset (Ref. 102) that were identified in the EMBA are listed in Table 4-22. Heritage sites within the Department of Planning, Lands and Heritage spatial dataset (Ref. 102) include a buffer around sites to protect privacy regarding the location. As such, the identified heritage sites may not be present within the EMBA. Note: There may be other Aboriginal cultural heritage within the meaning of the *Aboriginal Cultural Heritage Act 1972* (WA) present in the EMBA even if not within the Department of Planning, Lands and Heritage spatial dataset (Ref. 102).

The consultation undertaken during the preparation of this EP is summarised in Section 6. Cultural values or features identified through consultation are also summarised within Table 4-14.

4.6.4 Native Title

Native Title recognises the rights and interests of Aboriginal and Torres Strait Islander people in land and waters according to their traditional laws and customs and is administered under the *Native Title Act 1993* (Cth).

No native title claims extend to the EMBA.

A Native Title determination (WCD2019/016) extends over the Ningaloo Coast area. The Yinggarda, Baiyungu, and Thalanyji people received recognition as a Native Title holder over an area of 71,354 m^2. The determination area encompasses several pastoral leases, mining tenements, roads, and reserves, as well as portions of the Kennedy Range and Cape Range national parks, Ningaloo Marine Park, Lake MacLeod, and waters in the Exmouth Gulf and Ningaloo Marine Park (Ref. 90). The Yinggarda, Baiyungu and Thalanyji people have each maintained a physical presence in their respective part of the determination area and have a continuing physical or spiritual involvement in that area (Ref. 90). The determination area contains places of special significance, such as cultural, spiritual and ceremonial sites and natural resources (Ref. 90).

The relevant Prescribed Bodies Corporates (PBCs) are the NTGAC (representing the Baiyungu and Thalanyji people) and the YAC.

5 environmental impact and risk assessment methodology

This section provides a description of the methods used to identify and evaluate the environmental impacts and risks associated with the petroleum activity (as described in Section 3) and any potential emergency conditions associated with this activity. These methods support the environmental impact and risk assessment as required under regulation 21(5) of the OPGGS(E)R.

The impact and risk assessment for this EP was undertaken in accordance with the CAPL's *ABU (Australian Business Unit) Operational Excellence (OE) Risk Management Process* (Ref. 32) and using Chevron Corporation's Integrated Risk Prioritization Matrix (Table 5-1). This approach generally aligns with the processes outlined in ISO 31000:2018 *Risk management – Principles and guidelines* (Ref. 33) and the HB 203:2012 *Managing environment-related risk* (Ref. 34).

The impact and risk assessment process and evaluation involved consulting with environmental, health, safety, drilling, engineering, and emergency response personnel. The impacts and risks considered and covered in this EP were identified and informed by:

- expertise and experience of CAPL personnel involved in previous drilling campaigns
- relevant persons consultation (Section 6).

5.1 Identification and description of the petroleum activity

All components of the petroleum activity and potential emergency conditions relevant to the scope of this EP are described and evaluated during the impact and risk assessment. The petroleum activity is described in detail in Section 3.

5.2 Identification of relevant values and sensitivities

The presence of environmental values and sensitivities within the EMBA is documented in Section 4. In accordance with regulation 21(3) of the OPGGS(E)R, relevant values and sensitivities include the following:

- the world heritage values of a declared World Heritage property
- the national heritage values of a National Heritage place
- the ecological character of a declared Ramsar wetland
- the presence of a listed threatened species or listed TECs
- the presence of a listed migratory species
- any values and sensitivities that exist in, or in relation to, part or all of:
  - a Commonwealth marine area
  - Commonwealth land.

Because many protected, rare, or endangered fauna have the potential to transit through the EMBA, CAPL considers that the habitat and/or temporal area that supports protected and endangered fauna (including areas defined as BIAs for these species) is considered part of the relevant value or sensitivity.

Environmental values and sensitivities are also considered to be associated with each of the receptor groups identified and described throughout Section 4 (i.e. in addition to those relevant values and sensitivities as identified under the OPGGS(E)R). All environmental values and sensitivities have been taken into

consideration during the consultation process (and identification in functions, interests, or activities; Section 6), and the impact and risk assessment (Section 7).

5.3 Identification of relevant aspects

CAPL defines an aspect as an element of CAPL's activities, products, or services related to an operation that has the potential to interact with the environment at present or later (e.g. wastewater discharge, greenhouse gas emission, legacy environmental obligations).

After describing the petroleum activity, an assessment was carried out to identify potential interactions between the petroleum activity and the receiving environment. The outcomes of relevant persons consultation also contributed to this scoping process.

Note: Potential interactions with safety, health, and assets is outside the scope of this EP.

Environmental aspects categorised for use in the impact and risk assessment of this petroleum activity include:

- physical presence
- seabed disturbance
- air emissions
- light emissions
- underwater sound
- invasive marine pests
- planned discharges
- unplanned releases.

5.4 Identification of relevant environmental impacts and risks

Potential impacts and risks arising from the aspects were then identified during a scoping exercise and evaluated in detail.

5.5 Evaluation of impacts and risks

5.5.1 Consequence

After identifying the aspects, and associated potential impacts and risks, the potential consequences were evaluated using Chevron's Integrated Risk Prioritization Matrix (Table 5-1). The consequence level is determined by considering:

- the spatial scale or extent of potential interactions within the receiving environment
- the nature of the receiving environment (within the spatial extent), including proximity to sensitive receptors, relative importance, and sensitivity or resilience to change
- the impact mechanisms (cause and effect) of the aspect within the receiving environment (e.g. persistence, toxicity, mobility, bioaccumulation potential)
- the duration and frequency of potential effects and time for recovery

- the potential degree of change relative to the existing environment or to acceptability criteria.

For aspects that have the potential to cause both impacts and risks, the highest level consequence was carried through the remainder of the assessment to ensure the most conservative analysis is presented.

Table 5-1: Chevron Corporation's Integrated Risk Prioritization Matrix

Likelihood Descriptions									
	Expected to occur	Likely	1	6	5	4	3	2	1
	Conditions may allow to occur	Occasional	2	7	6	5	4	3	2
	Exceptional conditions may allow to occur	Seldom	3	8	7	6	5	4	3
	Reasonable to expect will not occur	Unlikely	4	9	8	7	6	5	4
	Has occurred once or twice in the industry	Remote	5	10	9	8	7	6	5
	Rare or unheard of	Rare	6	10	10	9	8	7	6
Consequence Descriptions				6	5	4	3	2	1
				Incidental	Minor	Moderate	Major	Severe	Catastrophic
				Limited environmental impact	Localised, short-term environmental impact	Localised, long-term environmental impact	Short-term, widespread environmental impact	Long-term widespread environmental impact	Persistent landscape-scale environmental impact

5.5.2 Control measures and ALARP

The process for identifying control measures depends on the 'as low as reasonably practicable' (ALARP) decision context set for that particular aspect. Regardless of the process, control measures are assigned in accordance with the defined environmental performance outcomes, with the objective to eliminate, prevent, reduce, or mitigate consequences associated with each identified environmental impact and risk.

The OPGGS(E)R defines a control measure as "a system, an item of equipment, a person or a procedure, that is used as a basis for managing environmental impacts and risk".

5.5.2.1 ALARP decision context

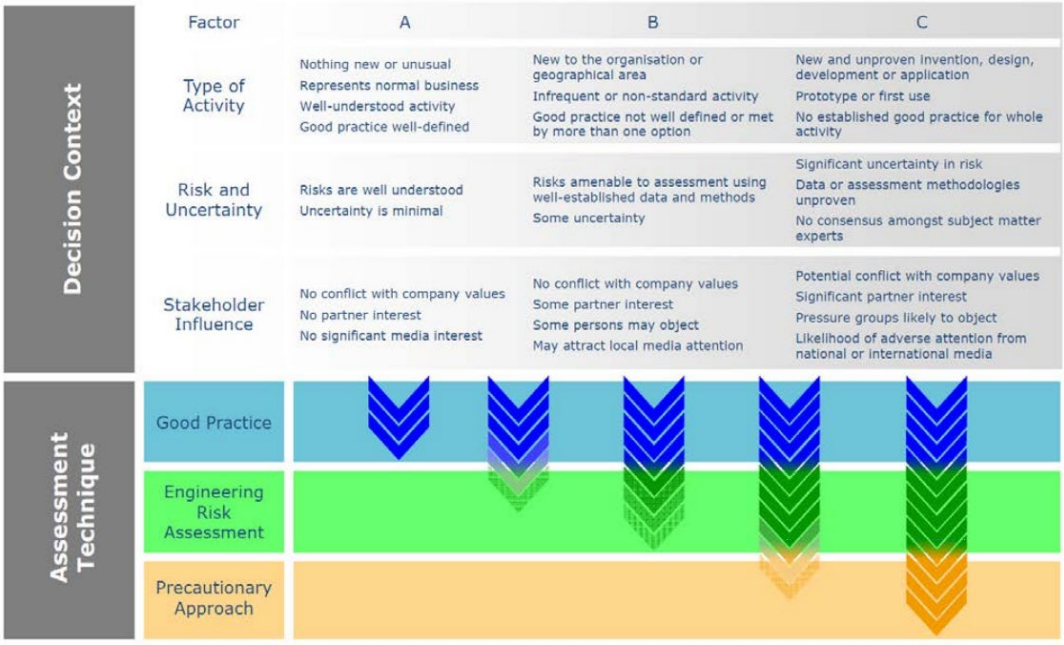
In alignment with NOPSEMA's ALARP guidance note (Ref. 35), CAPL has adapted the approach developed by Oil and Gas UK (OGUK; now Offshore Energies UK) (Ref. 36) for use in an environmental context to determine the assessment technique required to demonstrate that impacts and risks are ALARP. Specifically, the framework considers the magnitude of impacts and risks along with these guiding factors:

- activity type
- risk and uncertainty
- stakeholder influence.

A Type A decision (Figure 5-1) is made for lower-order impacts and risks (Table 5-3) where they are relatively well understood, activities are well-practised, and there is no significant stakeholder interest. However, if good practice is not sufficiently well defined, additional assessment may be required. In addition, where an aspect associated with the activity is listed as either a key threat to a protected matter under a document made or implemented under the EPBC Act (such as recovery plans, conservation management plans, or a conservation advice), or identified as an aspect of concern to a listed conservation value under an EPBC Act marine bioregional plan, and can result in a credible impact or risk to these sensitivities, additional control consideration will be undertaken.

A Type B decision (Figure 5-1) is made for higher-order impacts and risks (Table 5-3) if there is greater uncertainty or complexity around the activity, and there are relevant concerns from stakeholders. In this instance, established good practice is not considered sufficient and further assessment is required to support the decision and ensure the risk is ALARP.

A Type C decision (Figure 5-1) typically involves sufficient complexity, higher-order impact and risks (Table 5-3), uncertainty, or stakeholder interest to require a precautionary approach. In this case, relevant good practice still has to be met, additional assessment is required, and the precautionary approach must be considered for those controls that only have a marginal cost benefit.



(Source: Ref. 36)

Figure 5-1: ALARP decision support framework

In accordance with the regulatory requirement to demonstrate that environmental impacts and risks are ALARP, CAPL has considered the above decision context in determining the level of assessment required. This is applied to each aspect described in Section 6. The assessment techniques considered include:

- good practice
- engineering risk assessment
- precautionary approach.

5.5.2.2 Good practice

OGUK (Ref. 36) defines ‘good practice’ as:

> *The recognised risk management practices and measures that are used by competent organisations to manage well-understood hazards arising from their activities.*

Good practice can also be used as the generic term for those measures that are recognised as satisfying the law. For this EP, sources of good practice include:

- requirements from Australian legislation and regulations
- relevant Commonwealth government policies
- relevant Commonwealth government guidance
- relevant industry standards
- relevant international conventions.

If the ALARP technique is determined to be good practice, further assessment (an engineering risk assessment) is not required to identify additional controls. However, additional controls that provide a suitable environmental benefit for an insignificant cost have been identified.

5.5.2.3 Engineering risk assessment

All impacts and risks that require further assessment are subject to an engineering risk assessment. Based on the various approaches recommended by OGUK (Ref. 36), CAPL believes the methodology most suited to this activity is a comparative assessment of risks, costs, and environmental benefit. A cost–benefit analysis should show the balance between the risk benefit (or environmental benefit) and the cost of implementing the identified measure, with differentiation required such that the benefit of the risk-reduction measure can be seen and the reason for the benefit understood.

5.5.2.4 Precautionary approach

After considering all available engineering and scientific evidence, OGUK (Ref. 36) state that if the assessment is insufficient, inconclusive, or uncertain, then a precautionary approach to hazard management is needed. A precautionary approach will mean that uncertain analysis is replaced by conservative assumptions that will result in control measures being more likely to be implemented.

That is, environmental considerations are expected to take precedence over economic considerations, meaning that a control measure that may reduce environmental impact is more likely to be implemented. In this decision context, the decision could have significant economic consequences to an organisation.

5.5.3 Likelihood

For environmental impacts (where there is a planned emission or discharge resulting in a known change to the environment) likelihood is not considered.

For risks where the aspect or event may lead to environmental impacts under certain circumstances, the likelihood (probability) of the defined consequence occurring is determined. The likelihood is considered on the assumption that all control measures are in place. The likelihood of a consequence occurring was identified using one of the six likelihood categories shown in Table 5-1.

5.5.4 Quantification of the level of risk

The Integrated Risk Prioritization Matrix (Table 5-1) was applied during an environmental risk assessment workshop. This matrix uses consequence and likelihood rankings of 1 to 6, which when combined, result in a risk level between 1 (highest risk) and 10 (lowest risk). Risk assessment outcomes are based solely on assessment of risk to the environment (as defined under the OPGGS(E)R).

5.6 Impact and risk acceptance criteria

NOPSEMA provides guidance on demonstrating that impacts and risks will be of an ‘acceptable level’ (Ref. 16). This guidance indicates that an acceptable level is the level of impact or risk to the environment that may be considered broadly acceptable with regard to all relevant considerations, including:

- principles of ecologically sustainable development (ESD)
- legislative and other requirements (including laws, policies, standards, conventions)
- matters protected under Part 3 of this EPBC Act, consistent with relevant policies, guidelines, threatened species recovery plans, management plans, management principles etc.

- internal context (titleholder policy, culture, processes, standards, and systems)
- external context (existing environment, relevant persons consultation.

5.6.1 Principles of ESD and precautionary principle

The principles of ESD are considered in Table 5-2 in relation to acceptability evaluations.

Under this EPBC Act, the Minister must also take into account the precautionary principle in determining whether or not to approve the taking of an action. The precautionary principle (section 391(2) of this EPBC Act) is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there may be threats of serious or irreversible environmental damage.

Table 5-2: Principles of ESD in relation to petroleum activity acceptability evaluations

Principles of ESD	How they have been applied
(a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social, and equitable considerations	CAPL's impact and risk assessment process integrates long-term and short-term economic, environmental, social, and equitable considerations. This is demonstrated through the Integrated Risk Prioritization Matrix (Table 5-1), which includes provision for understanding the long-term and short-term impacts associated with its activities, and the ALARP process, which balances the economic cost against environmental benefit. As this principle is inherently met by applying the EP assessment process, it is not considered separately for each evaluation.
(b) 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	Consider if there is serious or irreversible environmental damage (i.e. consequence level between Major [3] and Catastrophic [1]). If so, assess whether there is significant uncertainty associated with the aspect.
(c) the principle of inter-generational equity – that the present generation should ensure that the health, diversity, and productivity of the environment is maintained or enhanced for the benefit of future generations	The risk assessment methodology ensures that impacts and risks are reduced to levels that are considered ALARP. If the impacts and risk are determined to be serious or irreversible, the precautionary principle is implemented to ensure that risks are managed to ensure that the environment is maintained for the benefit of future generations.
(d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making	Evaluate if there is the potential to affect biological diversity and ecological integrity.
(e) improved valuation, pricing, and incentive mechanisms should be promoted	Not considered relevant for petroleum activity acceptability demonstrations.

5.6.2 Defining an acceptable level of impact and risk

In alignment with NOPSEMA's ALARP guidance note (Ref. 35), CAPL has applied the approach that lower-order environmental impacts or risks (Table 5-3) assessed as Decision Context A are 'broadly acceptable', while higher-order

environmental impacts or risks determined to be Decision Context B or C require further evaluation against a defined acceptable level because they are not inherently 'broadly acceptable'. However, in alignment with NOPSEMA's decision making guidance (Ref. 16) even where the impact or risk is evaluated as being a lower-order impact or risk, but the aspect associated with the activity is listed as a threat to a protected matter under a document made or implemented under this EPBC Act, or identified as an aspect of concern to a listed conservation value under an EPBC Act Marine Bioregional Plans, and can result in a credible impact or risk, CAPL will define an acceptable level of impact and risk in accordance with a document made or implemented under this EPBC Act.

Table 5-3: CAPL definition of lower-order and higher-order impacts and risks

Magnitude	Impacts	Risk	Decision context
Lower-order	Consequence Level: 4–6	Risk Level: 7–10	A
Higher-order	Consequence Level: 1–3	Risk Level: 1–6	B or C

CAPL will consider these types of documents when defining the acceptable level of impact or risk:

- bioregional plans
- AMP plans
- conservation advice
- recovery plans
- government guidelines.

The objectives of the documents are identified and, having regard for the described activity, CAPL will set an acceptable level of impact that aligns with these objectives. Where the impact arising from the activity is inconsistent with the defined level (or objectives of the relevant documents), it is unacceptable.

5.6.3 Summary of acceptance criteria

Table 5-4 outlines the criteria that CAPL used to demonstrate that impacts and risks from each identified aspect are acceptable.

Table 5-4: Acceptability criteria

Criteria	Test
Principles of ESD	Is there the potential to affect biological diversity and ecological integrity? Do activities have the potential to result in permanent/irreversible, medium-large scale, and/or moderate-high intensity environmental damage?
	If yes: Is there significant scientific uncertainty associated with the aspect?
	If yes: Are there additional measures to prevent degradation of the environment from this aspect?
Relevant environmental legislation and other requirements	Confirm that impact and risk management is consistent with relevant Australian environmental management laws and other regulatory / statutory requirements.
Internal context	Confirm that all good practice control measures were identified for this aspect through CAPL's management systems and that impact and risk

Criteria	Test
	management is consistent with company policy, culture, and standards.
External context	What objections and claims regarding this aspect were made, and how were they considered / addressed?
Defined acceptable level	Is the impact and risk broadly acceptable (i.e. Decision Context A)?
	If no: For higher-order environmental impacts and risks (Decision Context B or C), what is the defined level of impact, and does the activity meet this level?

5.7 Environmental performance outcomes, standards, and measurement criteria

Environmental performance outcomes (EPOs), environmental performance standards (EPSs), and measurement criteria (MC) were defined to address the environmental impacts and risks identified during the risk assessment.

CAPL is committed to conducting activities associated with the petroleum activity in an environmentally responsible manner and aims to implement best practice environmental management as part of a program of continual improvement to reduce impacts and risks to ALARP. CAPL defines environmental performance outcomes, standards, and measurement criteria that relate to the management of the identified environmental risks as:

- **environmental performance outcomes**—a measurable level of performance required for the management of environmental aspects of an activity to ensure that environmental impacts and risks will be of an acceptable level
- **environmental performance standards**—a statement of the performance required of a control measure
  - These statements will consider the effectiveness of the control measures, and, in accordance with NOPSEMA's decision making guidance (Ref. 16), effectiveness will be considered with regards to the controls' functionality, availability, reliability, survivability, independence, and compatibility with other control measures
- **measurement criteria**—compliance and assurance statement or records that detail how CAPL enacts the outlined performance standard; these are used to determine whether the environmental performance outcomes and standards were met and whether the implementation strategy was complied with. If no practicable quantitative target exists, a qualitative criterion is set.

6 relevant persons consultation

This section provides a description of the methods used, and outcomes of, consultation with relevant authorities, persons, or organisations (a relevant person) undertaken during the preparation of this EP, as required under regulation 25 of the OPGGS(E)R.

Ongoing consultation, as required under regulation 22(15) of the OPGGS(E)R, is described in Section 8.3.4.

6.1 Purpose

Regulation 25 of the OPGGS(E)R allows the titleholder to properly understand all the environmental impacts and risks of the petroleum activity, and enables the titleholder to refine or change the control measures by taking into account the information acquired from relevant persons through consultations. Recent judicial consideration of regulation 25 assists in understanding the purpose of the consultation required under the provision:

> *"[Regulation 25], like most statutory consultation provisions, imposes an obligation that must be capable of practicable and reasonable discharge by the person upon whom it is imposed. Consultation is a "real world" activity, with specific purposes. Here, its purpose is to ensure that the titleholder has ascertained, understood and addressed all the environmental impacts and risks that might arise from its proposed activity. Consultation facilitates this outcome because it gives the titleholder an opportunity to receive information that it might not otherwise have received from others affected by its proposed activity. Consultation enables the titleholder to better understand how others with an objective stake in the environment in which it proposes to pursue the activity perceive those environmental impacts and risks. As the Regulations expressly contemplate, it enables the titleholder to refine or change the measures it proposes to address those impacts and risks by taking into account the information acquired through the consultations. Objectively, the scheme intends that this is likely to improve the minimisation of environmental impacts and risks from the activity."*[20]

The consultation process should also inform the titleholder's understanding of the environment, including (amongst other things) people and communities, the heritage value of places, and their social and cultural features which may be affected by a titleholder's proposed activities (Ref. 208). The purpose of consultation is also to:

- identify the social and cultural features of communities within the ecosystem
- inform the control measures to eliminate, reduce and mitigate impacts and risks to those socio-cultural values and sensitivities in response to relevant persons concerns
- to inform NOPSEMA of relevant persons' identities, the nature of the consultation, and the control measures adopted (Ref. 210 at paragraphs 55–57).

[20] Paragraph 89 of *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Ref. 210). Note: The regulation number in the above text has been revised to reflect the OPGGS(E)R 2023, from the original *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC judgement transcript.

Regulation 25 establishes an obligation on titleholders to carry out consultation with relevant persons during preparation of an EP, and this obligation must be discharged prior to submitting an EP to NOPSEMA (Ref. 208).

6.2 Consultation design

The consultation during the preparation of this EP was undertaken in accordance with CAPL's *Stakeholder Engagement and Issues Management Process: ABU Standardised OE Process* (Ref. 45) and further guided by:

- NOPSEMA's *Environment plan decision making guideline* (Ref. 16)
- NOPSEMA's *Environment plan content requirements guidance note* (Ref. 209)
- NOPSEMA's *Consultation in the course of preparing an environment plan guideline* (Ref. 208)
- NOPSEMA's *Consultation with Commonwealth agencies with responsibilities in the marine area guideline* (Ref. 17)
- NOPSEMA's *Petroleum activities and Australian Marine Parks* guidance note (Ref. 211)
- Full Court of the Federal Court of Australia's decision in *Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193* (Ref. 210)
- Commonwealth of Australia's *Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999*(Ref. 213)
- Government of Western Australia's *Aboriginal Cultural Heritage Act 2021— Consultation Guidelines* (Ref. 214)
- WA Department of Energy Mines, Industry Regulation and Safety (DEMIRS*) Guideline for the Development of Petroleum, Geothermal and Pipeline Environment Plans in Western Australia* (Ref. 215)
- Australian Fisheries Management Authority's (AFMA) *Petroleum industry consultation with the commercial fishing industry* (Ref. 216)
- Western Australian Fishing Industry Council's (WAFIC) *Oil & Gas Consultation Approach for Unplanned Events* (Ref. 217)
- WAFIC's *Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector* (Ref. 282)
- DPIRDs *Guidance statement for oil and gas industry consultation with the Department of Fisheries* (Ref. 218)
- WA Department of Transport's (DoT) *Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements* (Ref. 219).

The consultation design is reviewed on a case-by-case basis to incorporate any feedback from relevant persons regarding the type of information or method of engagement that is preferred to ensure that the purpose of the consultation is achieved.

6.2.1 Relevant person

In accordance with regulation 25(1) of the OPGGS(E)R, a relevant person is defined as:

- regulation 25(1)(a)—each Commonwealth, State or Northern Territory agency or authority to which the activities to be carried out under the EP, or the revision of the EP, may be relevant
- regulation 25(1)(b)—if the EP relates to activities in the offshore area of a State—the Department of the responsible State Minister
- regulation 25(1)(c)— if the EP relates to activities in the Principal Northern Territory offshore area—the Department of the responsible Northern Territory Minister
- regulation 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
- regulation 25(1)(e)—any other person or organisation that the titleholder considers relevant.

Following the direction given by the Full Court of the Federal Court in *Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193* (Ref. 210), and subsequent NOPSEMA guidance (Ref. 209) it is clear that the phrase "functions, interests or activities" stated in regulation 25(1)(d) should be broadly construed[21] on the basis that a broad construction best promotes the objects of the OPGGS(E)R. In *Santos NA Barossa Pty Ltd v Tipakalippa*, the Court construed the following terms used in regulation 25(1)(d) as follows:

- **functions**—a power or duty to do something[22]
- **interests**—in accordance with the accepted concept of "interest" in other areas of public administrative law, and including "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"[23]
- **activities**—broadly and is broader than the definition of 'activity' in regulation 5 of the OPGGS(E)R and is likely directed to what the relevant person is already doing [24].

Persons or organisations are considered relevant persons under regulation 25(1)(d) of the OPGGS(E)R if their functions, interests or activities may be affected by the petroleum activity to be carried out under the EP. CAPL's approach has been to take a broad interpretation of "function, interest, and activity" and screen in relevant persons.

Where interests are held communally, CAPL has made a decisional choice to consult with representative bodies (Ref. 209 at paragraphs 96–102) and has sought to do so through meetings (Ref. 209 at paragraph 104). CAPL has sought to provide sufficient information to individuals who are relevant persons by providing information to representative bodies for dissemination with members and by attending meetings with group members (Ref. 209 at paragraph 47) and CAPL has also sought to identify those representative body organisations themselves as relevant persons (Ref. 209 paragraph 48). As documented in the summary of consultation (Appendix d), CAPL has asked these representative bodies if there are persons outside of the individuals they represent who may be

[21] Paragraph 51 of *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Ref. 209).

[22] Paragraph 60 of *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Ref. 209).

[23] Paragraphs 63 and 65 of *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Ref. 209).

[24] Paragraphs 58 and 59 of *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Ref. 209). Note: The regulation number in the above text has been revised to reflect the OPGGS(E)R 2023, from the original *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC judgement transcript.

relevant persons for the purposes of consultation to endeavour to make all necessary efforts to identify relevant persons.

6.2.2 Sufficient information

Under regulation 25(2) of the OPGGS(E)R and NOPSEMA's guidelines (Ref. 16; Ref. 208), for the purpose of consultation, the titleholder must provide each relevant person with sufficient information to enable them to make an informed assessment of the possible consequences of the petroleum activity on their functions, interests, or activities.

The base level of information provided to all relevant persons includes:

- maps of the proposed petroleum activity location and the associated EMBA
- a summary of the petroleum activity, including indicative schedule and duration
- a summary of the potential impacts and risks as identified by CAPL
- a preliminary assessment of how the potential impacts and risks may impact the environmental and socio-cultural values and sensitivities
- a summary of the proposed control measures that CAPL has adopted to reduce the predicted consequence and/or likelihood of the potential impact or risk.

This base level of information is the minimum required for relevant persons to make an informed assessment of the potential consequences to the persons' functions, interest, or activity because it informs the relevant person of:

- the activity (including spatial and timing information that may intersect with their function, interest, or activity)
- the impacts and risks of the petroleum activity (including the spatial extent of the EMBA and intersection with BIAs) to allow an assessment of how that may impact or create a risk to the relevant persons' functions, interests, or activities
- the control measures to reduce the impacts or risks of the petroleum activity to environmental and socio-cultural values and sensitivities.

Additional information may be provided to reflect the information requested through co-design of consultation, to better enable them to provide feedback related to potential interactions with their function, interest, or activity, or in response to their objection or claim. This includes verbal information and answers to questions during consultation discussions.

The following is a summary of materials released as part of the consultation for this EP:

- CAPL issued an initial factsheet to identified relevant persons in May 2022; this factsheet included information about the proposed petroleum activity, potential impacts and risks, control measures, and included maps showing EMBA
- CAPL released information regarding the proposed DS-1 exploration drilling activities to the Online Consultation Hub (https://australia.chevron.com/our-businesses/upcoming-activities) on 3 February 2023 and emailed the link to relevant persons; the Online Consultation Hub contains all the base level of information as described above

- CAPL published notices in The Australian and The West Australian on 3 February 2023; in the Pilbara News, Mid-West Times, and Northwest Telegraph on 8 February 2023, in Business News on 13 February 2023, and National Indigenous Times on 21 February 2023
- CAPL published a LinkedIn post on 24 February 2023 with a link to the Online Consultation Hub that has information regarding DS-1 exploration drilling activity
- CAPL developed posters, presentation materials, and handouts for use and distribution in face-to-face meetings
- CAPL attended various face-to-face meetings with relevant persons (see Appendix d)
- CAPL held an information session in the town of Onslow outlining its planned activities, including the DS-1 exploration drilling activities, on 14 March 2023.

A copy of the consultation material is included in Appendix d. A summary of the consultation strategy and information provided to each category of relevant persons is included in Table 6-1.

Table 6-1: Consultation strategy and information provided to relevant persons

Category of persons or organisations	Consultation strategy and information provided
Commercial fishery licence holders and/or representative bodies	• initial correspondence with WAFIC to provide base level information on the petroleum activity and link to the CAPL Online Consultation Hub • follow up correspondence with WAFIC to confirm the commercial fishery licence holders to be consulted • in consultation with WAFIC, determine the level of consultation required and whether tailored consultation material needs to be developed • provision of consultation material to WAFIC for distribution to relevant commercial fishery licence holders • WAFIC provides any feedback received to CAPL, and CAPL provides information to respond to commercial fishery licence holders; any feedback received is considered in the development of the EP • where a commercial fishery that is not represented by WAFIC has been determined as relevant, the representative body is provided consultation material and feedback is requested • after a reasonable period has been provided to consider the consultation information (as outlined in Section 6.2.3), CAPL will confirm with WAFIC or the relevant industry body (as required) whether further consultation is required • ongoing consultation with follow up correspondence, phone calls and meetings as required.
First Nations people and/or representative bodies	• initial correspondence with relevant First Nations representative bodies to request a meeting with the board, Elders, and other relevant persons • provision of base level information on the petroleum activity and link to the CAPL Online Consultation Hub as a precursor to face-to-face meetings • initial face-to-face meeting held using bespoke consultation material, including posters, presentations and verbal discussions – a key objective of the initial meeting is to co-design the consultation strategy going forward and to determine if there

Category of persons or organisations	Consultation strategy and information provided
	are additional relevant persons not present at the meeting who should be informed and consulted with. • follow up emails, phone calls and meetings, as required, to ensure the functions, interests and activities of First Nations peoples' have been identified and to gain an understanding of cultural values and sensitivities in the EMBA; any feedback received is considered in the development of the EP • site visits on Country with First Nations people may be conducted as required • after a reasonable period has been provided to consider the consultation information (as outlined in Section 6.2.3), CAPL provides the First Nations people and/or representative bodies a summary of consultation undertaken to date and requests agreement on the summary • ongoing consultation with follow up correspondence, phone calls and meetings as required.
Environmental non-governmental organisation (ENGOs) Government departments or agencies Other petroleum titleholders / commercial industries Tourism and recreation operators WA World Heritage advisory committees Self-identified and other relevant persons	• provision of base level information on the petroleum activity and link to the CAPL Online Consultation Hub via email with a request for feedback and an offer to meet face-to-face • where consultation guidance material is available (as outlined in Section 6.2.2), CAPL tailors its consultation to meet the requirements of the guidance material • local community / town meetings may be held using presentations, posters and verbal discussions as required • any feedback received is responded to and considered in the development of the EP • after a reasonable period has been provided to consider the consultation information (as outlined in Section 6.2.3), CAPL will determine whether further consultation is required • ongoing consultation with follow up correspondence, phone calls and meetings as required.

6.2.3 Reasonable period

Under regulation 25(3) of the OPGGS(E)R and NOPSEMA's guidelines (Ref. 16; Ref. 208), relevant persons must be provided with a reasonable period for the consultation to occur, allowing the relevant person to make an informed assessment of the possible consequences of the proposed petroleum activity on their functions, interests, or activities and respond to the titleholder. "Reasonable period" was not defined by the Full Federal Court in *Tipakalippa (*Ref. 210), however, consistent with the Court's analysis in the "NTA authorities" section of the judgment, CAPL has sought to identify existing guidelines and practices to help inform what a "reasonable period" may constitute for the relevant person.

Guidance on consultation with Commonwealth departments or agencies indicate that agencies will provide an initial response to consultation requests within 10 business days (Ref. 17) or up to eight weeks (Ref. 212).

Available guidance regarding consultation with State departments or agencies indicates a reasonable period for standard activities is no less than 20 business days (Ref. 218), and up to six weeks (Ref. 219).

Guidance taken from the *Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector* (Ref. 282) suggests that reasonable period for

effective consultation is between 30 to 60 days, with 30 days considered the minimum.

Guidance taken from the *Aboriginal Cultural Heritage Act 2021—Consultation Guidelines* (Ref. 214) published by the WA government in 2023 suggests that up to 12 weeks may be a reasonable period of time to allow identification, contact, and response, from First Nations peoples (subject to any alternative timeframe being agreed through co-design of consultation).

CAPL provided all relevant persons an initial period following the issue of consultation materials to respond. Where no response was received, CAPL followed up with each relevant person (via phone, email, or in person) to enquire if there was any clarifications or additional information required to aid their assessment of any interactions with their functions, interests, or activities.

6.2.4 Sensitive information

Regulation 25(4) of the OPGGS(E)R requires that "[t]he 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".

Under regulation 26(8) of the OPGGS(E)R "[a]ll sensitive information (if any) in an environment plan, and the full text of any response by a relevant person to consultation under regulation 25 in the course of preparation of the plan, must be contained in the sensitive information part of the plan and not anywhere else in the plan".

In accordance with regulations 26(8) of the OPGGS(E)R, the full text of all responses received from relevant persons, as well as sensitive information, are included in the sensitive information report provided separately to NOPSEMA to preserve the privacy of those persons or organisations consulted. Specifically, the sensitive information includes records and responses considered to contain personal information (as defined by the *Privacy Act 1988* (Cth)) or information given by a relevant person in consultation under regulation 25 of the OPGGS(E)R in the course of preparing this EP that relevant persons requested not to be published.

6.2.5 Identification of relevant persons

In accordance with NOPSEMA's guideline for consultation (Ref. 208), titleholders must identify who is a relevant person and the rationale used to determine that identification as a relevant person.

Identifying relevant persons requires an assessment of:

- the petroleum activity (Section 3)
- the environment in which the petroleum activity is being undertaken, including:
  - environmental, socio-economic, and cultural values and sensitivities of the environment
  - the spatial extent of the EMBA
  - any intersection between the EMBA and BIAs

- the possible environmental impacts and risks of the petroleum activity and the possible consequences on the functions, interests, activities of relevant persons.

The process undertaken by CAPL for the identification of relevant persons:

- identified what types of authorities, persons, or organisations may be relevant to the values and sensitivities present within the EMBA
- reviewed the functions, interests, or activities of the types of organisations or individuals identified, and determined if the functions, interests, or activities of organisations or individuals may be affected by the petroleum activity through multiple lines of evidence:
- existing industry guidance (e.g. Ref. 17; Ref. 211; Ref. 216; Ref. 217; Ref. 218; Ref. 219)
- CAPL's previous consultation history for activities on the NWS
- advice from representative industry and/or community bodies
- online searches
- review of publicly available databases or registers (e.g. access and use authorisations within AMPs, DPIRD's register of fishery licence holders).

The outcomes of this process are detailed in Table 6-2, which lists the relevant persons that were identified for this EP, and CAPL's reasoning for determining their inclusion.

Table 6-2: Potential authority, persons, or organisations that have functions, interests, or activities that are associated with environmental values or sensitivities present within the EMBA

Environmental aspect (and aspect source)	Values and sensitivities	Function, interest, or activity	Potential impact or risk	Intersection	Category of persons or organisations
Physical presence – other marine users • MODU—presence within the OA during the exploration drilling activity • drilling—presence of wellhead and other subsea equipment (e.g. riser) within the OA during the exploration drilling activity • field support—presence of vessels within the OA during the exploration drilling activity.	Commercial shipping	Interest and activity – Commercial shipping	Temporary presence of MODU and support vessels has the potential to result in disruption to other marine users.	The OA is located outside major shipping fairways and commercial vessel traffic density within the OA is low. Therefore, the temporary presence of the MODU and support vessels within the OA are not expected to have significant consequences for the functions, interests or activities of commercial shipping.	Commercial shipping industry Government departments or agencies
	Commercial fishing	Interest and activity – Commercial fishing	Temporary presence of MODU and support vessels has the potential to result in disruption to other marine users. Potential for unplanned interactions (e.g. entanglement) between other marine users with the subsea infrastructure or equipment.	Three commercial fisheries (one Commonwealth and two State) with fishing effort recorded within a 10-year period here identified in the OA. However, the level of fishing effort within the OA is typically low. The subsea wellhead will be within a proposed 500 m safety exclusion zone around the MODU. Any deviation required by fishing vessels around the MODU (and its safety exclusion zone), the support vessels within the OA, or the subsea infrastructure, is not expected to significantly affect commercial fishers, however it is acknowledged there may be an intersection with commercial fishing and the OA.	Commercial fishery licence holders and/or representative bodies Government departments or agencies
Physical presence – marine fauna • MODU—presence within the OA during the	Marine fauna Cultural values	Interest and activity – Environmental conservation Cultural connections	Unplanned interaction with marine fauna. Changes to cultural heritage values.	Physical presence of the MODU and vessels may result in unplanned interactions with marine fauna. One BIA overlaps with the OA: • Pygmy Blue Whale (migration).	Government departments or agencies

Environmental aspect (and aspect source)	Values and sensitivities	Function, interest, or activity	Potential impact or risk	Intersection	Category of persons or organisations
exploration drilling activity • field support—presence of vessels within the OA during the exploration drilling activity.				As vessels will be stationary or slow-moving whilst implementing the activities within the scope of this EP, and due to the low number of vessels within the OA at any one time, incidences of fauna strike are not expected. If a fauna strike occurred and resulted in death, it is not expected to have a detrimental effect on the overall population of protected species; this event would result in a limited environmental impact. However, it is acknowledged that relevant persons may hold interests relating to the protection of marine fauna.	First Nations people and/or representative bodies ENGOs
Seabed disturbance – • MODU—use of mooring system within the OA during the exploration drilling activity • drilling—well-spudding and installation of subsea equipment within the OA during the exploration drilling activity • field support—temporary wet parking of ROVs within the OA during the	Marine environmental quality Benthic habitat and communities Cultural values	Interest and activity – Environmental conservation Cultural connections	Alteration of benthic habitats. Localised and temporary reduction in water quality. Changes to cultural heritage values.	The petroleum activity is expected to result in disturbance to the seabed due to anchoring and drilling. The potential disturbance footprint is highly localised. Impacts to water quality from drilling activities are expected to be localised and temporary as sediments would settle out of the water column relatively quickly. No protected UCH sites or artefacts have been identified within the OA. Notwithstanding it is acknowledged that that relevant persons may hold interests relating to marine environmental quality, benthic habitats and communities and cultural values, in particular with respect to the protection of Sea Country.	Government departments or agencies First Nations people and/or representative bodies ENGOs

Environmental aspect (and aspect source)	Values and sensitivities	Function, interest, or activity	Potential impact or risk	Intersection	Category of persons or organisations
exploration drilling activity • field support—unplanned vessels anchoring (e.g. during an emergency) within the OA during the exploration drilling activity.					
Air emissions – • MODU—combustion of fuel onboard the MODU within the OA during the exploration drilling activity • field support—combustion of fuels from vessels and helicopters within the OA during the exploration drilling activity.	Marine environmental quality Cultural values	Interest and activity – Environmental conservation Cultural connections	A localised and temporary reduction in air quality. Contribution to the reduction of the global atmospheric carbon budget.	As reduction in air quality will be temporary and highly localised, and due to the overall *de minimis* contribution to the reduction of the global carbon budget from activities under this EP, it is not expected that the functions, interests or activities of relevant persons will be affected. However it is acknowledged that relevant persons may hold interests relevant to this aspect.	Government departments or agencies First Nations people and/or representative bodies ENGOs
Light emissions – • MODU—navigational and operational lighting from the MODU within the OA during the exploration drilling activity • field support—navigational and	Marine environmental quality Marine fauna Cultural values	Interest and activity – Environmental conservation Cultural connections	A localised and temporary change in ambient light. Change in fauna behaviour for light sensitive species.	CAPL expects that its activities could result in temporary changes to ambient light emissions extending to a radius of ~1.4 km from the MODU. One BIA , Wedge-tailed Shearwater breeding, of light sensitive species (i.e. reptiles, birds and fish) overlap with the OA. Given the OA is located ~95 km from the nearest land and the distance at which potential impacts to birds from	Government departments or agencies First Nations people and/or representative bodies ENGOs

Environmental aspect (and aspect source)	Values and sensitivities	Function, interest, or activity	Potential impact or risk	Intersection	Category of persons or organisations
operational lighting from vessels within the OA during the exploration drilling activity.				lighting has been identified as ~5 km., impacts are expected to be temporary, localised and to limited to transient individuals. However, it is acknowledged that relevant persons may hold interests relevant to the values and sensitivities that may be impacted by this aspect.	
Underwater sound – • drilling—exploration drilling activities within the OA • field support—use of dynamic position (DP) by vessels within the OA during the exploration drilling activity • field support—helicopter operations within the OA during the exploration drilling activity.	Marine environmental quality Marine fauna Cultural values	Interest and activity – Environmental conservation Cultural connections	Localised and temporary change in ambient underwater sound level. Auditory impairment, temporary threshold shift, permanent threshold shift, recoverable or non-recoverable injury to marine fauna.	A change in ambient underwater sound may result in behavioural disturbance, auditory impairment, recoverable or non-recoverable injury to marine fauna. One BIA overlaps with the Sound EMBA: • Pygmy Blue Whale (migration BIA). CAPL has undertaken underwater sound modelling which indicates localised and short-term behavioural impacts to transient individuals may arise (depending on the timing of the activity and seasonal presence of sensitive fauna). Temporary threshold shift (TTS) and permanent threshold shift (PTS) are considered highly unlikely to occur due to the need for fauna to remain in close proximity to for extended durations before auditory impairments or injuries occur. Notwithstanding, it is acknowledged that relevant persons may hold interests relevant to the values and sensitivities that may be impacted by this aspect.	Government departments or agencies First Nations people and/or representative bodies ENGOs

Environmental aspect (and aspect source)	Values and sensitivities	Function, interest, or activity	Potential impact or risk	Intersection	Category of persons or organisations
Invasive marine pests – • MODU— planned discharged of ballast water or presence of biofouling on the MODU within the OA during exploration drilling activity • field support— planned discharged of ballast water or presence of biofouling on the support vessels within the OA during the exploration drilling activity.	Benthic habitat and communities Cultural values	Interest and activity – Environmental conservation Cultural connections	Displacement of, or competition with, native species.	The proposed exploration well is in water depths of ~958 m, and is located offshore from the mainland coast, large ports and islands, and the seabed is predominantly soft sediments. Thus, the more favourable requirements of expansive hard substrate and sufficient light for invasive marine pests survival are not common within the OA. Although it is highly unlikely the activities in this EP would result in the introduction of invasive marine pests, once established, can be difficult to eradicate and therefore there is the potential for a long-term change in habitat structure. As a result, relevant persons may hold interests relevant to the values and sensitivities that may be impacted by this aspect.	Government departments or agencies First Nations people and/or representative bodies ENGOs
Planned discharges – facility and vessel operations • MODU—general MODU operations within the OA during the exploration drilling activity • field support— general vessel operations within the OA during the exploration drilling activity.	Marine environmental quality Marine fauna Cultural values	Interest and activity – Environmental conservation Cultural connections	Localised and temporary reduction in water quality. Changes to predator-prey dynamics.	Impacts and risks associated with planned discharges from the MODU and support vessel are expected to be limited to close to the release location and temporary in nature. It is unlikely the functions and activities of relevant persons would be impacted by planned discharges from MODU and vessels, however relevant persons may hold interests relevant to the values and sensitivities that may be impacted by this aspect.	Government departments or agencies First Nations people and/or representative bodies

Environmental aspect (and aspect source)	Values and sensitivities	Function, interest, or activity	Potential impact or risk	Intersection	Category of persons or organisations
Planned discharges – drill cuttings and fluids • drilling—planned and contingency activities • well abandonment—metal swarf cuttings, and wellbore content.	Marine environmental quality Benthic habitats and communities	Interest and activity – Environmental conservation	Localised and temporary reduction in water quality. Alteration/smothering of benthic habitat. Indirect impacts to fauna arising from chemical toxicity.	Impacts and risks associated with planned discharges of drill cuttings and fluids and other chemicals, are expected to be limited to close to the release location and temporary in nature. It is unlikely the functions and activities of relevant persons would be impacted by these discharges, however, relevant persons may hold interests relevant to the values and sensitivities that may be impacted by this aspect.	Government departments or agencies First Nations people and/or representative bodies
Planned discharges – Cement • drilling—cementing operations • well abandonment—cement cuttings, contaminated cement discharge.	Marine environmental quality Benthic habitats and communities	Interest and activity – Environmental conservation	Localised and temporary reduction in water quality. Alteration/smothering of benthic habitat.	Impacts and risks associated with planned discharges of cement are expected to be limited to close to the release location. It is unlikely the functions and activities of relevant persons would be impacted by cement discharges, however relevant persons may hold interests relevant to the values and sensitivities that may be impacted by this aspect.	Government departments or agencies First Nations people and/or representative bodies
Planned discharges – BOP Fluids • drilling—pressure and function testing of the BOP.	Marine environmental quality	Interest and activity – Environmental conservation	Localised and temporary reduction in water quality.	Impacts and risks associated with planned discharges of BOP fluids are expected to be limited to close to the release location and temporary in nature. It is unlikely the functions and activities of relevant persons would be impacted by planned BOP fluid discharges, however relevant persons may hold interests relevant to the values and sensitivities that may be impacted by this aspect.	Government departments or agencies First Nations people and/or representative bodies
Unplanned release – waste	Marine fauna Cultural values	Interest and activity – Environmental conservation	Marine pollution resulting in entanglement or	Unplanned releases of waste may result in impacts to injury/mortality to individual marine fauna. It is unlikely	Government departments or agencies

Environmental aspect (and aspect source)	Values and sensitivities	Function, interest, or activity	Potential impact or risk	Intersection	Category of persons or organisations
• MODU— waste lost overboard from the MODU during the exploration drilling activity. • field support— waste lost overboard from vessels during the exploration drilling activity.		Cultural connections	injury/mortality of marine fauna.	the functions and activities of relevant persons would be impacted by an unplanned release of waste, however relevant persons may hold interests relevant to the values and sensitivities that may be impacted by this aspect.	First Nations people and/or representative bodies
Unplanned release – minor loss of containment • using, handling, and transferring hazardous materials and chemicals on board (<1 m^3) • transferring hazardous materials between MODU and support vessels (50 m^3) • hydraulic line failure from equipment (<1 m^3) • emergency disconnect (~46 m^3 NADF).	Marine environmental quality Marine fauna Cultural values	Interest and activity – Environmental conservation Cultural connections	Indirect impacts to fauna arising from chemical toxicity.	Based on the nature of the unplanned release – minor loss of containment scenarios considered credible in this EP, the extent and severity of any potential impact is expected to be spatially and temporally limited. It is unlikely the functions and activities of relevant persons would be impacted by an unplanned release from minor loss of containment, however relevant persons may hold interests relevant to the values and sensitivities that may be impacted by this aspect.	Government departments or agencies First Nations people and/or representative bodies ENGOs
Unplanned release – vessel collision	Marine environmental quality	Interest and activity – Environmental conservation Cultural connections	Marine pollution resulting in sublethal or lethal effects to marine fauna.	Although highly unlikely, an unplanned emergency event resulting in a hydrocarbon spill may affect the functions, interests and activities of relevant persons within the spatial	Government departments or agencies

Environmental aspect (and aspect source)	Values and sensitivities	Function, interest, or activity	Potential impact or risk	Intersection	Category of persons or organisations
• field support—vessel operations within the OA. Unplanned release – well control event • drilling—unplanned hydrocarbon influx, breach of well fluids, or loss of hydrostatic barrier	Benthic habitat and communities Coastal communities Marine fauna Marine protected areas World heritage properties National heritage places Cultural values Tourism Recreation Commercial fishing Commercial shipping Other commercial industries	Commercial fishing Commercial shipping Recreational fishing Marine recreation Petroleum exploration / production	Smothering of subtidal and intertidal habitats. Indirect impacts to commercial fisheries. Reduction in amenity resulting in impacts to tourism and recreation. Changes to values and sensitivities of Australian Marine Parks. Changes to cultural heritage values.	extent of the EMBA. Refer to Section 4.1 for information on the EMBA for the activity.	First Nations people and/or representative bodies WA World Heritage advisory committees ENGOs Commercial fishery licence holders and/or representative bodies Commercial shipping industry Tourism and recreation operators Other petroleum titleholders Submarine cable operators Research organisations
Spill response - application of subsea chemical dispersants	Marine fauna Cultural values	Interest and activity – Environmental conservation Cultural connections	Marine pollution resulting in sublethal or lethal effects to marine fauna.	The application of chemical dispersants will result in dispersant and hydrocarbons in the water column, potentially affecting marine fauna, however will only be undertaken where there is likely to be a net benefit and therefore the functions, interests and activities of relevant persons are unlikely to be affected.	Government departments or agencies First Nations people and/or representative bodies

Environmental aspect (and aspect source)	Values and sensitivities	Function, interest, or activity	Potential impact or risk	Intersection	Category of persons or organisations
Ground disturbance – shoreline spill response	Marine fauna Coastal communities Cultural values	Interest and activity – Environmental conservation Cultural connections	Potential to damage terrestrial habitats (including nests), with subsequent impacts to fauna such as turtles and birds.	Shoreline protection and deflection and clean-up activities have the potential to result in short-term and localised damage to or alteration of habitats and ecological communities. Shoreline activities will only be undertaken where there is likely to be a net benefit and therefore the functions, interests and activities of relevant persons are unlikely to be affected.	Government departments or agencies First Nations people and/or representative bodies
Physical presence – oiled wildlife response	Marine fauna Coastal communities Cultural values	Interest and activity – Environmental conservation Cultural connections	Potential to cause further harm to oiled fauna due to hazing, barriers, deterrents, and cleaning activities, and has the potential to cause injury/death.	Oiled wildlife response has the potential to result in injury/mortality to fauna, however will only be undertaken where there is likely to be a net benefit and therefore the functions, interests and activities of relevant persons are unlikely to be affected.	Government departments or agencies First Nations people and/or representative bodies

6.2.5.1 Self-identification

As part of the consultation process (Figure 6-1) CAPL publicly advertised the upcoming petroleum activity (refer to Section 6.2.2), to allow for any authorities, persons, or organisations that have not already been identified through the identification process to review information about the petroleum activity, self-identify as a relevant person, and register as a relevant person with CAPL.

This self-identification pathway was included in the consultation process to facilitate a sufficiently broad capture of ascertainable persons and allow for feedback that CAPL may not have otherwise received.

Where an authority, person, or organisation does self-identify, CAPL conducted an assessment to validate that they are a relevant person for an EP (aligned with the considerations described in Section 6.3.1 to 6.3.5); and if they are, an assessment of the merits of objections or claims and a response was progressed (as per the process in Section 6.3.7).

Two persons and one organisation self-identified during consultation—two of these were determined to be relevant (see rationale in Table 6-4), one was not (refer to summary in Appendix d).

6.3 Consultation process

The consultation undertaken during the preparation of this EP used the following process (Figure 6-1):

- described the petroleum activity
- identified environmental aspects
- defined the EMBA and identified environmental values and sensitivities
- evaluated environmental impacts and risks and demonstrated these are reduced to ALARP and acceptable levels
- identified functions, interests, or activities that may be affected
- identified relevant persons
- undertook consultation, including provision of sufficient information to enable relevant persons to understand how this activity may affect their functions, interests, or activities
- assessed the merit of any objections or claims raised by the relevant persons
- provided a response to the objection or claim, and ensured the response was captured in the EP.

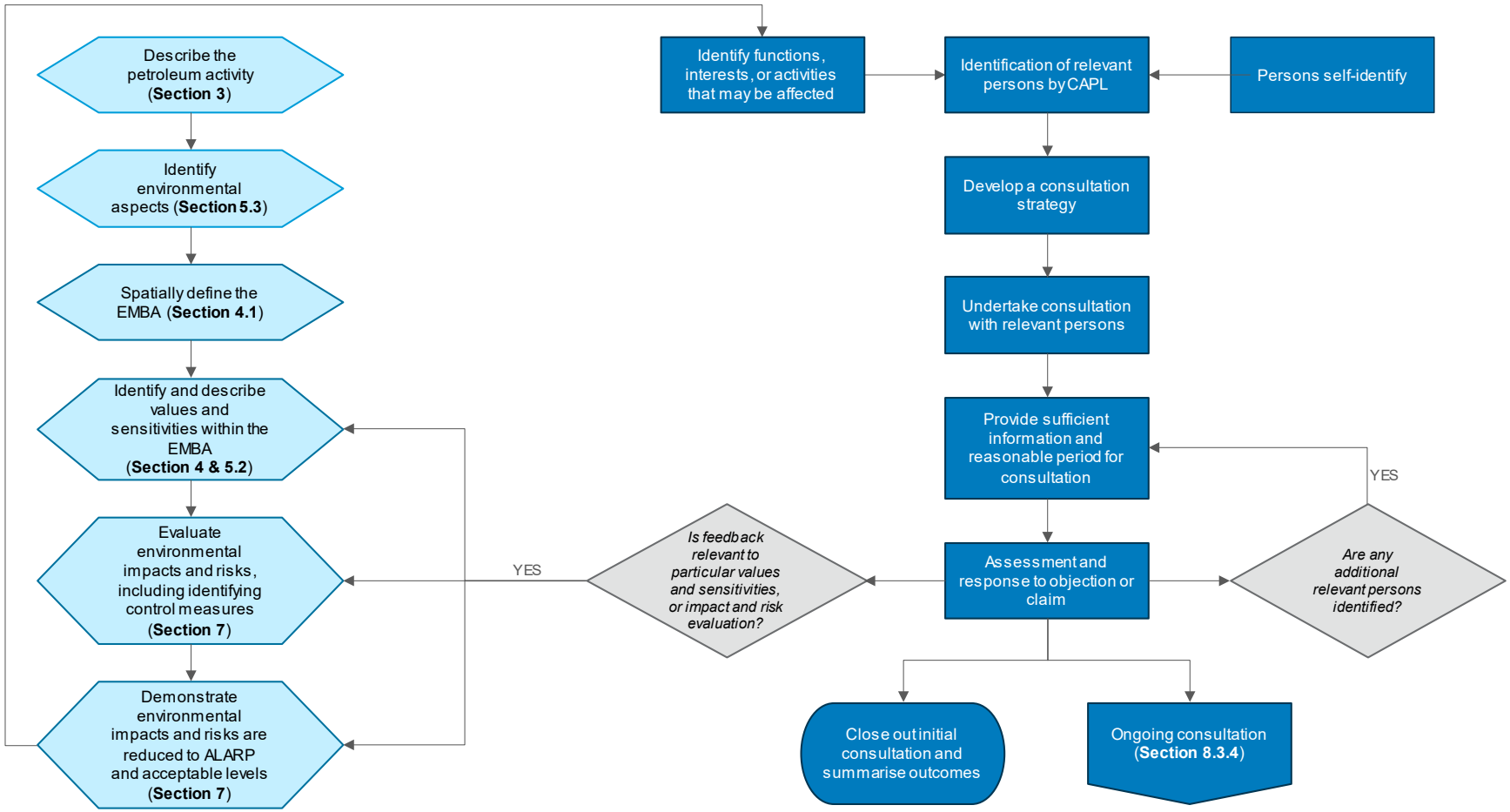


Figure 6-1: Relevant persons consultation process

6.3.1 Relevant persons under regulation 25(1)(a)

In accordance with the OPGGS(E)R, relevant persons include the Commonwealth, State or Northern Territory agencies or authorities to which activities under this EP may be relevant (Section 6.2.1).

CAPL determined relevant persons under these regulations by considering:

- the spatial extent of the EMBA
- the environmental aspects, and potential environmental impacts and risks associated with the petroleum activity
- the responsibilities of the Commonwealth, State or Northern Territory agency or authority, which was determined by:
  - CAPL's previous consultation history for petroleum activities on the NWS
  - online searches
  - published guidance, including NOPSEMA's *Consultation with Commonwealth agencies with responsibilities in the marine area* guideline (Ref. 17).

The Commonwealth, State or Northern Territory agencies or authority that were identified as a relevant person for consultation during the preparation of this EP are presented in Table 6-4.

6.3.2 Relevant persons under regulation 25(1)(b)

In accordance with the OPGGS(E)R, the department of the responsible State Minister is a relevant person (Section 6.2.1).

The petroleum activity within scope of this EP occurs in Commonwealth waters, off the coast of WA. As such, the DEMIRS has been identified as a relevant person for consultation during the preparation of this EP (Table 6-4).

6.3.3 Relevant persons under regulation 25(1)(c)

In accordance with the OPGGS(E)R, if the petroleum activity occurs in the Principal Northern Territory offshore area, the department of the responsible Northern Territory Minister is a relevant person (Section 6.2.1).

The petroleum activity within the scope of this EP occurs in Commonwealth waters off the coast of WA. As such, the department of the responsible Northern Territory Minister has not been identified as a relevant person for consultation during the preparation of this EP.

6.3.4 Relevant persons under regulation 25(1)(d)

In accordance with the OPGGS(E)R, relevant persons include a person or organisation whose functions, interests or activities may be affected by the activities under this EP (Section 6.2.1).

The persons or organisations that were identified as a relevant person for consultation during the preparation of this EP are presented in Table 6-4.

Table 6-3: Identification of a person or organisation

Category of persons or organisations	Considerations for identifying a relevant person
Commercial fishery licence holders and/or representative bodies	Commonwealth commercial fisheries: • fishery management area intersects with the OA, and a record of recent active fishing effort (based on annual ABARES data) occurring within the OA • fishing method, preferred locations or water depths, fishing season • key target species, distribution, and behaviour • potential for temporal and/or spatial interaction between petroleum activity and the commercial fishery. State commercial fisheries: • guidance from WAFIC (Ref. 217) regarding separate consultation strategies for unplanned events such as oil spills, where the titleholder can demonstrate likelihood of an event is “extremely low” • fishery management area intersects with the OA, and a record of recent active fishing effort (based on DPIRD FishCube data) occurring within the OA • fishing method, preferred locations or water depths, fishing season • key target species, distribution, and behaviour • potential for temporal and/or spatial interaction between petroleum activity and the commercial fishery. Peak industry bodies: • where a fishery has been determined as relevant, the representative body is also considered relevant.
ENGOs	• CAPL’s operating experience in the NWS and pre-existing knowledge of local ENGOs • intersection between the spatial extent of the EMBA and/or values and sensitivities of the environment and the ENGO’s interests.
First Nations people and/or representative bodies	First Nations people utilise the coast and marine areas for their cultural identity, health and wellbeing, and their domestic and commercial economies. Therefore, the activities under the EP may be relevant to First Nations people who have an enduring cultural and spiritual connection to the sea. First Nations people or groups were identified through: • Native Title claims or determinations intersecting with, or within the vicinity of the EMBA • where an AMP is present within the EMBA, a review of any identified First Nations people or groups • review of Native Title determinations to determine cultural and/or spiritual link with BIAs. • Country located within or coastally adjacent to the EMBA Representative bodies: • CAPL’s operating experience in the NWS and previous interactions with First Nations representative bodies • where people or a group has been determined as relevant, the representative body is also considered relevant.
Local government departments or agencies	• local government boundary intersects with the EMBAs.

Category of persons or organisations	Considerations for identifying a relevant person
Other petroleum titleholders	• CAPL's operating experience in the NWS and pre-existing knowledge of other petroleum operators • other Commonwealth (based on spatial data from NOPTA) petroleum titles that intersect with the EMBA, and with current or proposed activities occurring (based on publicly available EPs from NOPSEMA's EP submission website) within the EMBA • other State (based on spatial data from DEMIRS) petroleum titles that intersect with the EMBA, and with current or proposed activities occurring (based on publicly available EP summaries from DEMIRS EARS database) within the EMBA • potential for temporal and/or spatial interaction between petroleum activity and the operator of another petroleum title.
Tourism and recreation operators	Tourism and recreation operators: • CAPL's operating experience in the NWS and pre-existing knowledge of local tour and recreational operators • a record of recent active tour operator fishing effort (based on DPIRD FishCube data) occurring within the EMBA • where an AMP is present within the EMBA, a review of the 'authorisations issued' from Parks Australia (Ref. 253) • potential for temporal and/or spatial interaction between petroleum activity and the tourism/recreational operator Peak industry bodies: • where a tourism or recreational operator has been determined as relevant, the representative body is also considered relevant.Ref.
WA World Heritage advisory committees	• World Heritage area intersects with the EMBA, and an Australian World Heritage advisory committee exists.

6.3.5 Relevant persons under regulation 25(1)(e)

In accordance with the OPGGS(E)R, relevant persons may include any other person or organisation that CAPL considers relevant.

Where a person or organisation on this list does not already become a relevant person under regulation 25(1)(d) (using the process as described in Section 6.3.4), CAPL may voluntarily opt to include them in the consultation for the petroleum activity as part of wider and ongoing engagement with their broad stakeholder base.

6.3.6 Conclusion on relevant persons identified

As a result of application of the methodology and identification, the relevant persons identified for the purposes of regulation 25 of the OPGGS(E)R are listed in Table 6-4. CAPL is confident that it has used multiple lines of evidence to identify all relevant persons.

Table 6-4: Relevant persons identified for consultation during preparation of this EP

Relevant person	Rationale
Commonwealth agencies or authorities (regulation 25(1)(a))	
Australian Communications and Media Authority (ACMA)	ACMA is a relevant agency for consultation where an activity has the potential to impact economic or social benefits communications infrastructure for Australia. As identified in Section 4.4.6, the EMBA overlaps existing submarine cables. Therefore, the activities under the EP may be relevant to ACMA.
Australian Fisheries Management Authority (AFMA)	As identified in NOPSEMA's consultation guideline (Ref. 17) AFMA is a relevant agency for consultation where an activity can impact or has the potential to impact on fisheries resources in AFMA managed fisheries. Commonwealth fishery management areas have been identified as overlapping with the EMBA (Section 4.4.1). Therefore, the activities under the EP may be relevant to the AFMA.
Australian Hydrographic Office (AHO)	As identified in NOPSEMA's consultation guideline (Ref. 17) AHO is a relevant agency for consultation when nautical products or other maritime safety information is required to be updated. Vessel operations are required for the activities within scope of this EP (Section 3.7.1), a safety exclusion zone will be requested around the vessels (Section 3.7.1). Therefore, the activities under the EP may be relevant to the AHO.
Australian Maritime Safety Authority (AMSA)	As identified in NOPSEMA's consultation guideline (Ref. 17) AMSA is a relevant agency for consultation where a proposed activity may impact on the safe navigation of commercial shipping in Australian waters. The EMBA for this EP intersects with shipping routes (Section 4.4.4). Therefore, the activities under the EP may be relevant to the AMSA.
Department of Agriculture, Fisheries and Forestry (DAFF)	As identified in NOPSEMA's consultation guideline (Ref. 17) DAFF is a relevant agency for consultation where an activity has the potential to impact on fishing operations and/or fishing habitats in Commonwealth waters. Commonwealth and State managed fisheries have been identified as overlapping with the EMBA (Section 4.4.1). Therefore, the activities under the EP may be relevant to DAFF.
Director of National Parks (DNP)	As identified in NOPSEMA's consultation guideline (Ref. 17) DNP is a relevant agency for consultation where • the activity or part of activity is within the boundaries of a proclaimed AMP • activities proposed to occur outside a reserve may impact on the values within an AMP • an environmental incident occurs in Commonwealth waters surrounding an AMP and may impact on the values within the park. The EMBA for this EP intersects with AMPs (Section 4.5.1). Therefore, the activities under the EP may be relevant to the DNP.
Department of Climate Change, Energy, the Environment and Water – (DCCEEW) Underwater Cultural Heritage	As identified in NOPSEMA's consultation guideline (Ref. 17) DCCEEW is a relevant agency for consultation where an activity has the potential to directly or indirectly adversely impact on protected UCH. The EMBA for this EP overlaps with UCH sites (shipwrecks) (Section 4.6). Therefore, the activities under the EP may be relevant to the DCCEEW.

Relevant person	Rationale
Department of Defence (DoD)	As identified in NOPSEMA's consultation guideline (Ref. 17) DoD is a relevant agency for consultation where: • a proposed activity may impact DoD training and operational requirements; • a proposed activity encroaches on known training areas and/or restricted airspace • there is a risk of unexploded ordnance in the area where the activity is taking place. DoD areas and/or facilities do intersect with the EMBA (Section 4.4.6). Therefore, the activities under the EP may be relevant to the DoD.
State agencies or authorities (regulation 25(1)(a))	
Department of Biodiversity, Conservation and Attractions (DBCA)	DBCA promotes biodiversity and conservation through sustainable management of WA's species, ecosystems, lands and the attractions in their care. The EMBA for this EP intersects with State terrestrial and marine protected areas (Sections 4.5.2 and 0). Therefore, the activities under the EP may be relevant to DBCA.
Department of Primary Industries and Regional Development (WA DPIRD): Fisheries	DPIRD's responsibility is to conserve, sustainably develop and share the use of WA's aquatic resources and their ecosystems. As identified in their consultation guideline (Ref. 218), DPIRD considers that it is a relevant person where a petroleum activity may potentially affect commercially and recreationally important fish species, their prey and habitats, and the business activities of the fishers who harvest these resources in State or Commonwealth waters. State managed fisheries and recreational fisheries have been identified as overlapping with the EMBA (Sections 4.4.1 and 4.4.2). Therefore, the activities under the EP may be relevant to DPIRD.
Department of Transport (DoT) - Maritime Environmental Emergency Response (MEER) - Marine Pollution	DoT (MEER) is the hazard management agency for marine oil pollution and maritime transport emergencies in Western Australian waters. The MEER's role is to develop marine oil spill response capabilities, provide resources and support during response operations, training programs, assist in the development of oil spill contingency plans and raise community awareness about the impact of oil spills. MEER considers that it is a relevant person if activities have the potential to cause a marine oil pollution incident in State waters (Ref. 219). While the unplanned hydrocarbon release events identified for this EP will occur in Commonwealth waters, some areas of State waters may be exposed (Section 7.14). Therefore, the activities under the EP may be relevant to DoT MEER.
Department of Water and Environment (DWER)	DWER supports Western Australia's community, economy and environment by managing and regulating the state's environment and water resources on behalf of the Minister for the Environment. Therefore, the activities under this EP may be relevant to DWER.
Pilbara Ports Authority	The Pilbara Ports Authority assumes oversight of Barrow Island, Onslow, Port of Ashburton and more, and operates as a corporatized entity that reports to the State Government of Western Australia's Minister of Ports. The activity occurs within Commonwealth and State waters, requires vessels and ports for use. Therefore, the activities under the EP may be relevant to the Pilbara Ports Authority.
Department of the responsible State Minister (regulation 25(1)(b))	

Relevant person	Rationale
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)	DEMIRS is the department of the responsible State Minister. Therefore, they are considered a relevant person as per Regulation 25(1)(c) of the OPGGS(E)R.
Person or organisation whose functions, interests, or activities may be affected by the petroleum activity (regulation 25(1)(d))	
First Nations people and/or representative bodies	
Baiyungu Aboriginal Corporation (BAC) Baiyungu people	Baiyungu Country extends from Point Cloates (north of Carnarvon) along the coast to Point Quobba, then stretches east to Manberry Station and north to Winning Pool Station. A major area of significance is Coral Bay and neighbouring Cardabia Station (a pastoral station run by BAC and the Baiyungu people). The EMBA does not directly intersect with this area of coast, however the EMBA does extend into the offshore waters of the Gascoyne. No Native Title determination currently exists within the EMBA and this representative body have not been identified in an AMP Management Plan. However, given that the EMBA occurs offshore from the Gascoyne coast, and engagement with BAC identified that Sea Country is of recognised value to the Baiyungu people, the activities under the EP may therefore be relevant to this organisation and the Baiyungu people. Note: CAPL has also consulted NTGAC who also represents the Baiyungu people for Native Title rights and interests.
Buurabalayji Thalanyji Aboriginal Corporation (BTAC) Thalanyii people	The BTAC was registered in 2008 to represent, protect, and support the interests of the Thalanyji people. Thalanyji Country spreads out across the Ashburton River coastal plain south to Tubridji Point, then across to Yannarie River and upstream to Emu Creek, across the range hills of southwest Pilbara to Henry River and Cane River in the north. The EMBA does not directly intersect with this area of coast, however the EMBA does extend into the offshore waters of the Pilbara. No Native Title determination currently exists within the EMBA and this group have not been identified in an AMP Management Plan. However, given that the EMBA occurs offshore from the Pilbara coast, and engagement with BTAC identified that Sea Country is of recognised value to the Thalanyji people, the activities under the EP may therefore be relevant to this Registered native title bodies corporate (RNTBC) and the Thalanyji people. Note: CAPL has also consulted NTGAC who also represents the Thalanyji people for Native Title rights and interests.
Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) Baiyungu people Thalanyji people Yinggarda people	The NTGAC was registered in 2019 to represent, protect and support the interests of the Baiyungu, Thalanyji and Yinggarda people. The RNTBC represents an area that extends approximately from Exmouth Gulf to Lake Macleod. The EMBA does not directly intersect with this area of coast, however the EMBA does extend into the offshore waters of the Gascoyne and Pilbara. Native Title determination WCD2019/016 intersects with the EMBA (Section 4.6.3). Therefore, the activities under the EP may be relevant to this RNTBC and the Baiyungu, Thalanyji and Yinggarda people.

Relevant person	Rationale
Ngarluma Aboriginal Corporation RNTBC (NAC) Ngarluma people Yindjibarndi people	The NAC was registered in 2005 to represent, protect and support the interests of the Ngarluma and Yindjibarndi people. Ngarluma Country encompasses the interior hills, tablelands, river systems, and coastline of the west Pilbara region of WA, including the Burrup Peninsula and islands of the Dampier Archipelago. The EMBA does not directly intersect with this area of coast, however it does extend into the offshore waters of the Pilbara. No Native Title determination currently exists within the EMBA and this group have not been identified in an AMP Management Plan. However, given that the EMBA occurs offshore from the Pilbara coast, the activities under the EP may therefore be relevant to this RNTBC and the Ngarluma and Yindjibarndi people. Note: CAPL has also consulted NYFL who also represents the Ngarluma and Yindjibarndi people.
Ngarluma Yindjibarndi Foundation Ltd (NYFL) Ngarluma people Yindjibarndi people	The Ngarluma Yindjibarndi Foundation Ltd is the Traditional Owner organisation that delivers social and economic outcomes for its members and broader community. The Ngarluma and Yindjibarndi lands in the Pilbara area of WA stretch from the Pilbara coast to the Millstream-Chichester National Park to the south, from around Whim Creek in the east to just west of Pannawonica. The EMBA does not directly intersect with this area of coast, however it does extend into the offshore waters of the Pilbara. No Native Title determination currently exists within the EMBA and this group have not been identified in an AMP Management Plan. However, given that the EMBA occurs offshore from the Pilbara coast and engagement with NYFL identified that Sea Country is of recognised value to the Ngarluma and Yindjibarndi people, the activities under the EP may therefore be relevant to this organisation and the Ngarluma and Yindjibarndi people. Note: CAPL has also consulted NAC who also represents the Ngarluma and Yindjibarndi people.
Mardathoonera Cultural Heritage Pty Ltd (MCH)	MCH has identified themselves as being Traditional Custodians for Barrow Island. The Mardathoonera people are a Pilbara language group, and engagement with MCH identified that Barrow Island was culturally significant. Given that Barrow Island is in close proximity of the EMBA for this EP, CAPL considers that MCH has functions, interests or activities that may be affected by the petroleum activity to be carried out under the EP. Therefore, they are considered relevant persons under regulation 25(1)(d) of the OPGGS(E)R.
Murujuga Aboriginal Corporation (MAC) Ngarluma people Mardudhunera people Yaburara people Yindjibarndi people Wong-Goo-Tt-Oo people	The MAC was incorporated in 2006 and is the approved corporate body for the Burrup and Maitland Industrial Estates Agreement. MAC has members from five traditional Aboriginal language groups from the Pilbara region: Ngarluma, Yaburara, Mardudhunera, Yindjibarndi, and Wong-Goo-Tt-Oo. MAC is not a PBC for the purposes of native title; instead MAC holds the freehold title to Murujuga National Park. The EMBA does not directly intersect with the Burrup Peninsula or Dampier Archipelago, however it does extend into the offshore waters of the Pilbara. No Native Title determination currently exists within the EMBA and this group have not been identified in an AMP Management Plan. However, given that the EMBA occurs offshore from the Pilbara coast, the activities under the EP may therefore be relevant to this organisation and the Ngarluma, Yaburara, Mardudhunera, Yindjibarndi, and Wong-Goo-Tt-Oo people.

Relevant person	Rationale
	Note: CAPL has also consulted NAC who also represents the Ngarluma people, NYFL who represent the Ngarluma and Yindjibarndi people, and WAC who also represents the Mardudhunera and Yaburara people.
Robe River Kuruma Aboriginal Corporation (RRKAC) RRK people	RRKAC is the RNTBC for the Robe River Kuruma (RRK) native title determined areas. The RRK people have traditional rights to an area in the Pilbara. Their lands lie within the Shire of Ashburton, and around the township of Pannawonica, and comprise part of the Fortescue River and the complete river system of the Jajiwurra (Robe River), in the most westerly part of the Hamersley Range. The EMBA does not directly intersect with the Jajiwurra river mouth, however it does extend into the offshore waters of the Pilbara. No Native Title determination currently exists within the EMBA and this group have not been identified in an AMP Management Plan. However, given that the EMBA occurs offshore from the Pilbara coast, the activities under the EP may therefore be relevant to this organisation and the RRK people.
Wirrawandi Aboriginal Corporation RNTBC (WAC) Mardudhunera people Yaburara people	The WAC was registered in 2018 to hold and manage the native title rights and interests for the Mardudhunera and Yaburara people. Mardudhunera and Yaburara Country is in the Pilbara region (approximately between Maitland and Robe rivers). The EMBA does not directly intersect with this area of coast, however it does extend into the offshore waters of the Pilbara. No Native Title determination currently exists within the EMBA and this group have not been identified in an AMP Management Plan. However, given that the EMBA occurs offshore from the Pilbara coast, the activities under the EP may therefore be relevant to this organisation and the Mardudhunera and Yaburara people
Yinggarda Aboriginal Corporation (YAC) Yinggarda people	The YAC was registered in 2019 to represent, protect and support the interests of the Yinggarda people. Yinggarda Country is in the Gascoyne region and includes the township of Carnarvon. The EMBA does not directly intersect with this area of coast, however it does extend into the offshore waters of the Gascoyne. Native Title determination WCD2019/016 intersects with the EMBA (Section 4.6.3). Therefore, the activities under the EP may be relevant to this RNTBC and the Yinggarda people.
Commercial fishery licence holders and/or representative bodies	
Aquaculture Council of WA Australian Southern Bluefin Tuna Industry Association Commonwealth Fisheries Association Tuna Australia Western Australian Fishing Industry Council (WAFIC)	These organisations are peak bodies representing the commercial fishers within Commonwealth or State-managed commercial fisheries. Commonwealth and State managed fisheries have been identified within the OA (Section 4.4). As such, these organisations have functions, interests, or activities, that may be affected by the activities to be carried out under the EP.

Relevant person	Rationale
North West Slope Trawl Fishery	The North West Slope Trawl Fishery fishing area intersects the OA and there has been fishing effort in the last 10 years (Section 4.4). As such, North West Slope Trawl Fishery licence holders may have functions, interests, or activities, that may be affected by the activities to be carried out under the EP.
Pilbara Line Fishery	The Pilbara Line Fishery fishing area intersects the OA and there has been fishing effort in the last 10 years (Section 4.4). As such, Pilbara Line Fishery licence holders may have functions, interests, or activities, that may be affected by the activities to be carried out under the EP.
Pilbara Trap Managed Fishery	The Pilbara Trap Managed Fishery fishing area intersects the OA and there has been fishing effort in the last 10 years (Section 4.4). As such, Pilbara Trap Managed Fishery licence holders may have functions, interests, or activities, that may be affected by the activities to be carried out under the EP.
Tourism and recreation operators	
Recfishwest WA	This organisation is the peak body representing the State-managed recreational fisheries. Recreational fishing has been identified within coastal and nearshore areas of the EMBA (Section 4.4). As such, this organisation has functions, interests, or activities, that may be affected by the activities to be carried out under the EP.
Ningaloo Visitor Centre	Ningaloo Visitor Centre is located in Exmouth and provides advice and services to both locals and tourists. The EMBA for this EP intersects Commonwealth and State waters offshore, and a small area of mainland coast (Gascoyne region) and some islands (Pilbara region). As such, this organisation has functions, interests, or activities, that may be affected by the activities to be carried out under the EP.
Boating Industry Association Western Australia (BIAWA)	BIAWA is the voice of the West Australian recreational boating industry, with the main purpose to promote and encourage safe boating and other aquatic sports and pastimes within WA. The EMBA for this EP intersects Commonwealth and State waters offshore, and a small area of mainland coast (Gascoyne region) and some islands (Pilbara region). As such, this organisation has functions, interests, or activities, that may be affected by the activities to be carried out under the EP.
Ashburton Anglers	Ashburton Anglers are a local fishing club. The EMBA for this EP intersects Commonwealth and State waters offshore, and a small area of mainland coast (Gascoyne region) and some islands (Pilbara region). As such, this organisation has functions, interests, or activities, that may be affected by the activities to be carried out under the EP.
Apache Fishing Charters	Recreational fisheries, tourism and recreational activities have been identified as occurring within or adjacent to the EMBA (Section 4.4). As such, these businesses may have functions, interests, or activities, that may be affected by the activities to be carried out under the EP.
Archipelago Adventures	
Blue Horizon Charters	
Blue Juice Charters	
Blue Lightning Fishing Charters	
Bluesun2 Boat Charters	

Relevant person	Rationale
Cape Immersion Tours	
Exmouth Dive & Whalesharks Ningaloo	
Image Dive and Charters	
Live Ningaloo	
Mackerel Islands & Onslow Beach Resort	
Mahi Mahi Charters	
Montebello Island Safaris	
Ningaloo Blue Dive	
Ningaloo Glass Bottom Boat	
Ningaloo Whaleshark n Dive	
Ningaloo Whaleshark Swim	
Sail Ningaloo	
Top Gun Charters	
View Ningaloo	
Wilderness Island	
Local government departments or agencies	
Exmouth Chamber of Commerce and Industry	The EMBA for this EP does intersect with a small area of mainland coast (Gascoyne region) and some islands (Pilbara region) (Section 4.3.5.1). Therefore, local governments may be considered relevant persons under regulation 25(1)(d) of the OPGGS(E)R.
Onslow Chamber of Commerce and Industry	
Shire of Ashburton (Pilbara)	
Shire of Exmouth (Gascoyne)	
WA World Heritage advisory committees	

Relevant person	Rationale
Ningaloo Coast World Heritage Advisory Committee (NCWHAC)	The NCWHAC provides advice to the Commonwealth and State Environment Ministers on the protection, conservation and management specific to Ningaloo Coast World Heritage Area. The EMBA for this EP does intersect with Ningaloo Coast World and National heritage areas (Section 4.6). Therefore, NCWHAC is considered a relevant person under regulation 25(1)(d) of the OPGGS(E)R.
Other petroleum titleholders	
BP	Petroleum operations have been identified to occur within the spatial extent of the EMBA. Therefore, other petroleum titleholders are considered relevant persons under regulation 25(1)(d) of the OPGGS(E)R.
Carnarvon Energy	
Eni Australia	
Exxon Mobil	
Jadestone Energy	
Kato Energy / Kato NWS Pty Ltd	
Kufpec	
PGS Australia Pty Ltd	
Santos	
Sapura OMV Upstream	
Terrafirma Offshore PTY LTD	
TGS NOPEC Geophysical Company Pty Ltd	
Vermilion Oil & Gas	
Western Gas	
Woodside	
ENGOs	
Australian Marine Conservation Society	ENGOs are organisations concerned about public welfare, people and the environment. Several environmental receptors intersect with the EMBA (Section 4). Therefore, ENGOs may be considered relevant persons under regulation 25(1)(d) of the OPGGS(E)R.
Cape Conservation Group	

Relevant person	Rationale
Protect Ningaloo	
Other	
Australian Institute of Marine Science (AIMS)	AIMS are a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP. Therefore, they are considered relevant persons under regulation 25(1)(d) of the OPGGS(E)R.
Care For Hedland Environmental Association	A representative from the Care for Hedland Environmental Association contacted CAPL via the Online Consultation Hub to self-identify for consultation. Care for Hedland run a community-based Flatback Turtle monitoring program, and engagement with the representative identified that a genetic link existed between the Flatback Turtles nesting populations at Port Hedland, Barrow Island, and the broader NWS. While the EMBA is >330 km from Port Hedland, and any direct interaction with Port Hedland is not predicted to occur from planned activities or an unplanned event associated with this EP, given the migratory nature of marine turtles and that the Pilbara Coast represents a single genetic stock (Ref. 159), CAPL considers that the Care for Hedland Environmental Association has functions, interests or activities that may be affected by the petroleum activity to be carried out under the EP. Therefore, they are considered relevant persons under regulation 25(1)(d) of the OPGGS(E)R.
Vocus Communications	Vocus Communications are a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP. Therefore, they are considered relevant persons under regulation 25(1)(d) of the OPGGS(E)R.
Any other person or organisation that the titleholder considers relevant (regulation 25(1)(e))	
Commercial fishery licence holders and/or representative bodies	
Australian Council of Prawn Fisheries	Australian Council of Prawn Fisheries is made up of industry bodies and companies that deal with wild prawns or the prawn industry. Commercial prawn fisheries operate outside the boundary of EMBA, however under regulation 25(1)(e) CAPL selected to include the council in consultation.
Northern Prawn Fishery	Northern Prawn Fishery targets prawns in northern Australian waters. The Northern Prawn Fishery operates outside the boundary the EMBA, however under regulation 25(1)(e) CAPL selected to include the fishery in consultation.
Pearl Producers Association	Pearl Producers Association are the peak representative body of the Australian South Sea Pearling Industry. Relevant pearling operations occur outside the boundary of EMBA, however under regulation 25(1)(e) CAPL selected to include the council in consultation.
Cygnet Bay Pearl Farm	These pearling operators have operations occurring outside the boundary of EMBA, however under regulation 25(1)(e) CAPL selected to include the council in consultation.
Maxima Pearling Company	
Paspaley Pearls	

Relevant person	Rationale
Western Rock Lobster Council	Western Rock Lobster (WRL) is the peak industry body representing the interests of the western rock lobster fishery. The WRL fishery operates outside the boundary of EMBA, however under regulation 25(1)(e) CAPL selected to include the WRL Council in consultation.
Tourism and recreation operators	
Tourism Western Australia	The EMBA for this EP intersects Commonwealth and State waters offshore, and some small areas of coast, within the Pilbara and Gascoyne regions, and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.
Karratha Tourism and Visitor Centre	The EMBA for this EP intersects Commonwealth and State waters offshore, and some small areas of coast, within the Pilbara and Gascoyne regions, and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.
Local government departments or agencies	
Carnarvon Chamber of Commerce Inc.	The EMBA for this EP intersects Commonwealth and State waters offshore, and a small area of mainland coast (Gascoyne region) and some islands (Pilbara region), and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.
City of Karratha (Pilbara)	
Karratha & Districts Chamber of Commerce and Industry	
Shire of Carnarvon (Gascoyne)	
Other	
Member for Pilbara	The EMBA for this EP intersects Commonwealth and State waters offshore, and a small area of mainland coast (Gascoyne region) and some islands (Pilbara region), and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.
Member of Legislative Authority - North West Central	
Member of Mining and Pastoral Region	
Minister for Environment WA	The Minister of the Environment is tasked with protecting the natural environment and promoting conservation. The EMBA for this EP intersects Commonwealth and State waters offshore, and a small area of mainland coast (Gascoyne region) and some islands (Pilbara region), and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.
Pilbara Development Commission	The Pilbara Development Commission works across government to support economic growth, stimulate job growth and increase industry innovation among other things. The EMBA for this EP intersects Commonwealth and State waters offshore, and a small area of mainland coast (Gascoyne region) and some islands (Pilbara region), and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.

Relevant person	Rationale
Exmouth Gulf Taskforce	The Exmouth Gulf Taskforce provides high level advice to the Minister for Environment on the environmental management of the Exmouth Gulf and its surrounds, to help preserve the region's unique environmental, cultural and social values. The EMBA for this EP intersects Commonwealth and State waters offshore from Exmouth, and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.
Gascoyne Junction Community Resource Centre	The EMBA for this EP intersects Commonwealth and State waters offshore, and a small area of mainland coast (Gascoyne region) and some islands (Pilbara region), and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.
Coral Bay Progress Association	
WA Coastal and Marine Community Network	
WA Marine Science Institute	The Western Australian Marine Science Institution is a collaboration of state and federal government and academic science organisations working together to provide independent marine research for the benefit of the environment, the community and the Blue Economy. The EMBA for this EP intersects Commonwealth and State waters offshore, and a small area of mainland coast (Gascoyne region) and some islands (Pilbara region), and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.
Western Australian Museum	The Western Australian Museum is the State's premier cultural organisation, housing WA's scientific and cultural collection. The EMBA for this EP intersects Commonwealth and State waters offshore, and a small area of mainland coast (Gascoyne region) and some islands (Pilbara region), and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.
Centre for Whale Research Western Australia	The Centre for Whale Research (Western Australia) Inc. is a non-profit research established in 1993 to conduct scientific research into marine mammals. The EMBA for this EP intersects Commonwealth and State waters offshore, and a small area of mainland coast (Gascoyne region) and some islands (Pilbara region), and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.
Wilderness Society	ENGOs are organisations concerned about public welfare, people and the environment. The EMBA for this EP intersects Commonwealth and State waters offshore of the Pilbara and Gascoyne regions, and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.
Whale and Dolphin Conservation Society	
International Fund for Animal Welfare - Oceania	
Greenpeace	
Coral Futures Corporation	

Relevant person	Rationale
Conservation Council of Western Australia	
Australian Conservation Foundation	
Port Hedland Chamber of Commerce Inc	The Port Hedland Chamber of Commerce Inc provide services and support for the economic growth and development on Port Hedland. The EMBA for this EP intersects Commonwealth and State waters offshore of the Pilbara and Gascoyne regions, and therefore under regulation 25(1)(e) CAPL selected to include this organization in consultation.

6.3.7 Assessment and response

CAPL has assessed the merits of all objections and claims regarding the consequences of the petroleum activity on a relevant persons functions, interests, or activities received during the consultation period that relate to the petroleum activity, consistent with regulation 24(b)(ii) of the OPGGS(E)R. This was done by evaluating appropriate evidence, including evidence provided by the relevant person submitting the objection or claim, and identifying potential impacts or risks on the totality of the values and sensitivities that could be affected by the petroleum activity. Potentially adverse impacts of the petroleum activity may need to be mitigated through the application of appropriate control measures. Claims or objections not directly related to the petroleum activity (such as statements of fundamental objection to the oil and gas industry) are not considered to have merit under the OPGGS(E)R because they are not relevant to the petroleum activity itself, or the impacts and risks of the petroleum activity. However, the consultation report summarises these statements and explains why they have not been considered in preparing the EP.

A summary of the outcomes of consultation undertaken with relevant persons during the preparation of this EP is provided in Appendix d. The table provides a description of the matters, objections or claims, assessment of the merits of the objection or claim, how CAPL responded to the relevant person, and where or how any changes resulting from the consultation were incorporated into the EP.

A record of all consultation undertaken specifically for this petroleum activity is included in the engagement log, which is provided to NOPSEMA in the sensitive information report.

6.3.8 Summary information

Regulation 24 of the OPGGS(E)R requires that an EP contain:

- a report on all consultations under regulation 25 of any relevant person by the titleholder, that contains:
  - 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 EP relates
  - a statement of the titleholder's response, or proposed response, if any, to each objection or claim
  - a copy of the full text of any response by a relevant person.

Regulation 34(g)(ii) of the OPGGS(E)R requires that the EP demonstrates that "the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate".

A summary of each response, CAPL's assessment of the merits of any objection or claim, and CAPL's response to each objection or claim is provided within Appendix d. The consultation summary also describes what (if any) changes to the EP, including control measures, were made in response to each objection or claim.

6.3.9 Conclusion on consultation

The objective of consultation, which is referred to above in Section 6.1, but reiterated below, informs whether consultation has been closed:

"[Regulation 25], like most statutory consultation provisions, imposes an obligation that must be capable of practicable and reasonable discharge by the person upon whom it is imposed. Consultation is a "real world" activity, with specific purposes. Here, its purpose is to ensure that the titleholder has ascertained, understood and addressed all the environmental impacts and risks that might arise from its proposed activity. Consultation facilitates this outcome because it gives the titleholder an opportunity to receive information that it might not otherwise have received from others affected by its proposed activity. Consultation enables the titleholder to better understand how others with an objective stake in the environment in which it proposes to pursue the activity perceive those environmental impacts and risks. As the Regulations expressly contemplate, it enables the titleholder to refine or change the measures it proposes to address those impacts and risks by taking into account the information acquired through the consultations. Objectively, the scheme intends that this is likely to improve the minimisation of environmental impacts and risks from the activity."[25]

As stated above in Section 6.1, the purpose of consultation is also to:

- identify the social and cultural features of communities within the ecosystem
- inform the control measures to eliminate, reduce, and mitigate impacts and risks to those socio-cultural values and sensitivities in response to relevant persons concerns
- to inform NOPSEMA of relevant persons' identities, the nature of the consultation, and the control measures adopted[26].

Regulation 25(2) of the OPGGS(E)R requires the titleholder to give the relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of the relevant person. Regulation 25(3) of the OPGGS(E)R requires the relevant person to be afforded a reasonable period for the consultation.

Consultation is a process that is not indeterminate and must be reasonably capable of being closed once the process is complete. As Lee J stated in Santos NA Barossa Pty Ltd v Tipakalippa "[i]t must be taken to be the regulatory intention that the consultation requirement cannot be one that is incapable of being complied with within a reasonable time."[27]

Regulation 33(1)(a) of the OPGGS(E)R requires that if NOPSEMA is reasonably satisfied that the EP meets the EP acceptance criteria then NOPSEMA must accept the EP. Meeting these requirements is the evaluative judgment to determine reasonable satisfaction of the consultation obligation, and as such, NOPSEMA uses its discretion to determine if these criteria are met. The Full Federal Court determined that this is a state of satisfaction that is a prerequisite to an exercise of a statutory power, and that there must be an evident and intelligible justification that must be objectively ascertained by a reviewing Court[28].

CAPL has undertaken the consultation process as described in Section 6, and in doing so has met the objective of consultation as articulated in the relevant case law, and met the requirements of regulation 25. This therefore provides NOPSEMA with evident and intelligible justification for being reasonably satisfied that the EP acceptance criteria for consultation are met.

CAPL has completed all practicable and reasonable steps to discharge its consultation obligations. As detailed in this EP, CAPL has provided sufficient information (Section 6.2.2) and a reasonable period of time (Section 6.2.3) to

[25] Paragraph 89 of *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Ref. 210).

[26] Paragraphs 55–57 of *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Ref. 210).

[27] Paragraph 136 of *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Ref. 210).

[28] Paragraphs 31 and 32 of *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Ref. 210).

enable relevant persons to make an informed assessment of the possible impacts and risks of the petroleum activity on their functions, interests or activities (meeting the requirements of regulation 25). CAPL has provided sufficient time to relevant persons to provide relevant input for CAPL to assess relevant persons claims and objections, and to action the input from relevant persons. CAPL has:

- updated its description of environment (Section 4) to include values and sensitivities raised by relevant persons
- updated its impact and risk assessment (Section 7) to include assessment of input from relevant persons on their values and sensitivities (particularly in relation to marine fauna and songlines), including revision and/or addition of control measures
- through this EP, informed NOPSEMA of relevant persons identities, the nature of the consultation, and the control measures adopted.

For further detail, see Appendix d and the sensitive information report.

CAPL notes it has discharged its obligations under regulation 25 considering:

- it has been over 12 months since consultation on this EP commenced, and information on the DS-1 exploration drilling activity, including potential impact and risks associated with the petroleum activity, has been presented on CAPL's website during this time with the option to provide feedback online
- CAPL has maintained a toll-free contact number for persons or organisations to call and participate in consultation
- CAPL published notices in seven newspapers, including the National Indigenous Times, as outlined in Section 6.2.2
- CAPL has attended several face-to-face meetings with First Nations representative bodies while consulting on this EP (as outlined in Appendix d), and provided tailored and bespoke consultation material for consideration
- two persons and one organisation self-identified during the consultation period indicating that CAPL has been successful in promoting its consultation efforts.

CAPL has also provided a reasonable opportunity for relevant persons to engage in genuine two-way dialogue on environmental impacts and concerns, and CAPL will undertake its ongoing consultation obligations (Section 8.3.4.1).

Based on the above, CAPL has discharged its duty under regulation 25. CAPL considers that consultation under regulation 25 is complete.

It is noted that CAPL is not required to obtain consent from a relevant person to engage in the petroleum activity.

To the extent a relevant person says that it has further information to share or claims that consultation under regulation 25 has not completed, Appendix d provides reasons specifically why CAPL considers consultation under regulation 25 has been met in relation to that relevant person.

6.4 Public comment

In accordance with regulation 30 of the OPGGS(E)R, the EP was published on the NOPSEMA website between 19 April and 19 May 2024 with an invitation for any person to provide written comments on the content of the EP. To promote the public comment period, CAPL also published notices in The Australian, The West Australian, The Pilbara News, Mid West Times, Northwest Telegraph, and

Business News. Copies of the CAPL published notices are included in the sensitive information report.

Public comments were received, and as such CAPL has prepared and submitted a written response in alignment with NOPSEMA's Responding to public comment on environment plans guidance note (Ref. 287). CAPLs response to the public comment has been published on the NOPSEMA website.

7 environmental impact and risk assessment and management strategy

This section provides an evaluation of the impacts and risks associated with the petroleum activity appropriate to the nature and scale of each impact and risk, details the control measures implemented to reduce the risks to ALARP and to an acceptable level, and identifies the associated environmental performance outcomes, performance standards, and measurement criteria, as required under regulations 21(5), 21(6) and 21(7) of the OPGGS(E)R.

Table 7-1 summarises the impacts and risks that were identified and evaluated for this activity.

Table 7-1: Summary of impact and risk evaluation

Section	Aspect	Impact	Risk			Decision context	ALARP	Acceptable
		C^	C^	L	R			
7.1	Physical presence—other marine users	–	6	4	9	A	Yes	Yes
7.2	Physical presence—marine fauna	–	6	4	9	A	Yes	Yes
7.3	Seabed disturbance	5	5	6	10	A	Yes	Yes
7.4	Air Emissions	6	6	6	10	A	Yes	Yes
7.5	Light emissions	6	5	5	9	A	Yes	Yes
7.6.1.3	Underwater sound – continuous	5	5	4	8	A	Yes	Yes
7.6.2	Underwater sound – impulsive	6	6	4	9	A	Yes	Yes
7.7	Invasive marine pests	–	2	6	7	A	Yes	Yes
7.8	Planned discharges—facility and vessel	6	6	6	10	A	Yes	Yes
7.9	Planned discharges—drill cuttings and fluids	4	5	3	7	A	Yes	Yes
7.10	Planned discharges—cement	4	6	6	10	A	Yes	Yes
7.11	Planned discharges—BOP fluids	6	6	6	10	A	Yes	Yes
7.12	Unplanned release—waste	–	6	5	10	A	Yes	Yes
7.13	Unplanned release—minor loss of containment	–	5	5	9	A	Yes	Yes
7.14	Unplanned release—vessel collision	–	4	5	8	A	Yes	Yes
7.15	Unplanned release—well control	–	4	5	8	A	Yes	Yes
7.16.4.1	Planned discharges – SSDI response	–	5	5	9	A	Yes	Yes
7.16.4.2	Ground disturbance—shoreline spill response	–	5	5	9	A	Yes	Yes
7.16.4.3	Physical presence—oiled wildlife response	–	5	5	9	A	Yes	Yes

C = consequence, L = likelihood, R = risk

^ Where an aspect is identified as having both potential impacts and risks, the highest-level consequence was evaluated in detail to ensure that justification is provided to support the highest consequence level for that aspect.

7.1 Physical presence—other marine users

Source

Activities identified as having the potential to result in interaction with other marine users are:

- MODU—presence within the OA during the exploration drilling activity
- drilling—presence of wellhead and other subsea equipment (e.g. riser) within the OA during the exploration drilling activity
- field support—presence of vessels within the OA during the exploration drilling activity.

Potential impacts and risks

Impacts	C	Risks	C
N/A	–	Unplanned interactions with other marine users may result in: • disruption to commercial shipping and fishing activities • entanglement of trawl fishing gear on subsea infrastructure or equipment.	6

Consequence evaluation

The MODU and support vessels will be present within the OA during the exploration drilling activity, which are estimated to take ~50 days to complete. The OA consists of an area of ~78.5 km^2. The wellhead and other subsea equipment will be in place for most of the drilling campaign; these will be located within the proposed 500 m safety exclusion zone around the MODU.

The potential for unplanned interactions between other marine users with the wellhead or subsea equipment is limited to where these users interact with the seafloor. Marine users that have the potential to interact with the subsea equipment are limited to commercial fisheries that utilise trawling fishing methods. The potential risks to trawling vessels from subsea equipment includes disruption to fishing efforts caused by the need for vessels to avoid the equipment and physical damage to trawling gear that contacts the wellhead or subsea equipment. However, given the location of the wellhead and equipment within a proposed exclusion zone at the centre of the OA, this risk is not considered credible, and no further evaluation has been undertaken.

The stationary presence of the MODU and the use of support vessels during the exploration drilling activity has the potential to result in a disruption to other marine users, including commercial shipping or fishing vessels.

As identified in Table 4-16 and Table 4-17, there are three commercial fisheries with recent fishing effort that overlaps the OA. The commercial fisheries include one Commonwealth managed fishery (NWSTF), and two State managed fisheries (Pilbara Line and Pilbara Trap fisheries). Although Commonwealth and State fisheries are present, the level of fishing effort within the OA is typically low. The NWSTF has a small number of active permits and vessels (e.g. seven permits and three vessels were active during the 2021-2022 season [Section 4.4.1.1]). Fishing effort records obtained from DPIRD (Ref. 27) for State managed commercial fisheries indicate that fishing effort within the OA varies each year, but that there may be up to 6 vessels operating some years. Limited use of the OA for tour operated recreational fishing has also been recorded (Section 4.4.2); however given the very intermittent use and low numbers of vessels, negligible interaction with recreational fishing is expected. Any deviation required by fishing vessels around the MODU (and its safety exclusion zone) or the support vessels within the OA, is not expected to impact on the functions, interests, or activities of other marine users.

The OA is located outside major shipping fairways and commercial vessel traffic density within the OA is low (Figure 4-9). Therefore, the presence of the MODU and support vessels within the OA are not expected to affect commercial shipping operations. Any deviation required by commercial shipping operators is not expected to impact on the functions, interests, or activities of other marine users.

As such, the physical presence of the MODU and support vessels within the OA during the exploration drilling activity, are not expected to cause significant impacts to other marine users, with limited potential impact to their functions, interests, or activities. Therefore, CAPL has ranked the potential consequence to other marine users from physical presence as Incidental (6).

ALARP decision context justification		
Offshore drilling and support vessel operations are commonplace and well-practised both nationally and internationally. The control measures to manage the risks associated with unplanned interactions with other marine users are well defined and understood by the industry. During relevant persons consultation, claims were received regarding the risk of vessel collision within designated shipping fairways, and also noted the use of standard practices for vessel operations including notification requirements to Joint Rescue Coordination Centre (JRCC) and AHO, and the use of appropriate signals (lights and shapes). These claims were responded to by CAPL (see summary in 'external context' below, and within Appendix d). The risks arising from the physical presence of the MODU and support vessels to other marine users are considered lower-order risks in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.		
Good practice control measures		
Control measure	**Description**	
Relevant persons consultation—Ongoing consultation (notifications)	Communicating the activity details, location, requested safety exclusion zone, and presence of vessels to other marine users ensures they are informed and aware, thereby reducing the risk of unplanned interactions. In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) relevant persons that have requested ongoing notifications will also be notified of the commencement and completion of the petroleum activity (Table 8-5).	
Maritime safety information	Maritime safety information, such as AUSCOAST navigational warnings, are issued by the JRCC Australia, part of AMSA. Under the *Navigation Act 2012 (*Cth*)*, the AHO is also responsible for maintaining and disseminating navigational charts and publications, including providing safety-critical information to mariners (including any change to prohibited/restricted areas, obstructions to surface navigation, etc.) via the Notice to Mariners system. Notice to Mariners can be permanent or temporary notifications. Maritime safety information (radio-navigation warnings and/or Notice to Mariners will be issued; thus, enabling other marine users to also safely plan their activities.	
Marine Standard	Chevron's *Marine Standard Non Tankers: Corporate OE Standard* (Ref. 39) ensures that various legislative requirements are met. These include: • crew meet the minimum standards for safely operating a vessel, including watchkeeping requirements • navigation, radar equipment, and lighting meet industry standards. These requirements will ensure that direct MODU and vessel radio contact is available to other marine users operating in this area to enable ease of communication in highlighting risks and safety exclusion zones.	
Additional control measures and cost benefit analysis		
Control measure	**Benefit**	**Cost**
N/A	N/A	N/A
Likelihood and risk level summary		
Likelihood	Due to the nature and scale of this petroleum activity, the slow-moving nature of vessels within the OA, the limited area of operation and the limited duration of this program, the likelihood of interaction with other marine users is considered low. Interaction with the wellhead or subsea equipment is not expected to occur. As such, CAPL consider the likelihood of the consequence occurring is ranked as Unlikely (4).	

<table>
<tr><td>Risk level</td><td colspan="2">Very low (9)</td></tr>
<tr><td colspan="3">Determination of acceptability</td></tr>
<tr><td>Principles of ESD</td><td colspan="2">The risks associated with this aspect are unplanned interactions causing incidental disruption to other marine users, which is not considered as having the potential to affect biological diversity and ecological integrity.
The consequence associated with this aspect is Incidental (6).
Therefore, no further evaluation against the Principles of ESD is required.</td></tr>
<tr><td>Relevant environmental legislation and other requirements</td><td colspan="2">Legislation and other requirements considered relevant for this aspect include:
• Navigation Act 2012 (Cth).
CAPL considers that impact and risk management is consistent with these requirements, as demonstrated below.
<table><tr><th>Requirement</th><th>Demonstration</th></tr><tr><td>Navigation Act 2012 (Cth)
Notice to Mariners.</td><td>Requirement to issue a Notice to Mariners has been incorporated into the maritime safety information control measure.</td></tr></table></td></tr>
<tr><td>Internal context</td><td colspan="2">The following CAPL management processes or procedures were deemed relevant for this aspect:
• Marine Standard Non Tankers: Corporate OE Standard (Ref. 39).
Control measures related to the above management process have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.</td></tr>
<tr><td>External context</td><td colspan="2">During relevant persons consultation, claims were received regarding the risk of vessel collision within designated shipping fairways, and also noted the use of standard practices for vessel operations including notification requirements to JRCC and AHO, and use of appropriate signals on vessels (Appendix d).
CAPL responded to this claim by confirming that the OA (and therefore planned vessel activities) for this EP does not intersect with NWS shipping fairways.
CAPL also confirmed that the notifications to JRCC and AHO are included within standard control measures (refer to ‘maritime safety information’ control) and notification requirements (refer to Table 8-5).
Vessels are required to operate in accordance with any Class, Flag or Port State laws and regulations. This includes the use of appropriate signals to reflect nature of vessel operations.
No further objections or claims were raised regarding interaction with other marine users arising from the activity.</td></tr>
<tr><td>Defined acceptable level</td><td colspan="2">These risks are inherently acceptable as they are considered lower-order risks in accordance with Table 5-3. In addition, the potential risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.</td></tr>
<tr><td>Environmental performance outcome</td><td>Environmental performance standard</td><td>Measurement criteria</td></tr>
<tr><td>(EPO 1) Other marine users are aware of the potential impacts and risks from the petroleum activity.</td><td>(EPS 1.1) Relevant persons consultation—Ongoing consultation (notifications)
Relevant persons (that have requested notifications) will be advised of the commencement and expected completion dates.</td><td>(MC 1.1.1) Relevant persons consultation records.</td></tr>
</table>

	(EPS 1.2) Maritime safety information Notify relevant agency of activities, vessel movements, and requested safety exclusion zone, to enable them to generate radio-navigation warnings and/or Notice to Mariners prior to commencing offshore activities.	(MC 1.2.1) Record of lodgement of notification to relevant agency.
	(EPS 1.3) Marine Standard MODU and vessel crew will meet the minimum competency, navigation equipment, and radar requirements of the Marine Standard.	(MC 1.3.1) Records indicate that MODU and vessels meet the crew competency, navigation equipment, and radar requirements of the Marine Standard.

7.2 Physical presence—marine fauna

Source

Activities identified as having the potential to result in interaction with marine fauna are:

- MODU—presence within the OA during the exploration drilling activity
- field support—presence of vessels within the OA during the exploration drilling activity.

Potential impacts and risks

Impacts	C	Risks	C
N/A	–	Unplanned interactions with marine fauna may result in:	
		• injury or death of marine fauna.	6
		• changes to cultural heritage values	6

Consequence evaluation

Injury or death of marine fauna

The MODU and support vessels will be present within the OA during the exploration drilling activity, which are estimated to take ~50 days to complete. The OA consists of an area of ~78.5 km^2. The stationary presence of the MODU and the use of support vessels during the exploration drilling activity has the potential to result in unplanned interactions with marine fauna.

Marine turtles listed as threatened and/or migratory have been identified as potentially occurring within the OA (Section 4.3.3.2), however there are no BIAs or habitat critical for the survival of species. The *Recovery Plan for Marine Turtles in Australia* (Ref. 159) identifies vessel disturbance as a key threat; however, it also notes that this is particularly an issue in shallow, coastal foraging habitats. Given the OA is located in deep (~958 m) offshore waters (~95 km to the nearest land) the presence of marine turtles is expected to be limited to transient individuals and impacts and risks associated with the physical presence of the MODU and vessels are expected to be negligible.

Fish and sharks listed as threatened and/or migratory have been identified as potentially occurring within the OA (Section 4.3.3.3), however, there are no BIAs. A review of the Recovery Plan for the White Shark (*Carcharodon carcharias*) (Ref. 306), listing Advice for scalloped hammerhead (*Sphyrna lewini*) (Ref. 307) and listing Advice for Shortfin Mako (*Isurus oxyrinchus*) (Ref. 308) (i.e. species identified within the OA [Section 4.3.3.3]) did not identify vessel disturbance as a threat. Furthermore, no potential presence of Whale Sharks was identified within the OA (Table 4-9); therefore, this has not been evaluated further.

Several marine mammal species listed as either threatened and/or migratory under the EPBC Act have the potential to occur within the OA. The OA overlaps with the Pygmy Blue Whale migration BIA. As such the focus of this evaluation is on cetaceans as they provide a representative case to enable an indicative consequence evaluation to be undertaken.

A review of the documents made or implemented under the EPBC Act for cetacean species likely to be present within the OA (i.e. Fin Whale [Ref. 57], Sei Whale [Ref. 58], Humpback Whale

[Ref. 309] and Blue Whale [Ref. 59]) indicates that either vessel disturbance or interaction (such as collisions) as a key threat to the recovery of the species.

For all cetacean species likely to be present within the OA, these documents indicate that management actions are limited to reporting of incidents via the national database (refer to incident reporting in Section 8.4.2) and ensuring that the risk of vessel strike is assessed (see the following text below).

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 near a vessel, while others are curious and often approach vessels that have stopped or are slow moving, although they generally do not approach, and sometimes avoid, faster-moving vessels (Ref. 60). There have been recorded instances of cetacean deaths in Australian waters (e.g. a Bryde's Whale in Bass Strait in 1992) (Ref. 61), although the data indicates deaths are associated with container ships and fast ferries. Mackay et al (Ref. 62) report that four fatal and three non-fatal collisions with Southern Right Whales were recorded in Australian waters between 1950 and 2006, with one fatal and one non-fatal collision reported between 2007 and 2014.

The *Conservation Management Plan for the Blue Whale 2015–2025* (Ref. 59) indicates that although all forms of vessels can collide with whales, severe or lethal injuries are expected to occur by larger or faster vessels. Laist et al. (Ref. 63) found that larger vessels with reduced manoeuvrability moving >10 knots may cause fatal or severe injuries to cetaceans, with the most severe injuries caused by vessels travelling faster than 14 knots. Given that vessels will be stationary or slow moving whilst undertaking the activities within the scope of this EP, any interaction with marine fauna would not be expected to cause severe injuries.

Predictions from modelling based on passive acoustic data indicate greatest numbers of Pygmy Blue Whales during April to July (northern migration), and November and December (southern migration) (Ref. 201). As the DS-1 exploration drilling activity is planned to commence between 2024 and 2025, the activity could overlap with the months of predicted higher densities (i.e. migration periods). However, although the OA intercepts with the BIA, it is expected based on recent satellite tracking and acoustic detection that Pygmy Blue Whales travel further offshore in deeper waters (Ref. 65, Ref. 66). The BIA in the vicinity of the DS-1 activities is not considered to be a 'confined migratory pathway'[29].

As outlined in Section 4.3.3.1.2, the OA occurs in water depths >770 m and is ~28 km northeast of the Humpback Whale migration BIA. It is therefore unlikely Humpback Whales would occur in the OA in large numbers and any presence of this species would likely be transitory.

If a fauna strike occurred and resulted in death, it is not expected to have a detrimental effect on the overall population; this event would result in a limited environmental impact (individual impacts). Thus, fauna strike is evaluated as having the potential to result in an Incidental (6) consequence.

Changes to cultural heritage values

There are no World, National, or Commonwealth heritage listed places or sites within the OA (Section 4.6).

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. It is understood that the term 'Country' refers to more than just a geographical area, and includes values, places, resources, stories, and cultural obligations associated with that geographical area (Ref.242; Ref. 269). One of the specific tangible values of Sea Country identified through consultation was marine fauna (e.g. whales, dugongs, turtles; Table 4-14). The consequence evaluations to these receptors are provided above.

Intangible cultural heritage refers to the "practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage" (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives of MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14).

Songlines are paths that track across Country and skies, representing Indigenous knowledge that has been collected, protected and transmitted (Ref. 271). Songlines are living tools that embed and mediate history, ecological knowledge, relationships, ancestral beings, and cultural belonging on Country (Ref. 271). Certain songlines may be referred to as 'Dreaming Pathways' because of the tracks forged by Creator Spirits during the Dreaming (Ref. 237). Kearney et al (Ref. 272)

[29] Confined migratory pathways are typically constrained by a physical (or other) barrier and create a narrow or restricted bottleneck through which most of the population must pass.

describe that for saltwater peoples "stories and songlines locate, interpret and inscribe knowledges of both the Dreaming tracks, bodies and movements of ancestral beings that criss-cross over Sea Country and the permanent sites of ancestral inhabitation within the marine environment". Fauna are also woven into the Dreaming, songlines and stories (Ref. 273). For example, representatives from MCH identified that there are songlines, including a whale songline, that go through Barrow Island and offshore and connect Barrow Island to the mainland (Table 4-14).

Listening and talking with Country through stories, songlines, and other practices are ways First Nations care for, navigate, and connect with Country (Ref. 274). Songlines rely on the continued health of Country, and people's continued access and connection to it (Ref. 271). When Country is damaged or altered, so too are songlines and the knowledge they embody and enact (Ref. 271). Representatives from MCH described this as when songlines are disrupted, their *widdart* (heart) is disconnected (Table 4-14). No impact pathway to a change in access to Country from an unplanned interaction with marine fauna within the OA is anticipated. The consequence evaluation for marine fauna is provided above—if an interaction did occur, any impact would be to individuals, and is not expected to affect the overall population of the species. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected from an unplanned interaction with marine fauna within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of the exploration drilling activity (~50 days), a significant adverse change to cultural heritage values attributed to the offshore marine area from an unplanned marine fauna interaction is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Incidental (6).

ALARP decision context justification

Offshore drilling and support vessel operations are commonplace and well-practised both nationally and internationally. The control measures to manage the risk associated with fauna strike are well defined via legislative requirements that are considered standard industry practice. These are well understood and implemented by the petroleum industry and CAPL.

During relevant persons consultation, no objections or claims where raised regarding disruption to other marine users arising from the petroleum activity.

The risks arising from the physical presence of the MODU and support vessels to marine fauna are considered lower-order risks in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.

Good practice control measures and source

Control measure	Source
Vessels under transit or on standby within the OA	For vessels under transit within the OA, the following caution, approach, or separation distances (and associated vessel speeds) will be maintained by the vessels: • caution and no approach zones for cetaceans as described in EPBC Regulations 2000 – Part 8 Division 8.1 – Interacting with cetaceans (Cth) • although Whale Sharks were not identified within the OA, CAPL will apply a separation distance of 30 m for Whale Sharks (as described in the Biodiversity Conservation Regulations 2018 [WA] as a conservative approach • separation distance of 30 m for marine turtles • vessels must operate at ≤6 knots within caution zones or when moving away to maintain a no-approach zone distance
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement

	opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.	
Additional control measures and cost benefit analysis		
Control measure	**Benefit**	**Cost**
N/A	N/A	N/A
Likelihood and risk level summary		
Likelihood	Due to the nature and scale of vessel activities within the scope of this EP, the slow-moving nature of vessels within the OA, and the limited area of operation, the likelihood of a vessel collision with marine fauna is considered low. Based upon previous experience in the OA, CAPL consider the likelihood of the consequence occurring is Unlikely (4).	
Risk level	Very Low (9)	
Determination of acceptability		
Principles of ESD	The risks associated with this aspect are unplanned interactions causing individual fauna injury or mortality, which is not considered as having the potential to affect biological diversity and ecological integrity. The consequence associated with this aspect is Incidental (6). Therefore, no further evaluation against the Principles of ESD is required.	
Relevant environmental legislation and other requirements	Legislation and other requirements considered relevant for this aspect include: • EPBC Regulations 2000 – Part 8 Division 8.1 interacting with cetaceans • *Conservation Management Plan for the Blue Whale 2015–2025* (Ref. 59) • *Conservation Advice Balaenoptera borealis Sei Whale* (Ref. 58) • *Conservation Advice Balaenoptera physalus Fin Whale* (Ref. 57) • *National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna (Ref. 251)*.	
	Requirement	**Demonstration**
	EPBC Regulations 2000 – Part 8 Division 8.1 interacting with cetaceans Caution and no approach zones for interacting with cetaceans from vessels.	Requirements of Regulation 8.05 and 8.06 for vessels interacting with cetaceans has been incorporated into the **EPBC Regulations 2000 – Part 8 Division 8.1 – Interacting with cetaceans** control measure.
	Conservation Management Plan for the Blue Whale 2015–2025 Management action A.4.2: Ensure all vessel strike incidents are reported in the National Ship Strike Database. Management action A.4.3: Ensure the risk of vessel strikes on blue whales is considered when assessing actions that increase vessel traffic in areas where blue whales occur and, if required, appropriate mitigation measures are implemented.	Requirements to report vessel strike incidents is included in Section 8.4.2. This section provides a risk evaluation for vessel strikes on Blue Whales, and control measures have been identified. Therefore, this exploration drilling activity is not considered to be inconsistent with the *Conservation Management Plan for the Blue Whale.*

	Conservation Advice Balaenoptera borealis Sei Whale Conservation action: Ensure all vessel strike incidents are reported in the National Vessel Strike Database.	Requirements to report vessel strike incidents is included in Section 8.4.2. Therefore, this activity is not considered to be inconsistent with the *Conservation Advice Balaenoptera borealis Sei Whale*.
	Conservation Advice Balaenoptera physalus Fin Whale Conservation action: Ensure all vessel strike incidents are reported in the National Vessel Strike Database.	Requirements to report vessel strike incidents is included in Section 8.4.2. Therefore, this activity is not considered to be inconsistent with the *Conservation Advice Balaenoptera physalus Fin Whale*.
	National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna No specific action identified.	N/A.
Internal context	No CAPL management processes or procedures were deemed relevant for this aspect.	
External context	During relevant persons consultation, no objections or claims were raised regarding interaction with marine fauna arising from the activity.	
Defined acceptable level	These risks are inherently acceptable as they are considered lower-order risks in accordance with Table 5-3. In addition, the potential risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan. However, in alignment with Section 5.6.2, where the aspect is listed as threat to a protected matter, or identified as a concern to a listed conservation value, CAPL will define an acceptable level of impact that aligns with the objectives of these documents. Objectives of the relevant documents are shown below:	
	Plan	**Objective**
	Conservation Management Plan for the Blue Whale 2015–2025	Recovery objective: Minimise anthropogenic threats to allow for their conservation status to improve so that they can be removed from the EPBC Act threatened species list. Interim objective 4 Anthropogenic threats are demonstrably minimised.
	Therefore, CAPL has defined the following acceptable level of impact such that it is not inconsistent with these documents: • impacts from the petroleum activity are managed such that it would not prevent the long-term recovery of protected species. CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.	
Environmental performance outcome	**Environmental performance standard**	**Measurement criteria**
(EPO 2a) No injury or mortality to marine fauna within the OA from vessel activities associated with the petroleum activity	**(EPS 2.1) Vessels under transit or on standby within the OA** Vessels will implement caution and no approach zones, where practicable: • caution zone (300 m either side of whales; 150 m either side of dolphins)–vessels must operate	(MC 2.1.1) Induction materials include relevant marine fauna caution and no approach zone requirements.
		(MC 2.1.2) Training records confirm offshore personnel involved in the activities have completed the induction.

(EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity	at ≤6 knots within in this zone, maximum of three vessels within zone, and vessels should not enter if a calf is present • no approach zone (300 m to the front and rear of whales and 100 m either side; 300 m for whale calves; 150 m to the front and rear of dolphins and 50 m either side)–vessels should not enter this zone and should not wait in front of the direction of travel of an animal or pod or follow directly behind • a separation distance of 30 m from Whale Sharks and marine turtles–vessels must operate at ≤6 knots when moving away to maintain this separation distance.	(MC 2.1.3) Vessel records show if marine fauna interaction occurred within caution zones, no approach zones or separation distances, and what mitigation (e.g. divert or slow vessel) measure was implemented.
	(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol.	(MC 2.2.1) Relevant persons consultation records.
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation.	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.

7.3 Seabed disturbance

Source

Activities identified as having the potential to result in seabed disturbance are:

- MODU—use of mooring system within the OA during the exploration drilling activity
- drilling—well-spudding and installation of subsea equipment within the OA during the exploration drilling activity
- field support—temporary wet parking of ROVs within the OA during the exploration drilling activity
- field support—unplanned vessels anchoring (e.g. during an emergency) within the OA during the exploration drilling activity.

In addition to these activities, discharge of drilling fluids and cuttings has the potential to result in seabed disturbance. However, these discharges are assessed in Section 7.9 and not considered further in this section.

Potential impacts and risks

Impacts	C	Risks	C

Seabed disturbance may result in: • alteration of benthic communities and habitats • localised and temporary change in water quality.	5 6	Seabed disturbance may result in: • changes to cultural heritage values	5

Consequence evaluation

Alternation of benthic communities and habitat

The MODU will be positioned within the OA using an 8- to 12-point mooring system, with a disturbance footprint from an anchoring system (including anchors and chains) estimated at up to ~0.013 km^2 (Ref. 11; Section 3.2.1). The direct disturbance footprint of drilling on the seabed is expected to be relatively small (e.g. <0.001 km^2), and the ROV is very small (e.g. <15 m^2). The OA consists of an area of ~78.5 km^2. This indicative seabed disturbance area represents <0.02% of the OA.

Although anchoring is not a routine activity from support vessels, it has been carried through as a contingent activity in the event anchoring is required within the OA due to a significant weather event. National Energy Resources Australia (Ref. 11) indicates that a vessel anchored within water depths greater than 70 m with a single anchor could result in a total disturbance area of up to ~0.0013 km^2. Assuming three vessels were required to anchor, this indicative seabed disturbance area represents <0.005% of the OA.

The benthic habitat within the OA is expected to predominantly be soft substrate (Section 4.3.1). The values and sensitivities within the OA with the potential to be impacted by seabed disturbance includes the following KEF:

- continental slope demersal fish communities.

Bacteria and fauna present on the continental slope are the basis of the food web for demersal fish and higher-order consumers in this KEF system (Ref. 72). Although physical habitat modification is considered a pressure of potential for this KEF, this modification has been associated with fishing activities (Ref. 72).

The habitat type within the OA (i.e. soft sediment, with sparse epibenthic communities) is widespread through the region, and as such the potential disturbance footprint (~0.014–0.018 km^2) is highly localised, expected to recover, and not expected to affect ecosystem function or connectivity of communities. As such, CAPL has ranked the consequence as Minor (5).

Localised and temporary change in water quality

During activities that interact with the seabed (e.g. installation of MODU anchors, or seabed equipment, etc.), some unconsolidated sediment may be resuspended into the water column, resulting in a decrease in local water quality. As described above, the area of seabed disturbance within the OA is limited, and as it is related to discrete activities, does not occur continually for the duration of the exploration drilling activities.

Given the hydrodynamics in open ocean areas, the area of decreased water quality is expected to be localised and temporary, as sediments would settle out of the water column relatively quickly (Ref. 11). As such, CAPL has ranked the consequence as Incidental (6).

Changes to cultural heritage values

The DS-1 exploration well (and associated seabed disturbance) is located ~40 km west of subsea infrastructure associated with the Gorgon Gas Development. There is no operational subsea infrastructure within proximity of the DS-1 exploration well. The closest known non-operated infrastructure is ~13 km northwest associated with a previous exploration well that was decommissioned with the wellhead in situ.

As discussed in Section 4.6, there are no World, National, or Commonwealth heritage listed places or sites, and no protected UCH[30] sites or artefacts have been identified within the OA. Therefore, no impacts to known protected seabed-based UCH (e.g. shipwrecks or archaeology), including First Nations UCH, are expected to occur.

Given known sea level history, the OA (which occurs in water depths >940 m) would not have been emergent land during the extended history of First Nations occupation of Australia. At the time of writing, CAPL understands through consultation with the relevant First Nations people and/or representative bodies that there are no known artefacts or specific sites of cultural value

[30] Under section 15 of the UCH Act, UCH is defined as “any trace of human existence that has a cultural, historical, or archaeological character, and is located under water”.

associated with the seabed within the OA. As such, it is anticipated that tangible heritage features would not be significantly adversely affected from planned seabed disturbance within the OA.

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. One of the specific tangible values of Sea Country identified through consultation was the ocean (Table 4-14). The consequence evaluations to related receptors (i.e. marine environmental quality, benthic communities and habitats) are provided above.

Intangible cultural heritage refers to the "practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage" (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from seabed disturbance within the OA is anticipated. The consequence evaluation to benthic communities and habitats is provided above and was assessed as resulting in highly localised and minor environmental impacts. Further, as described in the above evaluation, changes to the benthic habitat within the disturbance footprint is not expected to affect ecosystem function or connectivity. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected from seabed disturbance within the OA.

Given the small disturbance area associated with the petroleum activity (~0.014–0.018 km^2) and that the benthic habitat within the OA is expected to predominantly be soft substrate, a significant adverse change to cultural heritage values attributed to the offshore marine area from seabed disturbance is not predicted to occur. As such, CAPL has ranked the consequence as Minor (5).

ALARP decision context justification

Seabed disturbance from offshore activities is commonplace; the activities causing this aspect are practiced nationally and internationally. The control measures to manage the impacts associated with seabed disturbance are well understood and implemented by the industry.

During relevant persons consultation, a claim was raised regarding the potential presence of First Nations UCH (in the context of the UCH Act). This claim was responded to by CAPL (see summary in 'external context' below, and within Appendix d).

The impacts associated with seabed disturbance are considered lower-order impacts in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.

Good practice control measures

Control measure	Description
Mooring analysis	Mooring analysis will be undertaken before MODU anchoring, as per requirements of American Petroleum Institute (*API) RP 2SK Design and analysis of station keeping systems for floating structures* (Ref. 105).
Monitoring mooring line tensions	ISO 19901-7:2013: Station keeping systems for floating offshore structures and mobile offshore units (Ref. 106) states that mooring line tensions should be measured and recorded during normal operations to ensure that drag is reduced.
ROV inspection	A visual inspection (via ROV) of the seabed will be conducted prior to well spudding commencing.
Marine Standard	Chevron's Marine Standard (Ref. 39) ensures that various legislative and Chevron requirements are met, including MODU and vessels will meet the crew competency, navigation equipment, and radar requirements.
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3).

	Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.
UCH finds protocol	In alignment with the *assessing and managing impacts to Underwater Cultural Heritage in Australian water* (Ref. 224) a UCH finds protocol will be implemented where there are activities interacting with the seabed with the risk of disturbing unlocated UCH. The purpose of the UCH finds protocol is to ensure that inadvertent discoveries of UCH (including First Nations UCH) are identified on site and responded to with adequate conservation and management actions. The protocol will identify actions to be taken should potential UCH be identified within the OA.

Additional control measures and cost benefit analysis

Control measure	Benefit	Cost
N/A	N/A	N/A

Likelihood and risk level summary

Likelihood	Due to the limited area of seabed disturbance, and with the control measures in place, the likelihood of impacts to cultural values from seabed disturbance is Rare (6).
Risk level	Very low (10)

Determination of acceptability

Principles of ESD	The potential impacts associated with this aspect is limited to localised short-term effects that are not expected to affect biological diversity and ecological integrity. The consequence associated with this aspect is Minor (5). Therefore, no further evaluation against the Principles of ESD is required.
Relevant environmental legislation and other requirements	Legislation and other requirements considered relevant to this aspect include: • *API RP 2SK Design and analysis of station keeping systems for floating structures* (Ref. 105) • *ISO 19901-7:2013: Station keeping systems for floating offshore structures and mobile offshore units* (Ref. 106).

Requirement	Demonstration
API RP 2SK Design and analysis of station keeping systems for floating structures.	Technical requirements have been incorporated into the **Mooring analysis** control measure.
ISO 19901-7:2013: Station keeping systems for floating offshore structures and mobile offshore units.	Technical requirements have been incorporated into the **Monitoring mooring line tensions** control measure.

Internal context	The following CAPL management processes or procedures were deemed relevant for this aspect: • *Marine Standard Non Tankers: Corporate OE Standard* (Ref. 39). Control measures related to the above management process have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.
External context	During relevant persons consultation, a claim regarding the potential presence of First Nations UCH sites within offshore Australian waters was received (Appendix d). CAPL provided a response that confirmed that a desktop assessment for UCH has been undertaken which included consultation with First Nations to identify presence of UCH artefacts within

	the EMBA (refer to Section 4.6.2). No further objections or claims were raised regarding seabed disturbance arising from the activity.	
Defined acceptable level	These impacts are inherently acceptable as they are considered lower-order impacts in accordance with Table 5-3. In addition, the potential impacts evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.	
Environmental performance outcome	**Environmental performance standard**	**Measurement criteria**
(EPO 3a) Reduce the risk of impacts to sensitive environmental receptors within the OA from the petroleum activity. (EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 3.1) Mooring analysis** Mooring analysis for the MODU will be undertaken prior to anchoring activities commencing.	(MC 3.1.1) Records verify that mooring analysis was undertaken prior to MODU anchoring.
	(EPS 3.2) Monitoring mooring line tensions Mooring line tensions will be monitored through the duration of the petroleum activity.	(MC 3.2.1) Records verify mooring line tensions were monitored for the duration of the petroleum activity.
	(EPS 3.3) ROV inspection A visual inspection of the seabed will be undertaken prior to well spudding activities commencing.	(MC 3.3.1) Records verify that a visual seabed inspection was undertaken prior to well spudding.
	(EPS 1.3) Marine Standard MODU and vessels will meet the crew competency, navigation equipment, and radar requirements of the Marine Standard.	(MC 1.3.1) Records indicate that MODU and vessels meet the crew competency, navigation equipment, and radar requirements of the Marine Standard.
	(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol.	(MC 2.2.1) Relevant persons consultation records.
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation.	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.
(EPO 4) No impacts to underwater cultural heritage	**(EPS 4.1) UCH finds protocol** CAPL will develop and implement a UCH finds protocol to identify	(MC 4.1.1) Records indicate that a UCH finds protocol was developed and in place prior to the commencement of the petroleum activity.

from the petroleum activity.	and manage any potential UCH during the petroleum activity.	(MC 4.1.2) Induction materials include relevant UCH requirements.
		(MC 4.1.3) Training records confirm personnel involved in offshore vessel activities and/or ROV operations have completed the induction.
		(MC 4.1.4) Records show if UCH (or potential UCH) were identified within the OA, and what conservation and management actions were implemented.
	(EPS 4.2) UCH finds protocol If First Nations UCH (or potential UCH) is identified during the petroleum activity, the finding is shared with the relevant First Nations representative bodies.	(MC 4.2.1) Relevant persons consultation records.
	(EPS 4.3) UCH finds protocol Where required, UCH finds have been reported to the relevant agency (Table 8-17).	(MC 4.3.1) Record of lodgement of notification to relevant agency.

7.4 Air Emissions

Source

Activities identified as having the potential to result in air emissions:

- MODU—combustion of fuel onboard the MODU within the OA during the exploration drilling activity
- field support—combustion of fuels from vessels and helicopters within the OA during the exploration drilling activity.

Potential impacts and risks

Impacts	C	Risks	C
Air emissions may result in: • a localised and temporary change in air quality • contribution to the reduction of the global atmospheric carbon budget.	6 6	Generation of air emissions may result in: • changes to cultural heritage values.	6

Consequence evaluation

Localised and temporary change in air quality

The MODU and support vessels will be present within the OA during the exploration drilling activity, which are estimated to take ~50 days to complete. The MODU is also serviced by regular helicopter operations (Section 3.7.2). The MODU, vessels, and helicopters rely on the combustion of fuel for power generation, which can subsequently result in air emissions.

Air emissions may include criteria pollutants (e.g. nitrogen oxides [NO_x]), and greenhouse gases (e.g. carbon dioxide [CO_2]). Impacts from air emissions depend on discharge volume, frequency, duration of exposure, as well as the location and nature of the receiving environment. Air quality changes associated with emissions are typically limited to the local air shed, given the rapid dispersal into the atmosphere following release.

Modelling was undertaken for NO_2 emissions from MODU power generation for another offshore project (Ref. 116). NO_2 is the focus of the modelling because it is considered the main (non-greenhouse) atmospheric pollutant of concern, with larger predicted emission volumes compared to the other pollutants and has potential to impact on human health (as a proxy for environmental receptors). Results of this modelling indicate that on an hourly average, there is the potential for an increase in ambient NO_2 concentrations of 0.0005 ppm within 10 km of the emission source and an increase of 0.00005 ppm in ambient NO_2 concentrations >40 km away. Air emissions fare expected to be the less from the support vessels in comparison to a MODU.

The NEPM recommends that hourly exposure to NO_2 is <0.12 ppm with annual average exposure <0.03 ppm. Given that the modelling indicated that the highest hourly averages (0.00039 ppm or 0.74 µg/m^3) were restricted to a distance ~5 km from the MODU (Ref. 116), exposures are considered to be below NEPM standards.

Given the limited spatial extent of the change arising from air emissions, and the limited duration of the exploration drilling activity, CAPL has ranked the consequence associated with a direct change in local air quality as Incidental (6).

Contribution to the reduction of the global atmospheric carbon budget

The MODU and support vessels will be present within the OA during the exploration drilling activity, which are estimated to take ~50 days to complete. The MODU is also serviced by regular helicopter operations (Section 3.7.2). The MODU, vessels, and helicopters rely on the combustion of fuel for power generation, which can subsequently result in greenhouse gas emissions, which will contribute to a reduction in the global carbon budget.

Direct Greenhouse gas (GHG) emissions from activities within this EP are estimated to be ~0.03 Mt CO_2-e[31],[32] . These direct emissions represent ~0.027% of national Australian emissions (when compared to March 2024 inventory) (Ref. 117).

[31] Emissions calculation is based on 50 days of moored MODU operations, 50 days of three vessels on DP (assuming 2 x anchor handler and 1 x platform supply vessel), and 70 helicopter transfers, using NGER energy content and emissions factors (Ref. 118).

[32] Any equipment (e.g. ROV) used to support vessel activities is powered by the support vessel itself, and as such these don't represent an additional emission source to that already accounted for by the vessel.

To determine the relevance of indirect emissions to the activities under this EP, CAPL undertook an assessment against the factors for determining what is an indirect consequence, in accordance with the '*Indirect consequences' of an action: Section 527E of the EPBC Act Policy Statement*.

The assessment determined that there were no indirect emissions associated with the petroleum activity within scope of this EP because:

- there is no recovery of hydrocarbons associated with the exploration drilling activities (Section 3.1.1), and as such no gas processing, transport, or third party end-use of hydrocarbons would occur
- exploration drilling is not considered to facilitate to a major extent any existing petroleum activity associated with the Gorgon Gas Development.

According to the Intergovernmental Panel on Climate Change (IPCC), Sixth Assessment Report for Working Group 1, "the total anthropogenic effective radiative forcing in 2019, relative to 1750, was 2.72 [1.96 to 3.48] Wm^{-2} (*medium confidence*) and has been growing at an increasing rate since the 1970s, [and]… Over 1750–2019, CO_2 increased by 131.6 ± 2.9 ppm (47.3%)"[33] (Ref. 119).

The IPCC defines the term "carbon budget" as "refer[ing] to the maximum amount of cumulative net global anthropogenic CO_2 emissions that would result in limiting global warming to a given level with a given probability, taking into account the effect of other anthropogenic climate forcers. This is referred to as the total carbon budget when expressed starting from the pre-industrial period, and as the remaining carbon budget when expressed from a recent specified date. Historical cumulative CO_2 emissions determine to a large degree warming to date, while future emissions cause future additional warming. The remaining carbon budget indicates how much CO_2 could still be emitted while keeping warming below a specific temperature level."[34] (Ref. 120).

The remaining carbon budget for a 50% likelihood to limit global warming to 1.5°C, 1.7°C, and 2°C is respectively, 500 Gt CO_2, 850 Gt CO_2, and 1350 Gt CO^2 [35] (Ref. 120).

If the total direct GHG emissions from activities associated with this EP are ~0.015 Mt CO_2-e then the activities under this EP may contribute ~0.2–0.6 x 10^{-5} percent to the reduction in the total remaining global carbon budget, which is a *de minimis* decrease.

Due to the overall *de minimis* contribution to the reduction of the global carbon budget from the activities under this EP, the impact of contribution to the global carbon budget has been evaluated as having the potential to result in an Incidental (6) consequence.

Changes to cultural heritage values

There are no World, National, or Commonwealth heritage listed places or sites within the OA (Section 4.6).

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. Country is understood to also include Sky Country (Ref. 274). Consequence evaluations to related tangible environmental receptors (i.e. ambient air quality) are provided above.

Intangible cultural heritage refers to the "practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage" (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from air emissions within the OA is anticipated. The consequence evaluation to ambient air quality and the reduction in atmospheric global carbon budget are provided above, and were assessed as having a localised and limited environmental impacts to air quality, and a *de minimis* contribution to the reduction of the global carbon budget. Further, as described in the above evaluation, the source of air emissions within the OA (i.e. MODU and vessels) is temporary and is not expected to affect the long-term air quality of the marine environment. As such, it is anticipated that intangible heritage values such

[33] IPCC, AR6, WG1, at TS-35.

[34] IPCC, AR6, WG1, at SPM-48 footnote 43

[35] IPCC, AR6, WG1, at SPM-29 Table SPM.2

as songlines and connection to Country would not be significantly adversely affected from air emissions within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of the exploration drilling activity (~50 days), a significant adverse change to cultural heritage values attributed to the offshore marine area from air emissions within the OA is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Incidental (6).

ALARP decision context justification

Offshore drilling and support vessel operations and subsequent air emissions arising from these activities are commonplace in offshore environments nationally and internationally. The control measures to manage the impacts associated with air emissions are well defined via legislative requirements that are considered standard industry practice. These are well understood and implemented by the petroleum industry and CAPL.

During relevant persons consultation, no objections or claims where raised regarding air emissions arising from the activity.

The impacts associated with air emissions are considered to be lower-order impacts (Table 5-3). As such, CAPL applied ALARP Decision Context A for this aspect.

Good practice control measures

Control measure	Description
Reduced sulfur content fuel	Sulfur content of diesel/fuel oil complies with Marine Order 97 and regulation 14 of MARPOL 73/78 Annex VI. Only low-sulfur (0.50 mass % concentration [m/m]) fuel oil will be used to minimise sulfur oxides (SOx) emissions.
Marine Order 97: Marine Pollution Prevention – Air Pollution	Prior to commencement of drilling activities, the Marine Standard (Ref. 39) is used to verify that all MODU and vessels comply with Marine Order 97: Marine Pollution Prevention – Air Pollution (appropriate to vessel class) for emissions from combusting fuel, including: • will hold a valid International Air Pollution Prevention (IAPP) certificate and a current international energy efficiency (IEE) certificate • will have a Ship Energy Efficiency Management Plan (SEEMP) as per MARPOL 73/78 Annex VI (as appropriate to vessel class) • engine nitrous oxides (NOx) emission levels will comply with regulation 13 of MARPOL 73/78 Annex VI.
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.

Additional control measures and cost benefit analysis

Control measure	Benefit	Cost
Use non-hydrocarbon powered vessels/MODU	If non-hydrocarbon (e.g. hydrogen) powered vessels/MODU were used for the program, CAPL could avoid emissions associated with fuel combustion. However, for activities under this EP, the avoidance of emissions would be minimal (i.e. total direct	No commercially viable vessels/MODU are currently available to implement the activities discussed in this EP. Consequently, the practicability of using vessels/MODU with alternative fuel sources to avoid direct emissions is not considered practicable.

<table>
<tr><td></td><td>greenhouse gas emissions associated with this EP are ~0.015 Mtpa CO_2-e). Consequently, the benefit would be negligible.</td><td></td></tr>
<tr><td>Monitor fuel usage</td><td>Monitoring and recording fuel usage during the petroleum activity helps identify whether the estimates were accurate and strategies to reduce emissions may be identified.</td><td>The cost to implement this control is negligible and. therefore, control measure has been adopted for use.</td></tr>
<tr><td colspan="3">Likelihood and risk level summary</td></tr>
<tr><td>Likelihood</td><td colspan="2">Due to the localised and temporary nature of air emissions within the OA, and with the control measures in place, the likelihood of impacts to cultural heritage values from air emissions is Rare (6).</td></tr>
<tr><td>Risk level</td><td colspan="2">Very low (10)</td></tr>
<tr><td colspan="3">Determination of acceptability</td></tr>
<tr><td>Principles of ESD</td><td colspan="2">A potential impact associated with this aspect is limited to a direct reduction in air quality for a localised area for a short time, which is not considered to have the potential to affect biological diversity and ecological integrity.
A potential impact associated with this aspect is a de minimis contribution to the reduction of the global carbon budget, which is not considered to have the potential to affect intergenerational equity.
The consequence associated with this aspect is Incidental (6).
Therefore, no further evaluation against the Principles of ESD is required.</td></tr>
<tr><td>Relevant environmental legislation and other requirements</td><td colspan="2">Legislation and other requirements considered relevant to this aspect include:
Marine Order 97
MARPOL 73/78.</td></tr>
<tr><td></td><td>Requirement</td><td>Demonstration</td></tr>
<tr><td></td><td>Marine Order 97
Gives effect to Annex VI of MARPOL 73/78</td><td>Prescribed limits (as per Division 7) for sulfur content of fuel oil have been incorporated into the reduced sulfur content fuel control measure.
IAPP and IEE certificate (as per Division 2), SEEMP (as per Division 6), and nitrogen oxides emission requirements (as per Division 3) have been incorporated into the Marine Order 97: Marine Pollution Prevention – Air Pollution control measure.</td></tr>
<tr><td>Internal context</td><td colspan="2">The following CAPL management processes or procedures were deemed relevant for this aspect:
Marine Standard Non Tankers: Corporate OE Standard (Ref. 39).
Control measures related to the above management process have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.</td></tr>
<tr><td>External context</td><td colspan="2">During relevant persons consultation, no objections or claims were raised regarding with air emissions arising from the activity.</td></tr>
<tr><td>Defined acceptable level</td><td colspan="2">These impacts are inherently acceptable as they are considered lower-order impacts in accordance with Table 5-3. In addition, the potential impacts evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.</td></tr>
</table>

Environmental performance outcome	Environmental performance standard	Measurement criteria
(EPO 5) Planned air emissions from vessel operations during the petroleum activity will meet Marine Order 97 requirements.	**(EPS 5.1) Reduced sulfur content fuel** Only low-sulfur (0.50 mass % concentration [m/m]) fuel oil will be used to minimise SO_x emissions.	(MC 5.1.1) Bunker receipts verify the use of low-sulfur fuel oil.
	(EPS 5.2) Marine Order 97: Marine Pollution Prevention – Air Pollution Prior to commencement of activities, the following will be verified for the MODU/vessels, as per the Marine Standard: • hold a valid IAPP certificate and a current IEE certificate • will have a SEEMP as per MARPOL 73/78 Annex VI (as appropriate to vessel class) • engine nitrous oxides (NOx) emission levels will comply with regulation 13 of MARPOL 73/78 Annex VI.	(MC 5.2.1) OVIS report / ABU Marine OE Inspection Checklist confirms vessels hold IAPP and IEE certificates, a SEEMP is in place (as appropriate to class), and NO_x emission levels comply with regulations.
	(EPS 5.3) Monitor fuel usage Fuel usage is monitored and recorded during the petroleum activity.	(MC 5.3.1) Records show that fuel usage was monitored and recorded.
(EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)** Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol.	(MC 2.2.1) Relevant persons consultation records.
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation.	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.

7.5 Light emissions

Source			
Activities identified as having the potential to result in artificial light emissions: • MODU—navigational and operational lighting from the MODU within the OA during the exploration drilling activity • field support— navigational and operational lighting from vessels within the OA during the exploration drilling activity.			
Potential impacts and risks			
Impacts	**C**	**Risks**	**C**

Light emissions may result in: • localised and temporary change in ambient light.	6	A change in ambient light may result in: • change in fauna behaviour for light-sensitive species • changes to cultural heritage values.	 5 6

Consequence evaluation

Localised and temporary change in ambient light

The MODU and support vessels will be present within the OA during the exploration drilling activity, which are estimated to take ~50 days to complete. Lighting is required at night for navigation and to ensure safe operations when working on the MODU and/or support vessels.

Monitoring undertaken by Woodside (Ref. 107) indicates that light density from navigational lighting on a MODU attenuated to below 1.0 lux and 0.03 lux at distances of ~300 m and ~1.4 km, respectively. Light densities of 1.0 lux and 0.03 lux are comparable to natural light densities experienced during deep twilight and during a quarter moon.

Based on Woodside (Ref. 107), CAPL expects that there would be a temporary change (~50 days) to ambient light levels within a radius of ~1.4 km from the MODU.

Navigational and operational lighting is expected to be less on support vessels in comparison to a MODU. However, as a conservative approach for this consequence evaluation, CAPL estimates that its vessel activities will result in temporary changes to ambient light no greater than a radius of ~1.4 km from the support vessel. As described in Section 3.7.1, the number of support vessels within the OA may vary during the duration of exploration drilling activities.

Given the limited spatial extent of the change arising from navigational and operational lighting, and the limited duration of the exploration drilling activity, CAPL has ranked the consequence associated with a direct change in ambient light levels as Incidental (6).

Change in fauna behaviour

During activities that result in a change in ambient light conditions, a subsequent change in the behaviour of light sensitive fauna may occur.

Cetaceans predominantly use acoustic senses rather than visual sources to monitor their environment (Ref. 130), consequently, light is not considered to be a significant factor in cetacean behaviour or survival. Light-sensitive fauna (such as reptiles, birds and fish) are the species most at risk from this aspect and thus are the focus of this evaluation.

Marine turtles listed as threatened and/or migratory have been identified as potentially occurring within the OA (Section 4.3.3.2). However, there are no BIAs or habitat critical for the survival of species within the OA. The *Recovery Plan for Marine Turtles in Australia* (Ref. 159) identifies light emissions as a key threat because it can disrupt critical behaviours, such as nesting, hatchling orientation, sea finding, and hatchling dispersal behaviour. Given the OA is located in deep (~958 m) offshore waters (~95 km to the nearest land) disruption to critical behaviours from lighting is not considered credible.

Fish and sharks listed as threatened and/or migratory have been identified as potentially occurring within the OA (Section 4.3.3.3), however there are no BIAs within the OA. A review of the Recovery Plan for the White Shark (*Carcharodon carcharias*) (Ref. 306), listing Advice for scalloped hammerhead (*Sphyrna lewini*) (Ref. 307) and listing Advice for Shortfin Mako (*Isurus oxyrinchus*) (Ref. 308) (i.e. species identified within the OA [Section 4.3.3.3]) did not identify light emissions as a threat. Furthermore, no potential presence of Whale Sharks was identified within the OA (Table 4-9); therefore, this has not been evaluated further.

Seabirds listed as threatened and/or migratory have been identified as potentially occurring within the OA (Section 4.3.3.4) and the OA overlaps the Wedge-tailed Shearwater breeding BIA. Anthropogenic disturbance and artificial lighting are identified as threats within the *Wildlife Conservation Plan for Migratory Shorebirds* (Ref. 108) and light pollution is identified as a threat within the *Wildlife Conservation Plan for Seabirds* (Ref. 220). As such the focus of this evaluation is on birds as they provide a representative case to enable an indicative consequence evaluation to be undertaken.

The *National Light Pollution Guidelines for Wildlife* (Ref. 9) indicate that a 20 km buffer or exposure area can provide a general precautionary light impact limit based on observed effects of sky glow on fledgling seabirds grounded in response to artificial light 15 km away (Ref. 109). However, studies conducted between 1992 and 2002 in the North Sea confirmed that artificial light was the reason that birds were attracted to and accumulated around illuminated offshore infrastructure (Ref. 110) and that lighting can attract birds from large catchment areas (Ref. 111). These studies indicate that migratory birds are attracted to lights from offshore platforms when

travelling within a radius of 5 km from the light source, but their migratory paths are unaffected outside this zone (Ref. 112). Based on the previous details, a 5 km buffer was selected for the following assessment.

At its closest, the OA is located ~95 km northwest from the closest coast (Barrow Island). As light emissions from the MODU and support vessels are expected to result in a change to ambient conditions up to a maximum of 5 km from each source, no coastal areas (and therefore fledgling seabirds) are expected to be exposed.

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It is suggested that nocturnally active seabirds and/or migratory shorebirds may be affected by light-spill and make alterations to their normal behaviours. Procellariforms (shearwaters, petrels and albatross) species forage at night on bioluminescent prey, and therefore are attracted to light of any kind (Ref. 113; Ref. 111). The presence of the Wedge-tailed Shearwater is seasonal, typically occurring between mid-August to April in the Pilbara region; and they are known to forage either relatively close to breeding islands or over a large area, depending on prey availability. Given the indicative schedule for DS-1 exploration drilling activity (i.e. planned to commence between 2024 and 2025; Section 3.1.3), there is the potential for overlapping with Wedge-tailed Shearwater during seasonal presence (mid-August to April). The mechanism of birds being attracted to light is not proven, but it is proposed that the artificial lighting may override the internal magnetic compass of migratory shorebirds or nocturnal seabirds (Ref. 114). However, Marquenie (Ref. 115) estimated that a change in migratory behaviour of birds was limited to <5 km from the source. Therefore, this type of impact is expected to be spatially restricted to the immediate vicinity of the MODU and/or support vessels, and affect only individuals (rather than populations).

Consequently, only localised short-term behavioural impacts to transient individuals have the potential to arise from these activities and have therefore been evaluated as Minor (5).

Changes to cultural heritage values

There are no World, National, or Commonwealth heritage listed places or sites within the OA (Section 4.6).

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. It is understood that the term ‘Country’ refers to more than just a geographical area, and includes values, places, resources, stories, and cultural obligations associated with that geographical area Ref.242; Ref. 269). One of the specific tangible values of Sea Country identified through consultation was marine fauna (e.g. whales, turtles). The consequence evaluations to these receptors are provided above.

Intangible cultural heritage refers to the “practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage” (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from artificial light emissions within the OA is anticipated. The consequence evaluation to marine fauna are provided above, and were assessed as localised and minor environmental impacts that are not expected to affect the overall population of the species. Further, as described in the above evaluations, the source of light emissions within the OA (i.e. MODU and vessels) is temporary and is not expected to affect the long-term ambient light of the marine environment. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected from light emissions within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of the exploration drilling activity (~50 days), a significant adverse change to cultural heritage values attributed to the offshore marine area from light emissions within the OA is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Incidental (6).

ALARP decision context justification

Offshore drilling and support vessel operations and subsequent light emissions arising from these activities are commonplace in offshore environments nationally and internationally.

During relevant persons consultation, no objections or claims where raised regarding light emissions arising from the activity.

The impacts and risks associated with light emissions are well understood and are considered lower-order impacts and risks in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.

Notwithstanding this, CAPL has considered additional mitigation measures that could potentially further reduce the risk of light emissions with marine fauna species.

Good practice control measures and source

Control measure	Source
Marine Standard	*Chevron's Marine Standard* (Ref. 39) ensures that various legislative requirements are met. This includes ensuring that lighting sufficient for navigational, safety and emergency requirements are met, as appropriate to MODU and vessel class.
Light management	The schedule for the exploration drilling activity (~50 days commencing between 2024 and 2025) may overlap with the seasonal presence (mid-August to April) of the Wedge-tailed Shearwater. As a conservative management measure, the MODU and support vessels working at night during the exploration drilling campaign will be required to reduce external lighting to the minimum required for safe operations (and where practicable have this lighting directed downwards). The MODU and vessels will also make use of window coverings (e.g. blinds) during night operations to shield internal lights from view. The OA is located~95 km northwest from the nearest coast (Barrow Island) and as such, no measurable change in light from the vessels will occur at coastal locations. Table 8 and Table 11 within the *National Light Pollution Guidelines for Wildlife* (Ref. 9) provides a toolbox of light management options for seabirds and migratory shorebirds respectively, that may be relevant for consideration depending on the activity. This control measure is consistent with the following light management options identified within the *National Light Pollution Guidelines for Wildlife* (Ref. 9) for seabirds and migratory shorebirds: • implement light management actions during breeding (seabirds), or peak migration (migratory shorebirds) periods • aim lights downwards and direct them away from nesting areas (seabirds) • reduce unnecessary lighting at sea by restricting external lighting to the minimum required for safe operations and navigation, and using window blinds to shield internal lights.
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.

Additional control measures and cost benefit analysis

Control measure	Benefit	Cost
External vessel lighting to use: • flashing or intermittent lights instead of fixed beam	Replacing external lighting on vessels with lighting that is flashing, intermittent, or motion triggered, or of a particular spectral signature and/or intensity, may have the potential to further reduce the impact of artificial light on marine fauna.	The cost of retrofitting external lighting of the MODU and support vessels is considered grossly disproportionate to the limited environmental benefit (and no change in residual risk consequence) they may provide for marine fauna.

• motion sensors to turn on lights only when needed • luminaires with spectral content appropriate for the species present • avoid high intensity light of any colour.	Light emissions from vessels are expected to result in a change to ambient conditions up to ~1.4 km from the MODU and support vessel; impacts to seabirds are expected up to ~5 km from the MODU and support vessel, and at its closest, the OA is located ~95 km from any coast and potential nesting area. The implementation of these additional light management controls is considered to be of limited environmental benefit and would not result in a reduction of residual risk consequence.	Therefore, control measure has not been adopted for use.
Use curfews to manage lighting.	The *National Light Pollution Guidelines for Wildlife* (Ref. 9) suggests the use of curfews may assist in managing artificial lighting rookeries during the fledgling period (seabirds) or near nocturnal foraging and roosting areas in coastal habitats (migratory seabirds). One of the mechanisms for implementing this method is the use of motion sensors—considered in the above control measure and is not repeated here. Other mitigation options refer to the user of timers to extinguish lighting near seabird or migratory shorebird rookeries after 7 pm. The intent of the curfews is to manage artificial light in coastal areas to minimise any disruption to biological important behaviours. Given that the light emissions from vessels are expected to result in a change to ambient conditions up to ~1.4 km from the vessel, impacts to seabirds are expected up to ~5 km from the MODU and support vessel and at its closest, the OA is located ~95 km from any coast, the implementation of curfews are considered to be of limited environmental benefit, and would not result in a reduction of residual risk consequence.	The cost of implementing lighting curfews, either by retrofitting external lighting with motion sensors (as considered above), or by implementing restricted night operations (e.g. no operations after 7 pm) is considered grossly disproportionate to the limited environmental benefit (and no change in residual risk consequence) they may provide for marine fauna. Therefore, control measure has not been adopted for use.
Likelihood and risk level summary		
Likelihood	The MODU and support vessel activities for this petroleum activity occur within offshore waters away from the coast. As such, the likelihood of exposing light sensitive fauna resulting in the identified consequence was considered Remote (5).	
Risk level	Very low (9)	
Determination of acceptability		
Principles of ESD	The impacts and risks associated with this aspect is disruption to light-sensitive species behaviour, which given the location and duration of the	

<table>
<tr><td></td><td colspan="2">activity, is not considered as having the potential to affect biological diversity and ecological integrity.
The risk associated with this aspect is Minor (5).
Therefore, no further evaluation against the Principles of ESD is required.</td></tr>
<tr><td>Relevant environmental legislation and other requirements</td><td colspan="2">Legislation and other requirements considered relevant to this aspect include:
• Navigation Act 2012 (Cth)
• National Light Pollution Guidelines for Wildlife (Ref. 9)
• Wildlife Conservation Plan for Migratory Shorebirds (Ref. 108)
• Wildlife Conservation Plan for Seabirds (Ref. 220)
<table>
<tr><th>Requirement</th><th>Demonstration</th></tr>
<tr><td>Navigation Act 2012 (Cth)
Appropriate lighting, navigation and communication to inform other users.</td><td>Legislative requirements have been incorporated into the Marine Standard control measure.</td></tr>
<tr><td>National Light Pollution Guidelines for Wildlife
Undertake an environmental impact assessment.</td><td>This section provides an impact assessment and consideration of control measures as identified within the mitigation toolboxes for marine turtles, seabirds, and migratory shorebirds.</td></tr>
<tr><td>Wildlife Conservation Plan for Migratory Shorebirds
No specific action identified.</td><td>N/A.</td></tr>
<tr><td>Wildlife Conservation Plan for Seabirds
No specific action identified.</td><td>N/A.</td></tr>
</table></td></tr>
<tr><td>Internal context</td><td colspan="2">The following CAPL management processes or procedure were deemed relevant for this aspect:
• Marine Standard Non Tankers: Corporate OE Standard (Ref. 39).
Control measures related to the above management process have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.</td></tr>
<tr><td>External context</td><td colspan="2">During relevant persons consultation, no objections or claims were raised regarding light emissions arising from the activity.</td></tr>
<tr><td>Defined acceptable level</td><td colspan="2">These impacts and risks are inherently acceptable as they are considered lower-order impacts and risks in accordance with Table 5-3. In addition, the potential impacts and risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.
However, in alignment with Section 5.6.2, where the aspect is listed as threat to a protected matter, or identified as a concern to a listed conservation value, CAPL will define an acceptable level of impact that aligns with the objectives of these documents. Objectives of the relevant documents are shown below:
<table>
<tr><th>Plan</th><th>Objective</th></tr>
<tr><td>Wildlife Conservation Plan for Seabird</td><td>Objective 2: Seabirds and their habitats are identified, protected and managed in Australia.</td></tr>
<tr><td>Wildlife Conservation Plan for Migratory Shorebirds</td><td>Objective 1: Protection of important habitats for migratory shorebirds has occurred throughout the East Asian-Australasian Flyway</td></tr>
</table></td></tr>
</table>

		Objective 3: Anthropogenic threats to migratory shorebirds in Australia are minimised or, where possible, eliminated.
	Therefore, CAPL has defined the following acceptable level of impact such that it is not inconsistent with these documents: • impacts from the petroleum activity are managed such that it would not prevent the long-term recovery of protected species • no disruption of biologically important behaviours of seabirds and migratory shorebirds or seabirds within important habitats. CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.	
Environmental performance outcome	**Environmental performance standard**	**Measurement criteria**
(EPO 6) No disruption of biologically important behaviours of marine fauna from vessel activities occurring within the OA. (EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 1.3) Marine Standard** MODU and vessels will meet the lighting requirements of the Marine Standard.	(MC 1.3.1) Records indicate that MODU and vessels meet lighting requirements of the Marine Standard.
	(EPS 6.1) Light management MODU and vessels working at night will be required to: • reduce external lighting to the minimum required for safe operations and navigation • where practicable, operational lighting directed downwards to working deck area • use window coverings to shield internal lights from view (unless windows are required to be uncovered for safe operations).	(MC 6.1.1) Inspection records during night operations confirm only minimum lighting for safe operations and navigation is in use, where practicable operational lighting is directed downwards to working deck area, and internal window coverings are used (unless required for safe operations).
	(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol.	(MC 2.2.1) Relevant persons consultation records.
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation.	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.

7.6 Underwater sound

7.6.1 Underwater sound – continuous

7.6.1.1 Acoustic modelling

CAPL commissioned JASCO Applied Sciences to conduct acoustic modelling to inform the risk assessment associated with underwater sound exposure from the drilling exploration activity (Ref. 121). The modelling was undertaken to assist in understanding the distances from operations at which underwater sound levels reached noise effect thresholds and criteria for marine mammals, turtles and fish (Ref. 121).

The acoustic modelling considered the following sound-producing activities:

- drilling from an anchored MODU
- an Offshore Support Vessel (OSV) on slow transit in standby operation
- an OSV conducting resupply operations under DP
- an additional OSV under DP.

Five scenarios, each describing a unique combination of sound sources, were modelled (Table 7-2) and are further described below:

- scenario 1 represents the sole operation of the MODU, located at the proposed DS-1 exploration well (Section 2.2), which is assumed to be drilling continuously while anchored
- scenarios 2 and 3 represent an OSV conducting resupply operations while operating under DP. In these scenarios, OSVs are assumed to operate at slow speeds. The difference between these scenarios was the duration that the OSV was modelled under DP. These varying time durations were selected to assess changes in the noise footprint resulting from different operational scenarios
- scenario 4 represents an OSV waiting in a standby area in proximity (~0.5–1.5 km) of the MODU, ready to respond as required. During this time, the vessel is assumed to be transiting and operating at a nominal transit speed, however in reality it is more likely to also include periods of drift. To assess the cumulative sound field over a 24-hour period, an indicative area was defined in which the OSV will standby. Within the defined area, the vessel was modelled to follow a randomised track to best approximate standby operations, and therefore produce representative sound field estimates
- scenario 5 represents a scenario where three OSVs are present within the vicinity of the MODU conducting operations (one OSV conducting resupply operation under DP, another in the standby mode, and a third standing off under DP). This scenario provides representative sound field estimates applicable to rig positioning, anchor handling activities and mooring operations (i.e. when there may be up to 3 support vessels in the OA). The resupply scenario considers the time and movements of the vessels, as detailed in Table 7-2.

Animal movement modelling simulations were run for Pygmy Blue Whales for each of the scenarios described above and the results are summarised in Section 7.6.1.2. For all simulations, animats were seeded only within the Pygmy Blue Whale BIA, at a nominal horizontal sampling density of 4 animats/km^2. Each

of the animat simulations were run for a representative 24 hours duration. The simulation area was selected to encompass a buffer of ~65 km in any direction, with the same simulation extents being used for all scenarios.

Table 7-2 Acoustic modelling scenarios

Scenario	Description
1	Anchored MODU drilling (24 h)
2	Anchored MODU drilling (24 h) + OSV resupply under DP (2 h)
3	Anchored MODU drilling (24 h) + OSV resupply under DP (8 h)
4	Anchored MODU drilling (24 h) + OSV on standby (24 h)
5	Anchored MODU drilling (24 h) + OSV resupply under DP (8 h) + OSV on standby (24 h) + OSV under DP (24 h)

7.6.1.1.1 Exposure criteria

Different species groups perceive and respond to sound differently, and so a variety of exposure criteria for the different types of impacts and species groups are considered. JASCO (Ref. 121) have selected the following noise effect thresholds, based on current best available science, for use in the impact and risk assessment:

- frequency-weighted accumulated sound exposure levels (SEL; $L_{E,24h}$) from Southall et al (Ref. 122) for the onset of permanent threshold shift (PTS[36]) and temporary threshold shift (TTS[37]) in marine mammals for non-impulsive sound sources (Table 7-3)
- marine mammal behavioural threshold based on the current interim US National Oceanic and Atmospheric Administration (NOAA) (2019) criterion for marine mammals of 120 dB re 1 µPa (SPL, L_p) for non-impulsive sound sources (Ref. 123) (Table 7-3)
- sound exposure guidelines for fish, fish eggs and larvae (including plankton) (Ref. 124) (Table 7-3)
- frequency-weighted accumulated sound exposure levels (SEL; $L_{E,24h}$) from Finneran et al. (Ref. 125) for the onset of PTS and TTS in marine turtles (Table 7-3).

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 noise (Ref. 126).

[36] PTS is a physical injury to an animals hearing organs.

[37] TTS is a temporary reduction in animals hearing sensitivity due to receptor hair cells in the cochlea becoming fatigued.

Table 7-3: Noise effect criteria for continuous sound for different types of impacts and species groups

Receptor	Mortal or potential mortal injury	Recoverable injury	Permanent threshold shift	Temporary threshold shift	Masking	Behavioural
Low-frequency cetaceans	N/A	N/A	SEL_{24h}: 199 dB re 1 μPa^2s	SEL_{24h}: 179 dB re 1 μPa^2s	N/A	SPL: 120 dB re 1 µPa
High-frequency cetaceans	N/A	N/A	SEL_{24h}: 198 dB re 1 μPa^2s	SEL_{24h}: 178 dB re 1 μPa^2s	N/A	SPL: 120 dB re 1 µPa
Very high-frequency cetaceans	N/A	N/A	SEL_{24h}: 173 dB re 1 μPa^2s	SEL_{24h}: 153 dB re 1 μPa^2s	N/A	SPL: 120 dB re 1 µPa
Marine turtles	N/A	N/A	SEL_{24h}: 220 dB re 1 μPa^2s	SEL_{24h}: 200 dB re 1 μPa^2s	N/A	N/A
Fish (no swim bladder) (relevant to sharks)	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	N/A	(N) Moderate (I) Low (F) Low	(N) High (I) High (F) Moderate	(N) Moderate (I) Moderate (F) Low
Fish (swim bladder not involved in hearing)	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	N/A	(N) Moderate (I) Low (F) Low	(N) High (I) High (F) Moderate	(N) Moderate (I) Moderate (F) Low
Fish (swim bladder involved in hearing)	(N) Low (I) Low (F) Low	170 dB SPL for 48 h	N/A	158 dB SPL for 12 h	(N) High (I) High (F) High	(N) High (I) Moderate (F) Low
Fish eggs and fish larvae (relevant to plankton)	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	N/A	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low	(N) Moderate (I) Moderate (F) Low

Relative risk (high, moderate, low) is given for fauna at three distances from the source (near [N], intermediate [I] and far [F]

7.6.1.1.2 Modelling outputs

Horizontal maximum distances (R_{max}) from the sound source to the relevant noise effect criteria for marine mammals, turtles, and fish are shown in Table 7-4 to Table 7-6. For multi-scenario summaries (Table 7-6), where distances to noise effect criteria varied between the modelled scenarios, the largest of these has been reported. For scenarios with multiple sound sources (i.e. Scenarios 2, 3, 4, and 5), the distances to noise effect criteria were reported from either the centroid of the sources or from the most dominant single source (Ref. 121).

The scenarios with the greatest potential for effect were those that included an OSV under DP conducting resupply (Table 7-6); whereas the predicted ensonified areas for the more common drilling and vessel standby operations were much lower (Table 7-5).

The SEL_{24h} is a cumulative metric that reflects the dosimetric impact of noise levels within 24 hours based on the assumption that a receptor is consistently exposed to such noise levels at a fixed position. Realistically, marine fauna are not expected to remain stationary in the same location for a 24 hour period. Therefore, a modelled exposure area for the SEL_{24h} criteria does not mean that marine fauna travelling within this area will be impaired, but rather that they could be exposed to the sound level associated with impairment (either PTS or TTS) if they remained in that location for 24 hours.

Table 7-4: Modelled maximum horizontal distances (R_{max}) from anchored MODU drilling (Scenario 1) to reach noise effect criteria for continuous sound

Receptor	Recoverable injury	Permanent threshold shift	Temporary threshold shift	Behavioural
Low-frequency cetaceans	N/A	SEL_{24h}: 0.02 km	SEL_{24h}: 0.22 km	SPL: 0.72 km
High-frequency cetaceans	N/A	SEL_{24h}: 0.02 km	SEL_{24h}: 0.09 km	SPL: 0.72 km
Very high-frequency cetaceans	N/A	SEL_{24h}: 0.14 km	SEL_{24h}: 1.23 km	SPL: 0.72 km
Marine turtles	N/A	SEL_{24h}: –	SEL_{24h}: 0.02 km	N/A
Fish (swim bladder involved in hearing)	SPL for 48 hours: –	N/A	SPL for 12 hours: 0.02 km	N/A

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

Table 7-5: Modelled maximum horizontal distances (R_{max}) from anchored MODU drilling and an OSV on standby (Scenario 4) to reach noise effect criteria for continuous sound

Receptor	Recoverable injury	Permanent threshold shift	Temporary threshold shift	Behavioural
Low-frequency cetaceans	N/A	SEL_{24h}: 0.02 km	SEL_{24h}: 0.22 km	SPL: 1.95 km
High-frequency cetaceans	N/A	SEL_{24h}: 0.02 km	SEL_{24h}: 0.09 km	SPL: 1.95 km
Very high-frequency cetaceans	N/A	SEL_{24h}: 0.14 km	SEL_{24h}: 1.27 km	SPL: 1.95 km

Receptor	Recoverable injury	Permanent threshold shift	Temporary threshold shift	Behavioural
Marine turtles	N/A	SEL_{24h}: –	SEL_{24h}: 0.02 km	N/A
Fish (swim bladder involved in hearing)	SPL for 48 hours: –	N/A	SPL for 12 hours: 0.02 km	N/A

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

Table 7-6: Modelled maximum horizontal distances (R_{max}) from anchored MODU drilling and OSV resupply scenarios (Scenarios 2, 3, and 5) to reach noise effect criteria for continuous sound

Receptor	Recoverable injury	Permanent threshold shift	Temporary threshold shift	Behavioural
Low-frequency cetaceans	N/A	SEL_{24h}: 0.13 km	SEL_{24h}: 4.05 km	SPL: 13.9 km
High-frequency cetaceans	N/A	SEL_{24h}: 0.09 km	SEL_{24h}: 0.16 km	SPL: 13.9 km
Very high-frequency cetaceans	N/A	SEL_{24h}: 0.22 km	SEL_{24h}: 3.54 km	SPL: 13.9 km
Marine turtles	N/A	SEL_{24h}: 0.05 km	SEL_{24h}: 0.11 km	N/A
Fish (swim bladder involved in hearing)	SPL for 48 hours: –	N/A	SPL for 12 hours: 0.11 km	N/A

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

7.6.1.2 Pygmy Blue Whale exposure modelling

In addition to the acoustic modelling study, JASCO undertook an acoustic exposure analysis for migrating Pygmy Blue Whales, which describes the modelled predictions of sound levels that individual Pygmy Blue Whales may receive during the exploration drilling activities (Ref. 121).

Sound exposure distribution estimates are determined by moving large numbers of simulated animals (‘animats’) through a modelled time-evolving sound field, computed using specialised sound source and sound propagation models (Ref. 121). This approach provides the most realistic prediction of the maximum expected SPL, and the temporal accumulation of sound exposure level (SEL_{24h}) for comparison against the relevant thresholds (Ref. 121).

The JASCO Animal Simulation Model Including Noise Exposure was used to model the movement of Pygmy Blue Whales through the predicted sound field. Biologically meaningful movement rules were applied to each animat in the model to represent Pygmy Blue Whale behaviours. This included swim speeds, direction, diving and foraging depth, dive depths (for both migratory dives near the surface and deeper exploratory or feeding dives), and time spent at or near the surface before diving again. The animats, were set to simulate the real-world movements of migrating Pygmy Blue Whales within the migratory BIA. The spatial distribution of animats was restricted to the Pygmy Blue Whale BIA for the simulations (Ref. 121).

The same noise effect criteria as defined for low-frequency cetaceans in Section 7.6.1.1.1 were used in this Pygmy Blue Whale exposure modelling.

The modelled 95th percentile exposure ranges ($ER_{95\%}$) to the relevant noise effect criteria are shown in Table 7-7. For comparison, the horizontal maximum distances (R_{max}) from the acoustic modelling are also shown in Table 7-7.

The $ER_{95\%}$ to behavioural and TTS effect criteria are substantially lower than distances predicted by acoustic modelling (Table 7-7). Acoustic modelling is inherently more conservative as it does not incorporate the complex interactions of moving receptor.

Table 7-7: Modelled 95th percentile exposure ranges ($ER_{95\%}$) and probability of exposure, compared to modelled maximum horizontal distances (R_{max}) for Pygmy Blue Whales

Modelling	Parameter	Permanent threshold shift	Temporary threshold shift	Behavioural
Anchored MODU drilling (Scenario 1)				
Acoustic modelling	R_{max}	SEL_{24h}: 0.02 km	SEL_{24h}: 0.22 km	SPL: 0.72 km
Exposure modelling	$ER_{95\%}$	SEL_{24h}: –	SEL_{24h}: <0.02 km	SPL: 0.64 km
	Probability	SEL_{24h}: –	SEL_{24h}: 17%	SPL: 94%
Anchored MODU drilling and an OSV on standby (Scenario 4)				
Acoustic modelling	R_{max}	SEL_{24h}: 0.02 km	SEL_{24h}: 0.22 km	SPL: 1.95 km
Exposure modelling	$ER_{95\%}$	SEL_{24h}: –	SEL_{24h}: <0.02 km	SPL: 0.61 km
	Probability	SEL_{24h}: –	SEL_{24h}: 8%	SPL: 57%
Anchored MODU drilling and OSV resupply scenarios (Scenarios 2, 3, and 5)				
Acoustic modelling	R_{max}	SEL_{24h}: 0.13 km	SEL_{24h}: 4.05 km	SPL: 13.9 km
Exposure modelling	$ER_{95\%}$	SEL_{24h}: <0.02 km	SEL_{24h}: 0.05 km	SPL: 11.1 km
	Probability	SEL_{24h}: 11%	SEL_{24h}: 32%	SPL: 82%

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

** Distance and probability reported relative to the MODU location.*

7.6.1.3 Risk assessment

Source			
Activities identified as having the potential to result in underwater sound emissions: • drilling—exploration drilling activities within the OA • field support—use of DP by vessels within the OA during the exploration drilling activity • field support—helicopter operations within the OA during the exploration drilling activity.			
Potential impacts and risks			
Impacts	**C**	**Risks**	**C**
Underwater sound emission may result in:	5	A change in ambient underwater sound may result in: • behavioural disturbance	5

• localised and temporary change in ambient underwater sound.		• auditory impairment, TTS, PTS, recoverable or non-recoverable injury to marine fauna. • changes to cultural heritage values	– 5

Consequence evaluation

Localised and temporary change in ambient underwater sound

Anthropogenic underwater sound emitted during the drilling exploration activity will result in a change in ambient underwater sound levels.

Underwater broadband ambient sound spectrum levels range from 45–60 dB re 1 µPa in quiet regions (light shipping and calm seas) to 80–100 dB re 1 µPa for more typical conditions, and >120 dB re 1 µPa during periods of high winds, rain or 'biological choruses' (many individuals of the same species vocalise near simultaneously in reasonably close proximity to each other (Ref. 127). Low-frequency ambient sound levels (20–500 Hz) are frequently dominated by distant shipping plus some great whale species. Light weather-related sounds will be in the 300–400 Hz range, with wave conditions and rainfall dominating the 500–50,000 Hz range (Ref. 127).

The acoustic modelling for this exploration drilling activity indicates SPLs at 160 dB re 1 µPa and 120 dB re 1 µPa occurred at up to ~90 m and ~13.9 km from the sound source (Ref. 121).

Sound emitted from helicopter operations is typically below 500 Hz (Ref. 128). The peak-received level diminishes with increasing helicopter altitude, but the duration of audibility often increases with increasing altitude. Estimates of SPL for helicopters range 149–162 dB re 1 µPa (Ref. 129, Ref. 130). Richardson et al. (Ref. 129) report that helicopter sound was audible in air for four minutes before it passed over underwater hydrophones, but detectable under water for only 38 seconds at 3 m depth, and 11 seconds at 18 m depth.

Given the details above, the consequence of vessel or helicopter operations causing a change in ambient underwater sound has been assessed as Minor (5) as it will result in a localised and short-term environmental impact.

Marine Mammals

Behavioural disturbance

Acoustic modelling indicated that the R_{max} from the source to SPL behavioural noise effect criteria for all cetaceans extended up to 13.9 km (Table 7-6) during resupply activities, while for other activities (e.g. drilling with a vessel on standby), it was up to 1.95 km (Table 7-5). The animat exposure modelling (i.e. taking into account moving marine fauna) indicated that a Pygmy Blue Whale would need to be within ~11.1 km during resupply activities or within ~0.64 km for other activities (e.g. drilling activities) of the acoustic source to be exposed to sound level above the noise effect criteria for behavioural disturbance (Table 7-7). As described in Section 3.7.1 operations involving a resupply vessel on DP are temporary (up to ~8 hours with some exceptions e.g. during marine riser and casing loading and only undertaken as required throughout the exploration drilling activity). Similarly, if a support vessel (which would be using DP to hold position) is used to install or remove MODU anchors, this activity is of limited duration (e.g. two to three days) and occurs once at the beginning and end of the petroleum activity.

The relevant values and sensitivities within the Sound EMBA with the potential to be exposed to underwater sound include:

- low frequency (e.g. baleen whales) and high frequency cetaceans (e.g. toothed whales, dolphins) that are listed as threatened and/or migratory under the EPBC Act
- migration BIA for Pygmy Blue Whales.

Other cetaceans, including very high-frequency cetaceans (e.g. *Kogia* spp.) may potentially occur within the Sound EMBA (Section 4.3.3.1) but are not listed as threatened and/or migratory under the EPBC Act. Within the Sound EMBA low-frequency cetaceans include the following EPBC listed threatened and/or migratory species: Antarctic Mink, Blue, Bryde's, Fin, Humpback, and Sei Whales; and the following high-frequency cetaceans: Sperm Whale, Killer Whale, and Spotted Bottlenose Dolphin (Section 4.3.3.1). All cetacean species (for all hearing groups) are expected to be transiting through the area. With the exception of Pygmy Blue Whales no areas of biologically important behaviours or known aggregation within or around the Sound EMBA have been identified. As such the following consequence evaluation focusses on Pygmy Blue Whales.

As the Sound EMBA intersects with the migration BIA of the Pygmy Blue Whales, there is the potential for Pygmy Blue Whales to be present within this area during migration periods (Table 4-13). An area classified as one of the 'most important areas' for Pygmy Blue Whale migration (Ref. 201) was identified within the southern extent of the Sound EMBA (Figure 4-2).

The study also showed that monthly spatial predictions indicated higher densities around the Montebello Island region April to July (northern migration) and November and December (southern migration) (Ref. 201). Depending on the timing of the exploration drilling activities (i.e. ~50 days planned to commence between 2024 and 2025; Section 3.1.3), there is the potential for overlap with Pygmy Blue Whale migration periods.

Data from satellite tracking studies has suggested that northern migration by Pygmy Blue Whales occurs in deeper waters and further offshore than the defined BIA (e.g. distances 238±14 km offshore, and in water depths of 2,617±143.5 m north of North West Cape [Ref. 66; Section 4.3.3.1.1]; the Sound EMBA does not occur within these distances or water depth ranges). Studies (e.g. Ref. 65; Section 4.3.3.1.1) also suggest that Pygmy Blue Whales migrated southward much further from the WA coast compared to the northbound migration, at distances of up to 400 km from shore. In addition, the Sound EMBA is not within a confined migratory corridor, and no breeding or resting critical behaviours are expected within the Sound EMBA.

The 'Possible Foraging Areas' as defined within the *Conservation Management Plan for the Blue Whale* (Ref. 59), coincide with foraging BIAs, and occur ~129 km southwest and ~950 km northeast of the Sound EMBA respectively. Based on proxy indicators from passive acoustic and satellite telemetry data (Ref. 201), 'most important areas' for foraging for Pygmy Blue Whale were identified. A recent study identified suitable foraging habitat from the southern extent to the northeastern edge of WA (Ref. 302). This area occurred almost exclusively on slope (91%), with a small amount of suitable habitat in deep ocean floor (7%) and on the shelf (2%). The Sound EMBA overlaps with these 'most important areas' (Figure 4-3) and 'suitable habitat' for foraging. However, the use of this area is not expected to be continual throughout the year but associated with Pygmy Blue Whale migration timing. Furthermore, foraging areas are known to be dynamic given their dependence on presence of prey (Ref. 201; Ref. 73, Ref. 294, Ref. 301, Ref. 302) and oceanographic conditions (Ref. 301, Ref. 302).

As the DS-1 exploration drilling activity is scheduled to occur for ~50 days commencing between 2024 and 2025, the activity could overlap with the predicted migration periods for Pygmy Blue Whales. However, although the defined migration BIA for Pygmy Blue Whales overlaps the Sound EMBA, it is expected based on satellite tracking and acoustic detection studies that some Pygmy Blue Whales may travel further offshore in deeper waters (Ref. 65, Ref. 66). The BIA in the vicinity of the DS-1 activities is not considered to be a confined migratory pathway.

As outlined in Section 4.3.3.1.2, the Sound EMBA occurs in water depths >770 m and is ~15 km northeast of the Humpback Whale migration BIA. It is therefore unlikely Humpback Whales would occur in the Sound EMBA in large numbers and any presence of this species would likely be transitory.

Estimates of SPL for helicopters range 149–162 dB re 1 µPa (Ref. 129; Ref. 130), which is above the noise exposure criterion for behavioural disturbance. However, the spatial and temporal extent of the potential exposure to underwater sound from helicopters is limited (e.g. 38 seconds at 3 m depth, and 11 seconds at 18 m depth; Ref. 129). The helicopter operations covered under this EP (i.e. crew transfers of minor supplies) are limited. Therefore, given the limited nature of the exposure, potential impacts from helicopters on cetacean behaviour are not evaluated further.

Given the temporary nature (~50 days) of the exploration drilling activity, and the mobile nature of cetacean species,. only localised short-term behavioural impacts to transient individuals have the potential to arise from these activities and have therefore been evaluated as Minor (5).

TTS and PTS

Acoustic modelling indicated that the R_{max} from the source to PTS noise effect criteria for low, high, and very-high frequency cetaceans was up to 0.13 km, 0.09 km, and 0.22 km respectively (Table 7-6) during resupply activities, while for other activities (e.g. drilling with a vessel on standby), it was up to 0.02 km, 0.02 km, and 0.14 km respectively (Table 7-5). The animat exposure modelling for Pygmy Blue Whales indicated that the PTS threshold was <0.02 km during resupply activities, while for other activities (e.g. drilling with a vessel on standby), was not predicted to be exceeded.

Acoustic modelling indicated that the R_{max} from the source to TTS noise effect criteria for low, high, and very-high frequency cetaceans was up to 4.05 km, 0.16 km, and 3.54 km respectively (Table 7-6) during resupply activities, while for other activities (e.g. drilling with a vessel on standby), it was up to 0.22 km, 0.09 km, and 1.27 km respectively (Table 7-5). The animat exposure modelling for Pygmy Blue Whales indicated that the TTS threshold was predicted to be 0.05 km during resupply activities and 0.02 km during drilling and vessel standby (Table 7-7). Note: Operations involving a resupply vessel on DP are temporary (up to ~8 hours with some exceptions e.g. during marine riser and casing loading and only undertaken as required throughout the exploration drilling activity).

The relevant values and sensitivities within the Sound EMBA with the potential to be exposed to underwater sound include:

- low frequency cetaceans (e.g. baleen whales) and high frequency (e.g. toothed whales, dolphins) that are listed as threatened and/or migratory under the EPBC Act
- migration BIA for Pygmy Blue Whales.

Note that the SEL_{24h} is a cumulative metric that requires a receptor to be consistently exposed to the relevant noise effect criteria for a 24-hour period before the associated auditory effect (TTS or PTS) may occur. For example, results from the animat exposure modelling indicate that the maximum distance to the TTS noise effect criteria for Pygmy Blue Whales was ~50 m from the acoustic source (Table 7-7); i.e. the whale must remain within ~50 m of the sound source for at least a 24-hour period before TTS auditory impairments may occur.

Given that behavioural disturbances are predicted at distances much larger than those predicted for auditory effects, it is unlikely that marine mammals will remain within the immediate proximity of the MODU or vessels for extended durations so that auditory impairment or injury would occur. As such the risk of TTS or PTS to marine mammals during exploration drilling activities is not considered credible, and no further evaluation has been undertaken.

The helicopter operations covered under this EP (i.e. crew transfers for exploration drilling activity) are expected to be infrequent. Therefore, exposure to continuous sound from this source for an extended period (e.g. 24 hours) is not credible, and comparison against an accumulated sound exposure levels is not relevant, and no further evaluation has been undertaken.

Turtles

TTS and PTS

The acoustic modelling for this exploration drilling activity indicates that the R_{max} from the source to PTS and TTS noise effect criteria was up to ~50 m and ~110 m respectively (Table 7-6) during resupply activities, while for other activities (e.g. drilling with a vessel on standby), it was up to ~20 m for TTS and PTS was not predicted to occur (Table 7-5). Note: Operations involving a resupply vessel on DP are temporary (up to 8 hours with some exceptions e.g. during marine riser and casing loading and only undertaken as required throughout the exploration drilling activity).

The relevant values and sensitivities within the Sound EMBA with the potential to be exposed to underwater sound include:

- marine turtle species that are listed as threatened and/or migratory under the EPBC Act.

Within the Sound EMBA marine turtles include the following EPBC listed threatened and/or migratory species: Flatback, Green, Hawksbill, Leatherback, and Loggerhead Turtles (Section 4.3.3.2). Given the Sound EMBA is confined to water depths >770 m, and is ~80 km from Barrow Island, any turtle species (if present) are expected to be transiting through the area; and no areas of biologically important behaviours or known aggregation within or around the Sound EMBA have been identified.

Note that the TTS and PTS SEL_{24h} is a cumulative metric that requires a receptor to be consistently exposed to the relevant noise effect criteria for a 24-hour period before the associated auditory effect (TTS or PTS) may occur. Specifically for marine turtles, this requires them to remain within ~110 m of the sound source for at least a 24-hour period before TTS auditory impairments may occur, and ~50 m of the sound source for at least a 24-hour period before PTS auditory injury may occur. Given that marine turtles (if present) are expected to be transitory through the area, the risk of auditory impairment is not considered credible, and no further evaluation has been undertaken.

The helicopter operations covered under this EP (i.e. crew transfers for exploration drilling activity) are expected to be infrequent. Therefore, exposure to continuous sound from this source for an extended period (e.g. 24 hours) is not credible, and comparison against an accumulated sound exposure levels is not relevant, and no further evaluation has been undertaken.

Fish including sharks and rays

Behavioural disturbance

Continuous sound sources have been identified as a moderate or high risk of causing behavioural changes or masking changes, within the near and intermediate vicinity of a sound source for all fish groups, including eggs and larvae (Table 7-3). Continuous sound of any level that is detectable by fishes can mask signal detection, and thus may have a pervasive effect on fish behaviour. However, the consequences of this masking and any attendant behavioural changes for the survival of fishes are unknown (Ref. 124). It is expected that most fish (including sharks

and rays) will exhibit avoidance behaviour from a sound source if it reaches levels that may cause behavioural or physiological effects.

As identified in Section 4.3.3.3, several fish species listed as threatened and/or migratory under the EPBC Act have the potential to occur within the Sound EMBA. No BIAs overlap with the Sound EMBA.

Pelagic fish species are expected to be transient through the Sound EMBA. If the fish are within the immediate vicinity of the sound source, behavioural responses are expected to be limited to an initial startle reaction before either returning to normal or resulting in the fish moving away from the area (Ref. 131). If demersal fish species are present within the Sound EMBA, these are also expected to be transient (the benthic habitat within the Sound EMBA is expected to predominantly be soft substrate (Section 4.3.1), as such site-attached fish communities are not expected to be present). In addition, given the water depths within the Sound EMBA (between ~770 m to 1,150 m), the sound emissions at the seabed are expected to only be from the drilling itself (i.e. not the vessels).

Consequently, only localised short-term behavioural impacts to transient individuals have the potential to arise from these activities and have therefore been evaluated as Minor (5).

TTS and Recoverable injury

Continuous sound sources have been identified as low risk of causing mortal or potential mortal injury to all fish groups, including eggs and larvae (Table 7-3).

Continuous sound sources have also been identified as low risk of causing a recoverable injury to fish with no swim bladders, fish with bladders not involved in hearing, eggs and larvae (Table 7-3). The noise effect criteria for recoverable injury to fish with a swim bladder involved in hearing was not predicted to be exceeded (Table 7-4, Table 7-5, Table 7-6).

Continuous sound sources have been identified as moderate risk within the near vicinity of a sound source and, as low risk within the intermediate and far vicinity of a sound source of causing TTS to fish with no swim bladders, or those with bladders not involved in hearing (Table 7-3). The risk of TTS to fish eggs and larvae is considered low for all distances from a sound source (Table 7-3). For fish species with a swim bladder involved in hearing, acoustic modelling indicated that the maximum distance from the source the TTS noise effect criterion was 0.11 km (Table 7-6) during resupply activities, while for other activities (e.g. drilling with a vessel on standby), it was up to ~20 m (Table 7-5).

Fish species are expected to be transient through the Sound EMBA. Given their transient nature, these fish are not expected to remain within close proximity (<110 m for pelagic species, and <20 m for demersal species) of a sound source for extended periods (12 hours) such that an auditory impairment (TTS) due to continued sound exposure would occur. On this basis, TTS to fish are not considered credible and no further evaluation has been undertaken.

The helicopter operations covered under this EP (i.e. crew transfers for exploration drilling activity) are expected to be infrequent. Therefore, exposure to continuous sound from this source for an extended period (e.g. 24 hours) is not credible, and comparison against an accumulated sound exposure levels is not relevant, and no further evaluation has been undertaken.

Changes to cultural heritage values

There are no World, National, or Commonwealth heritage listed places or sites within the OA (Section 4.6).

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. One of the specific tangible values of Sea Country identified through consultation was marine fauna (e.g. whales, turtles; Table 4-14). The consequence evaluations to these receptors are provided above.

Intangible cultural heritage refers to the “practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage” (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from the emission of continuous (non-impulsive) sound within the OA is anticipated. The consequence evaluations for marine fauna are provided above, and were assessed as having a localised and minor environmental impact, and is not expected to affect the overall population of the species. Further, as described in the above evaluations, the source of underwater sound emissions within the OA (i.e. MODU and vessels) is temporary and is not expected to affect the long-term underwater soundscape of the marine

environment. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected from underwater sound emissions within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of the exploration drilling activity (~50 days), a significant adverse change to cultural heritage values attributed to the offshore marine area from underwater sound emissions within the OA is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Minor (5).

ALARP decision context justification

Offshore MODU and vessel operations are commonplace and well-practised nationally and internationally. The application of control measures to manage impacts and risks arising from this aspect are well defined, understood by the industry, and are considered standard industry practice.

During relevant persons consultation, no objections or claims were raised regarding underwater sound emissions arising from the activity.

Although some species that are known to be sensitive to underwater sound have the potential to be exposed to underwater noise above exposure criteria during these activities, the impacts and risks arising from underwater sound emissions are considered lower-order impacts and risks in accordance with Table 5-3.As such, CAPL applied ALARP Decision Context A for this aspect.

Notwithstanding this, CAPL has considered additional mitigation measures that could potentially further reduce the risk of behavioural disturbance with marine fauna species (in addition to legislated requirements).

Good practice control measures

Control measure	Description
Vessels under transit or on standby within the OA	For vessels under transit within the OA, the following caution, approach, or separation distances (and associated vessel speeds) will be maintained by the vessels: • caution and no approach zones for cetaceans as described in EPBC Regulations 2000 – Part 8 Division 8.1 – Interacting with cetaceans (Cth) • separation distance of 30 m for Whale Sharks (as described in the Biodiversity Conservation Regulations 2018 [WA]) • separation distance of 30 m for marine turtles • vessels must operate at ≤6 knots within caution zones or when moving away to maintain a no-approach zone distance.
Helicopters under transit within the OA	For helicopters under transit within the OA, the following cetacean interaction requirements will be maintained by the helicopters: • height and distance from cetaceans as described in EPBC Regulations 2000 – Part 8 Division 8.1 – Interacting with cetaceans (Cth).
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.

Additional control measures and cost benefit analysis		
Control measure	**Benefit**	**Cost**
Adaptive management—Vessels under transit or on standby within the OA (during predicted peak migration period for Pygmy Blue Whales – extended caution zone)	Animat exposure modelling indicated that for the drilling and vessel standby (Scenario 4), the $ER_{95\%}$ distance to the behavioral disturbance noise effect criteria for Pygmy Blue Whales was 0.61 km (Table 7-7; Ref. 121). Increasing the caution zone for cetaceans (i.e. beyond the 300 m required for whales under EPBC Regulations 2000) would reduce the likelihood of exposure of cetaceans to underwater sound at levels that may cause a behavioural effect. For vessels under transit or on standby within the OA during the predicted peak migration periods for Pygmy Blue Whales (i.e. May–June (northern) and November–December (southern); Table 4-13), an extended caution zone of 700 m will be implemented.	The detection of Pygmy Blue Whales within the vicinity of vessels may increase activity duration and overall costs due to transit deviations and/or delays. However, the environmental benefit of reducing impacts to Pygmy Blue Whales is considered to outweigh the costs from not implementing this control. Therefore, this control measure has been adopted for use
Adaptive Management—Vessels under transit or on standby within the OA (during predicted peak migration period for Pygmy Blue Whales – vessel mitigation options)	The exploration drilling for DS-1 may occur for ~50 days commencing between 2024 and 2025, and as such has the potential to overlap with the predicted peak migration periods for the Pygmy Blue Whale (Table 4-13). The Pygmy Blue Whale is an income breeder and may forage during migration. The predicted ensonified areas for the DS-1 exploration drilling do not intersect with any Foraging Areas (annual high use, known, or possible) as defined within the *Conservation Management Plan for the Blue Whale 2015–2025* (Ref. 59). Based on proxy indicators, a recent study suggests that the 'most important areas' for foraging along the WA coast include discontinuous use of the shelf edge from Ningaloo Reef to Rowley Shoals (Ref. 201). Similarly, satellite tracking data from another study suggests a 'suitable foraging area' extending out from the 200 m bathymetry contour of WA coast. The predicted ensonified areas for the petroleum activity do intersect with part of this 'most important area' and 'suitable area' for foraging (Figure 4-3). In accordance with Australian Government guidance (Ref. 126) activities occurring outside designated Foraging Areas must adopt adaptive management	No additional personnel costs. However, the detection of Pygmy Blue Whale foraging may lead to increased activity duration and overall costs due to transit deviations and/or delays. However, the benefit of reducing impacts to Pygmy Blue Whales is considered to outweigh the costs from not implementing this control. Therefore, control measure has been adopted for use.

	approaches should indictors of whale foraging are evident. As the predicted ensonified areas do intersect with areas where foraging may occur, the following adaptative measures will be implemented if drilling activities occur during the predicted peak migration periods for Pygmy Blue Whales: • if the bridge-watch crew on vessels under transit or on standby within the OA detects Pygmy Blue Whales (or a large unidentified whale), a precautionary approach will be applied and the vessel will implement a mitigation option (e.g. slow or divert vessel) if considered operationally safe and viable to do so.	
Adaptive management— Vessels undertaking resupply or MODU mooring installation/removal within the OA (shutdown of DP)	Underwater sound that radiates from vessels is produced mainly by propeller and thruster cavitation, with a smaller fraction produced by sound transmitted through the hull, such as by engines, gearing, and other mechanical systems (Ref. 121). Sound levels tend to be the highest when thrusters are used to position the vessel and when the vessel is transiting at high speeds (Ref. 121). During MODU anchor installation/removal or MODU resupply, the vessel will be stationary whilst undertaking the activity; and as such the predominant sound source is from the use of DP to hold position. Animat exposure modelling indicated that the $ER_{95\%}$ distance to the behavioral disturbance noise effect criteria for Pygmy Blue Whales was 10.73 km (Table 7-7). Therefore, removing the use of vessel DP would significantly reduce the sound emissions and this predicted ensonified area. However when a vessel is holding position (e.g. during MODU anchor installation/removal or MODU resupply), the DP system is a critical safety device to avoid potential impact to other infrastructure (e.g. the MODU itself), and therefore removing it would introduce a significant safety risk to the operation. In addition, as described above, vessel operations involving MODU anchor installation/removal or resupply vessels on DP are temporary and intermittent during the drilling campaign.	Given the introduced risks, the cost of implementing this additional control is considered grossly disproportionate to the environmental benefit gained. Therefore, this control measure has not been adopted for use.

	If vessel anchoring (or other mooring systems) were used in place of DP, this would introduce both new environmental risks (e.g. seabed disturbance) and safety risks (e.g. anchoring within proximity of MODU and wellhead). Given the safety risks the use of DP is considered critical during resupply activities, and as such the implementation of shutdown zones to reduce sound emission risk to Pygmy Blue Whales is not considered a practicable mitigation measure. Note: Transiting vessels are covered by the other controls.	
Adaptive management—Vessels undertaking resupply or MODU mooring installation/removal within the OA (Pre-start-up visual observations)	As described above, shutting down the DP system on a vessel during resupply activities is not considered a practicable mitigation measure. The following adaptative measures will be implemented before MODU anchor installation/removal activities commence and before the resupply vessel moves alongside the MODU and commences resupply: • a trained bridge-watch crew and/or a HSE Representative, will undertake marine fauna observations (refer to Table 8-2 for required training/competency) during pre-start-up visual observations • pre start-up visual observations: – during daylight hours visual observations by the trained bridge-watch crew and/or HSE Representative for the presence of whales will be undertaken for 30 minutes prior to commencement of anchor installation or resupply activities – activities can only commence if no whale has been observed within the field-of-view[38] of the bridge-watch crew and/or HSE Representative. Marine fauna observations have been extended to the field-of-view of the bridge-watch in recognition that the predicted ensonified area for behavioural disturbance to Pygmy Blue Whales extends beyond the	No additional personnel costs. However, the detection of whales may lead to increased activity duration and overall costs due to delayed start-ups or deviations from the activity. However, the benefit of reducing impacts to whales is considered to outweigh the costs from not implementing this control. Therefore, control measure has been adopted for use.

[38] The field-of-view is the visible distance to the horizon and it varies based on observer height and weather conditions; however, from an offshore vessel/MODU, it typically ranges between ~9.7 nm to 12 nm (17.96 km to 22.2 km)

	prescribed EPBC Act caution and no approach zones.	
Adaptive Management— Dedicated Marine Fauna Observers (MFOs)	The use of Dedicated MFOs may increase the visual detection of cetaceans present within proximity to the MODU or vessels. Being able to better locate cetaceans may assist in reducing the risk of behavioural disturbance to cetaceans. However, while the use of Dedicated MFOs may increase visual detection of cetaceans, the use of Dedicated MFOs during the total duration of the DS-1 exploration drilling (~50 days, Section 3.1.3) is considered to be of limited environmental benefit given there are no additional control measures for the MODU (e.g. no acoustic reduction control to reduce minimum power generation requirements on a MODU) during routine drilling operations and limited control measures (e.g. divert or delay operations as described above) for vessels. As such there is no reduction in environmental risk realised from having Dedicated MFOs onboard the MODU or vessels during the total duration of the DS-1 drilling campaign. The bridge-crew and HSE Representative will be trained in marine fauna observations and will be used to detect fauna during pre-start-up visual observations. In addition, opportunistic sightings data for Pygmy Blue Whales will be collected throughout the activity.	Costs for engaging a MFO are expected to be in the order of ~$800-1,000/day. For an ~50-day campaign, this would result in up to $100,000 in personnel costs (allowing for two MFOs on the MODU/vessel). Given the negligible environmental benefit, this financial cost is considered grossly disproportionate and as such this control has not been adopted for use.
Adaptive Management— Vessels undertaking resupply or MODU mooring installation/removal within the OA (dedicated MFOs during predicted peak migration period for Pygmy Blue Whales)	As above, the use of Dedicated MFOs may increase the visual detection of cetaceans present within proximity to the MODU or vessels. The bridge-crew and HSE Representative will be trained in marine fauna observations and will be used to detect fauna during pre-start-up visual observations. In addition, opportunistic sightings data for Pygmy Blue Whales will be collected throughout the activity. This reduces the potential for environmental benefit associated with engaging dedicated MFOs.	The costs of engaging a MFO are estimated to be in the order of ~$800 - 1,000/day. It would not be practicable to mobilise and demobilise dedicated MFOs for each resupply activity and therefore the MFOs would need to remain on-board for the duration of the program at an estimated cost of $100,000 (allowing for two MFOs on the MODU/vessel). For rig moves (2 – 3 days at the start and finish of the well) it is likely the MFOs would need to mobilise a day or two before the rig move and demobilise a day or two after (depending on the helicopter flight schedule) and therefore the cost would be in the order of ~$30,000. In addition, the bridge crew and a HSE Representative will be trained in marine fauna observations, and the presence of additional

		personnel offshore has the potential for an increase in the health and safety risks. Given these introduced risks and the negligible environmental benefit, the implementation of this additional control is considered grossly disproportionate to the environmental benefit gained. Therefore, the control measure has not been adopted for use.
Adaptive Management— Use of additional detection controls	The use of additional detection controls, such as drones, infrared and passive acoustic monitoring (PAM) can increase the visual detection of cetaceans. For instance, drones may increase visual height, improving visibility for the duration of flights, although their use is limited by favourable metocean conditions and battery life. Similarly, PAM can detect vocalising cetaceans that may not be visible at the surface, supplementing visual observations. However, the method is dependent upon animals vocalising. Verfuss et al. (Ref. 348) who undertook a review of low visibility monitoring techniques, concluded that PAM works best in low background sound fields as high levels of sound can mask the vocalisations produced by the target species when overlapping in frequency and time. Therefore, the method is only effective at detecting vocalising cetaceans and is also dependent on environmental conditions.	The cost of hiring a trained PAM operator is estimated to be in the order of ~$1,000/day (~$100,000 for the entire exploration drilling activity [assuming two operators]) This cost does not include additional expenses, such as equipment provision, operator support, and mobilisation. Similarly, the total cost for drone hire or purchase, along with a pilot, is estimated at ~$50,000 for the duration of the activity. The significant additional cost of having a trained operator on board for the duration of the exploration drilling activity is considered grossly disproportionate to any limited additional benefit that additional detection controls might provide. Furthermore, drone use introduces additional risks, such as potential dropped objects in the marine environment. Therefore, the control measure has not been adopted for use.
Adaptive Management— Vessels undertaking resupply or MODU mooring installation/removal within the OA (Limit resupply activities frequency)	Limiting the frequency of resupply activities may minimise potential impacts on marine fauna, including whales. However, resupply activities are critical in offshore operations to ensure that resources—such as water, drilling materials, and other vital equipment and consumables—are continuously available. Frequent resupply is necessary to prevent disruptions that could compromise well control, emergency response, or crew safety, as any interruption in these supplies could lead to significant HSE and operational risks.	Pre-start visual observations before resupply activities have been adopted to reduce potential impacts to marine fauna. Given the associated operational and HSE risks, implementing this additional control is considered to outweigh the environmental benefit gained. Therefore, this control measure has not been adopted for use.
Adaptive Management— Limit the number of vessels	Limiting the number of vessels within the OA may reduce the ensonified area during the exploration drilling activity thus minimising potential impacts on marine fauna, including whales.	Limiting the number of vessels during rig positioning may lead to increased activity duration and overall costs due to delays. However, limiting the number of vessels in the OA to two vessels during the main drilling phase and

	As described in Section 3.7.1, up to three vessels may be on site within the OA at any time, noting that vessel presence may vary during different stages of the activity. Rig mobilisation and positioning is a complex operation that typically requires precise control over the rig's placement, and this phase generally takes ~2 to 3 days (Section 3.7.1). Although rig positioning may be completed with two vessels, utilising three vessels shortens the positioning duration and assures operational safety and efficiency. During rig mobilisation and positioning: • one vessel is typically used for towing and holding the MODU in position during the initial mooring operation (installing the four primary mooring lines) • a second vessel (and optionally third vessel) assists with running mooring lines, anchor handling and setting. • following positioning and mooring operations, two vessels will provide supply logistics, or emergency support. For these reasons, up to three vessels will be used during rig positioning; however, during the main drilling phase, no more than two vessels will be present within the OA.	outside of rig positioning may result in an environmental benefit and therefore this control has been adopted for use.
Adaptive Management—Limit vessel speed within the OA (during predicted peak migration period for Pygmy Blue Whales)	The exploration drilling for DS-1 may occur for ~50 days commencing between 2024 and 2025, and as such has the potential to overlap with the predicted peak migration periods for the Pygmy Blue Whale (Table 4-13). Given that the OA overlaps with the Pygmy Blue Whale migration BIA, and vessel noise may pose a behavioural disturbance risk, reducing vessel speed could decrease underwater noise emissions, thereby potentially reducing behavioural disturbances. For vessels within the OA during the predicted peak migration periods for Pygmy Blue Whales (i.e. May–June (northern) and November–December (southern); Table 4-13), a vessel speed limit of ≤6 knots will be implemented where it is safe to do so.	No additional personnel costs. However, limiting the vessel speed during the predicted peak migratory period for Pygmy Blue Whales may lead to increased activity duration and overall costs due to delays. Notwithstanding, the benefit of reducing impacts to whales is considered to outweigh the costs from not implementing this control. Therefore, the control measure has been adopted for use.
Adaptive Management—Maintain	Collecting data from sightings of Pygmy Blue Whales may help to improve the understanding of	No additional personnel costs. Therefore, the control measure has been adopted for use.

opportunistic sightings data for Pygmy Blue Whales	presence and behaviour in the NWMR. Opportunistic sightings data will be collected through: • provision of marine fauna sightings forms on-board the MODU and support vessels • induction materials to include awareness of Pygmy Blue Whales and the sighting reporting process • sighting records will be maintained throughout the program.	
Likelihood and risk level summary		
Likelihood	Due to the nature of the petroleum activity and the prediction of localised and temporary behaviour disturbance, and the overlap with known biologically important areas for some fauna, the likelihood of exposing receptors resulting in the identified consequence was considered Unlikely (4).	
Risk level	Low (8)	
Determination of acceptability		
Principles of ESD	The impacts and risks associated with this aspect are limited to localised, short-term behavioural changes. On the assumption that this potential impact occurs during a sensitive life stage (such as migration), CAPL would not expect these activities to affect migration, internesting, or foraging behaviours, nor impact on individuals or the wider population. As such, this aspect is not considered as having the potential to affect biological diversity and ecological integrity. The consequence associated with this aspect is Minor (5). Therefore, no further evaluation against the Principles of ESD is required.	
Relevant environmental legislation and other requirements	Legislation and other requirements considered relevant for this aspect include: • EPBC Regulations 2000 – Part 8 Division 8.1 – Interacting with cetaceans • *Conservation Management Plan for the Blue Whale 2015–2025* (Ref. 59) • *Conservation Advice Balaenoptera borealis Sei Whale* (Ref. 58) • *Conservation Advice Balaenoptera physalus Fin Whale* (Ref. 57).	
	Requirement	**Demonstration**
	EPBC Regulations 2000 – Part 8 Division 8.1 interacting with cetaceans Caution and no approach zones for interacting with cetaceans from vessels. Vertical and horizontal distances for helicopter operations.	Requirements of Regulation 8.05 and 8.06 for vessels, and 8.07 for aircraft, interacting with cetaceans has been incorporated into the **EPBC Regulations 2000 – Part 8 Division 8.1 – Interacting with cetaceans** control measure.
	Conservation Management Plan for the Blue Whale 2015–2025 Management action A.2.3: Anthropogenic noise in BIAs will be managed such that any blue whale continues to utilise the area	The DS-1 exploration drilling activity is not considered to be inconsistent with the *Conservation Management Plan for the Blue Whale*. The Sound EMBA does not intersect with designated Foraging Areas for the Pygmy Blue Whale. The nearest

	without injury, and is not displaced from a foraging area.	foraging BIA occurs ~129 km southwest of the Sound EMBA, offshore from North West Cape; and as such is not exposed to underwater sound emissions resulting from the DS-1 exploration drilling activity. A recent study has indicated areas of probable foraging along the NWS based on proxy indicators (Ref. 201). Similarly, based on satellite tracking data, from another study suggests habitat suitable for foraging extends out from the 200 m bathymetry contour of the WA coast (Ref. 302); , and there is overlap with the Sound EMBA and part of this area. In accordance with regulatory guidance (Ref. 126), activities occurring outside designated Foraging Areas must adopt adaptive management approaches should indicators of whale foraging be evident. Adaptive management control measures have been considered and adopted for use within this risk assessment. TTS and PTS from accumulated SEL_{24h} exposures to continuous sounds from the MODU, vessels or helicopters is not credible and thus is not predicted to occur. Therefore, continued use of the BIA without injury is expected.
	Conservation Advice Balaenoptera borealis Sei Whale No specific conservation action identified.	N/A.
	Conservation Advice Balaenoptera physalus Fin Whale No specific conservation action identified.	N/A.
Internal context	No CAPL management processes or procedures were deemed relevant for this aspect.	
External context	During relevant persons consultation, no objections or claims were raised regarding underwater sound emissions arising from the activity.	
Defined acceptable level	These impacts and risks are inherently acceptable as they are considered lower-order impacts and risks in accordance with Table 5-3. In addition, the potential impacts and risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan. However, in alignment with Section 5.6.2, where the aspect is listed as threat to a protected matter, or identified as a concern to a listed conservation value, CAPL will define an acceptable level of impact that aligns with the objectives of these documents. Objectives of the relevant documents are shown below:	
	Plan	**Objective**
	Conservation Management	Recovery objective: Minimise anthropogenic threats to allow for their conservation status to improve so that

	Plan for the Blue Whale 2015–2025.	they can be removed from the EPBC Act threatened species list. Interim objective 4 Anthropogenic threats are demonstrably minimised.
	Therefore, CAPL has defined the following acceptable level of impact such that it is not inconsistent with these documents: • impacts from the petroleum activity are managed such that it would not prevent the long-term recovery of protected species • no auditory injury (TTS or PTS) to Pygmy Blue Whales within a BIA resulting from underwater sound from the petroleum activity • no displacement of Pygmy Blue Whales from foraging areas resulting from underwater sound from the petroleum activity. CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.	
Environmental performance outcome	**Environmental performance standard**	**Measurement criteria**
(EPO 7a) No injury to marine fauna from underwater sound emissions associated with the petroleum activity within the OA. (EPO 7b) No displacement of marine fauna, or disruption of biologically important behaviours of marine fauna, from biologically important areas or habitat critical to the survival of a species from underwater sound emissions within the OA associated with the petroleum activity. (EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 2.1) Vessels under transit or on standby within the OA** Vessels under transit or on standby within the OA, will implement the following caution, no approach zones and separation distances, where practicable: • caution zone (300 m either side of whales and 150 m either side of dolphins)– vessels must operate at ≤6 knots within this zone, maximum of three vessels within zone, and vessels should not enter if a calf is present • no approach zone (300 m to the front and rear of whales and 100 m either side; 300 m for whale calves; 150 m to front and rear of dolphins and 50 m either side)–vessels should not enter this zone, and should not wait in front of the direction of travel or an animal or pod, or follow directly behind • a separation distance of 30 m from Whale Sharks and marine turtles; vessels must operate at ≤6 knots when moving away to maintain these separation distance.	(MC 2.1.1) Induction materials include relevant marine fauna caution and no approach zone requirements. (MC 2.1.2) Training records confirm personnel involved in offshore vessel activities have completed the induction. (MC 2.1.3) Vessel records show if marine fauna interaction occurred within caution zones, no approach zones or separation distances, and what mitigation (e.g. divert or slow vessel) measure was implemented.
	(EPS 7.1) Adaptive management—Vessels under transit or on standby within the OA (during predicted peak migration period for Pygmy Blue Whales) If the petroleum activity occurs during the predicted peak migration periods for Pygmy Blue Whales (i.e. May–June (northern) and November–December	(MC 7.1.1) Induction materials include relevant marine fauna extended caution zone requirements. (MC 7.1.2) Training records confirm personnel involved in offshore vessel activities have completed the induction.

	(southern); Table 4-13), then vessels under transit or on standby within the OA will implement: • an extended caution zone of 700 m .	(MC 7.1.3) Vessel marine fauna sighting records show if marine fauna interaction occurred within the extended caution zone, and what mitigation (e.g. divert or slow vessel) measure was implemented.
	(EPS 7.2) Adaptive Management—Vessels under transit or on standby within the OA (potential Pygmy Blue Whale foraging) If the petroleum activity occurs during the predicted peak migration periods for Pygmy Blue Whales (i.e. May–June (northern) and November–December (southern); Table 4-13), then vessels under transit or on standby within the OA will implement: • if the bridge-watch crew on vessels under transit or on standby within the OA detect a Pygmy Blue Whale (or a large unidentified whale) within the extended caution zone a precautionary approach will apply and, the vessel will implement a mitigation option (e.g. slow or divert vessel) if considered operationally safe and viable to do so.	(MC 7.2.1) Records demonstrate that if a Pygmy Blue Whale was observed and observations indicate potential foraging behaviour, a mitigation option or manoeuvre was implemented.
	(EPS 7.3) Helicopters under transit within the OA Helicopters under transit within the OA will implement the following: • not operate at a height lower than 1,650 feet or within a horizontal radius of 500 m for a cetacean • not approach a cetacean from head on.	(MC 7.3.1) Records show if marine fauna interaction occurred, and what mitigation (e.g. divert) measure was implemented.

	(EPS 7.4) Adaptive Management — Vessels undertaking resupply or MODU mooring installation/removal within the OA (Pre-start-up visual observations) The following adaptative measure will be implemented before a vessel commences MODU anchor installation/removal activities, and before the resupply vessel comes alongside the MODU and commences resupply activities: • a trained bridge-watch crew and/or a HSE Representative, will undertake marine fauna observations (refer to Table 8-2 for required training/competency) during pre-start-up visual observations • pre start-up visual observations: – during daylight hours visual observations by the trained bridge-watch crew and/or HSE Representative for the presence of whales will be undertaken for 30 minutes prior to commencement of anchor installation or resupply activities – activities can only commence if no whale has been observed within the field-of-view[39] of the bridge-watch crew.	(MC 7.4.1) Records demonstrate before MODU anchor installation/removal or resupply activities commence pre start-up visual observations were undertaken.
	(EPS 7.5) Adaptive management— Limit the number of vessels The following adaptative measure will be implemented: • up to three vessels will be used during rig positioning; however, during the main drilling phase, no more than two vessels will be present within the OA.	(MC 7.5.1) Records demonstrate that up to three vessels were used during rig positioning, while no more than two vessels were present within the OA during all other stages of the drilling activity.
	(EPS 7.6) Adaptive management— Limit vessels speed within the OA (during predicted peak migration period for Pygmy Blue Whales) If the petroleum activity occurs during the predicted peak migration periods for Pygmy Blue Whales (i.e. May–June (northern) and November–December (southern);Table 4-13), then vessels within the OA will implement: a vessel speed limit of ≤6 knots where it is safe to do so.	(MC 7.6.1) Vessel records show that speed limit of ≤6 knots, where was safe to do so, was implemented if the activity was undertaken during the peak migration period for Pygmy Blue Whales.
	(EPS 7.7) Adaptive management— Maintain opportunistic sightings data for Pygmy Blue Whales	(MC 7.7.1) Records confirm that sightings forms are available on-board the MODU and support vessels, induction materials include awareness

[39] The field-of-view is the visible distance to the horizon, and it varies based on observer height and weather conditions; however, from an offshore vessel/MODU, it typically ranges between ~9.7 nm to 12 nm (17.96 km to 22.2 km).

	Opportunistic sightings data will be collected through: • provision of marine fauna sightings forms on-board the MODU and support vessels • induction materials to include awareness of Pygmy Blue Whales and the sighting reporting process • sighting records will be maintained throughout the program	of Pygmy Blue Whales and sighting reporting process and sighting records are maintained throughout the program
	(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol.	(MC 2.2.1) Relevant persons consultation records.
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation.	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.

7.6.2 Underwater sound – impulsive

Source

Activities identified as having the potential to result in impulsive underwater sound emissions:

- drilling — exploration drilling activities within the OA.

An array of LBL and/or USBL transponders that provide accurate positioning information may be used to accurately position the MODU over the proposed well location.

Transponders typically emit pulses (impulsive noise) of medium to high frequency sound, generally within the range ~13 to ~50 kHz (Ref. 288). The estimated SPL would be between ~185 to ~205 dB re 1 µPa at 1 m (Ref. 288).

Potential impacts and risks

Impacts	C	Risks	C
Underwater sound emission may result in: localised and temporary change in ambient underwater sound.	6	A change in ambient underwater sound may result in: • behavioural disturbance • auditory impairment, TTS, PTS, recoverable or non-recoverable injury to marine fauna. • changes to cultural heritage values	6 – 6

Consequence evaluation

Localised and temporary change in ambient underwater sound

Anthropogenic underwater sound emitted during the drilling exploration activity will result in a change in ambient underwater sound levels.

Underwater broadband ambient sound spectrum levels range from 45–60 dB re 1 µPa in quiet regions (light shipping and calm seas) to 80–100 dB re 1 µPa for more typical conditions, and >120 dB re 1 µPa during periods of high winds, rain or 'biological choruses' (many individuals of the same species vocalise near simultaneously in reasonably close proximity to each other (Ref. 127). Low-frequency ambient sound levels (20–500 Hz) are frequently dominated by distant shipping plus some great whale species. Light weather-related sounds will be in the 300–400 Hz range, with wave conditions and rainfall dominating the 500–50,000 Hz range (Ref. 127).

Transponders are expected to emit medium to high frequency sound generally within the range ~13 to ~50 kHz and maximum estimated SPL would be ~205 dB re 1 µPa at 1 m (Ref. 288).

As described in Section 3.2.1, the duration of underwater impulsive sound emissions from MODU positioning within the OA is up to ~48 hours.

Given the details above, the consequence of using transponders to position the MODU has been assessed as Incidental (6) since it will result in limited changes that are very localised and short-term in nature.

Marine Mammals

Behavioural disturbance

The noise effect criteria for marine mammals for behavioural response from impulsive sound is an SPL of 160 dB re 1 µPa (Ref. 123). Acoustic modelling undertaken for geophysical survey equipment in a sandy seabed environment predicted the maximum distance to reach this noise effect criteria from a boomer was ~45 m (Ref. 289). The boomer system is used as an analogue because it operates within the range of 16 to 200 kHz with an estimated SPL is 205.9 dB re 1 µPa at 1 m, which is similar to that of the transponders.

Several marine mammal species have the potential to occur within the predicted ensonified area (i.e. within the OA), including listed threatened and/or migratory low and high frequency cetaceans. The predicted ensonified area for behavioural response also overlaps with a migration BIA for Pygmy Blue Whales. There are no other known areas of aggregation or biologically important behaviours for other cetacean species within the predicted ensonified area; as such it is expected that the presence of any marine mammal species would be of a transitory nature.

Taking this into consideration the focus of this evaluation is on Pygmy Blue Whales as they provide a representative case to enable an indicative consequence evaluation to be undertaken.

Given the indicative timing of the exploration drilling activity (i.e. ~50 days commencing between 2024 and 2025), there is the potential for overlap with the migration period for Pygmy Blue Whales.

Data from satellite tracking studies has suggested that northern migration by Pygmy Blue Whales occurs in deeper waters and further offshore than the defined BIA (e.g. distances 238±14 km offshore, and in water depths of 2,617±143.5 m north of North West Cape [Ref. 66; Section 4.3.3.1.1]; the predicted ensonified area does not occur within these distances or water depth ranges). Studies (e.g. Ref. 65; Section 4.3.3.1.1) also suggest that Pygmy Blue Whales migrated southward much further from the WA coast compared to the northbound migration, at distances of up to 400 km from shore.

The 'Possible Foraging Areas' as defined within the *Conservation Management Plan for the Blue Whale* (Ref. 59), coincide with foraging BIAs, and occur ~141 km southwest and ~960 km northeast of the predicted ensonified area respectively. Based on proxy indicators from passive acoustic and satellite telemetry data (Ref. 201), 'most important areas' for foraging for Pygmy Blue Whales have been identified (Figure 4-3). In addition, a recent study has characterised suitable foraging habitat as occurring primarily on the continental slope from the southern extent to the northeastern edge of WA (Ref. 302). The predicted ensonified area overlaps with these 'most important areas' (Figure 4-3). and 'suitable habitat' for foraging. However, the use of this area is not expected to be continual throughout the year but associated with Pygmy Blue Whale migration timing; and foraging areas are known to be dynamic given their dependence on presence of prey (Ref. 201; Ref. 73 Ref. 294, Ref. 301, Ref. 302) and oceanographic conditions (Ref. 301, Ref. 302)

Furthermore, as identified in Section 4.3.3.1.1, several studies have demonstrated evidence of surface or sub-surface (<100 m) foraging, determined through visual observations of lunge feeding and/or analysis of tagged data, primarily below 100 m (Ref. 295).

Since the well location occurs in water depths of ~958 m and sound emissions from transponders occur at the seabed (predicted maximum distance to reach noise effect is ~45 m) and foraging primarily occurs within the upper water column, impacts are not predicted to occur.

Some species of toothed whales (e.g. Sperm Whales) are known to dive deep and could potentially be exposed to sound from the transponders at a level above the marine mammal behavioural response threshold; however, the ensonified area is highly localised and impacts would be limited to transient individuals only.

Given the short duration of transponder deployment (~48 hours) and the limited spatial extent of the predicted ensonified area (~45 m), environmental impacts are expected to be negligible and therefore have been evaluated as Incidental (6).

TTS and PTS

The noise effect criteria for marine mammals for TTS and PTS from impulsive sound is an SEL_{24h} of 140–170 dB re 1 μPa^2s and 155–185 dB re 1 μPa^2s respectively depending on frequency hearing group (Ref. 290).

Acoustic modelling undertaken for a boomer system (similar frequency range and source level to transponders) in a sandy seabed environment predicted the maximum distance to a per-pulse SEL within these ranges was <20 m (Ref. 289).

Given the limited predicted distances and the need for marine mammals to be exposed to these sound levels for extended durations before auditory impairments or injuries occur, TTS and PTS to marine mammals from transponders used to position the MODU are not considered credible and are not evaluated further.

Marine turtles

Behavioural response

The noise effect criteria for marine turtles for behavioral response and behavioral disturbance from impulsive sound is an SPL of 166 dB re 1 µPa (Ref. 291) and 175 dB re 1 µPa (Ref. 292) respectively.

Acoustic modelling undertaken for geophysical survey equipment in a sandy seabed environment predicted the maximum distance to reach these sound levels from a boomer system (similar frequency range and source level to transponders) was up to 50 m (Ref. 289).

Several listed threatened and/or migratory marine turtle species have the potential to occur within the predicted ensonified area (i.e. within the OA), however, no BIAs or habitat critical to the survival of marine turtles were identified within the predicted ensonified area and it is expected that the presence of any marine turtle species would be of a transitory nature.

As described in Section 3.2.1, the duration of underwater impulsive sound emissions from MODU positioning within the OA is estimated to be ~48 hours.

Marine turtles are known to remain close to the nesting beach or rookery (Ref. 335) and in shallow waters (Ref. 332, Ref. 335, Ref. 336). The OA occurs in deep waters depths (>940 m) and are further offshore than the areas in which internesting behaviours have been observed in studies (Ref. 109; Ref. 335; Ref. 336; Ref. 337; Ref. 338; Ref. 339). Consequently, behavioural disturbance to turtles is not credible and has not been evaluated further.

TTS and PTS

The noise effect criteria for marine turtles for TTS and PTS from impulsive sound is an SEL_{24h} of 189 dB re 1 μPa^2s and 204 dB re 1 μPa^2s respectively (Ref. 125).

Acoustic modelling undertaken for geophysical survey equipment in a sandy seabed environment predicted the maximum distance to a per-pulse SEL for within these ranges was not predicted to occur for boomer source (Ref. 289). Consequently, no further assessment has been undertaken.

Fish including sharks and rays

Behavioural response

Impulsive sound sources have been identified as a high risk causing behavioural changes within the near vicinity of a sound source for all fish with no swim bladder or a bladder not involved in hearing, high at both near and intermediate vicinity for fish that use their swim bladder for hearing, and moderate for fish eggs and larvae within the near vicinity (Ref. 124). There is a low risk of causing masking behaviours for all fish groups from impulsive noise sources (Ref. 124).

As identified in Section 4.3.3.3, several fish species have the potential to occur within the predicted ensonified area, including listed threatened and/or migratory species. No BIAs or known areas of aggregation overlap with the predicted ensonified area; and due to the water depth and substrate type within the OA (Section 4.3.1), it is expected that the presence of any fish would be of a transitory nature.

As described in Section 3.2.1, the duration of underwater impulsive sound emissions from MODU positioning within the OA is up to ~48 hours.

Given the limited spatial and temporal exposures to fish from underwater impulsive sound from transponders used to position the MODU, limited environmental impacts are expected to occur and therefore have been evaluated as Incidental (6).

TTS

The noise effect criteria for fish with no swim bladder, a bladder not involved in hearing or a bladder involved in hearing for TTS from impulsive sound is an SEL_{24h} of equal to or greater than 186 dB re 1 μPa^2s (Ref. 124).

Acoustic modelling undertaken for geophysical survey equipment in a sandy seabed environment predicted the maximum distance to a per-pulse SEL for within these ranges was not predicted to occur for boomer source (Ref. 289). Consequently, no further assessment has been undertaken.

Impulsive sound sources have been identified as moderate risk causing TTS within the near vicinity of a sound source and low risk beyond this proximity for fish eggs and fish larvae from impulsive noise sources (Ref. 124). Given fish need to be exposed to these sound levels for extended durations before auditory impairments or injuries occur, TTS to fish eggs and fish larvae from transponders used to position the MODU are not considered credible and are not evaluated further.

Mortal or potential mortal injury, and recoverable injury

The noise effect criteria for all fish species for recoverable injury and mortal or potential mortal injury from impulsive sound is an SEL_{24h} of 203–216 dB re 1 μPa^2s and of 207–219 dB re 1 μPa^2s respectively, depending on swim bladder hearing group (Ref. 124).

Acoustic modelling undertaken for geophysical survey equipment in a sandy seabed environment predicted the maximum distance to a per-pulse SEL for within these ranges was not predicted to occur for boomer source (Ref. 289). Consequently, no further assessment has been undertaken.

Changes to cultural heritage values

There are no World, National, or Commonwealth heritage listed places or sites within the OA (Section 4.6).

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. One of the specific tangible values of Sea Country identified through consultation was marine fauna (e.g. whales, turtles; Table 4-14). The consequence evaluations to these receptors are provided above.

Intangible cultural heritage refers to the “practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage” (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from the emission of impulsive sound within the OA is anticipated. The consequence evaluations for marine fauna are provided above, and were assessed as having limited environmental impacts, and is not expected to affect the overall population of the species. Further, as described in the above evaluations, the source of underwater sound emissions within the OA (i.e. transponders used to position the MODU) is temporary and is not expected to affect the long-term underwater soundscape of the marine environment. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected from underwater sound emissions within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of transponder deployment (~48 hours), a significant adverse change to cultural heritage values attributed to the offshore marine area from underwater sound emissions within the OA is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Incidental (6).

ALARP decision context justification

Offshore MODU operations, including transponder use, are commonplace and well-practised nationally and internationally. The application of control measures to manage impacts and risks arising from this aspect are well defined, understood by the industry, and are considered standard industry practice.

During relevant persons consultation, no objections or claims were raised regarding underwater sound emissions arising from the activity.

Although some species that are known to be sensitive to underwater sound have the potential to be exposed to underwater sound above exposure criteria during these activities, the impacts and risks arising from underwater sound emissions are considered lower-order impacts and risks in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.		
Good practice control measures		
Control measure	**Description**	
Limit the duration of transponder use	Use of transponders will be limited to positioning the MODU for a period of up to ~48 hours.	
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPL's understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.	
Additional control measures and cost benefit analysis		
Control measure	**Benefit**	**Cost**
N/A	N/A	N/A
Likelihood and risk level summary		
Likelihood	Due to the nature and scale of the activity within the scope of this EP, the prediction of localised and temporary behaviour disturbance, and the overlap with known biologically important areas for some fauna, the likelihood of exposing receptors resulting in the identified consequence was considered Unlikely (4).	
Risk level	Very low (9)	
Determination of acceptability		
Principles of ESD	The impacts and risks associated with this aspect are limited, short-term behavioural changes. On the assumption that this potential impact occurs during a sensitive life stage (such as migration), CAPL would not expect these activities to affect migration, internesting, or foraging behaviours, nor impact on individuals or the wider population. As such, this aspect is not considered as having the potential to affect biological diversity and ecological integrity. The consequence associated with this aspect is Incidental (6). Therefore, no further evaluation against the Principles of ESD is required.	
Relevant environmental legislation and other requirements	Legislation and other requirements considered relevant for this aspect include: • EPBC Regulations 2000 – Part 8 Division 8.1 – Interacting with cetaceans • Conservation Management Plan for the Blue Whale 2015–2025 (Ref. 59) • Conservation Advice Balaenoptera borealis Sei Whale (Ref. 58) • Conservation Advice Balaenoptera physalus Fin Whale (Ref. 57).	
	Requirement	**Demonstration**
	Conservation Management Plan for the Blue Whale 2015–2025	The DS-1 exploration drilling activity is not considered to be inconsistent

	Management action A.2.3: Anthropogenic noise in BIAs will be managed such that any blue whale continues to utilise the area without injury, and is not displaced from a foraging area.	with the *Conservation Management Plan for the Blue Whale*. The ensonified area does not intersect with designated Foraging Areas for the Pygmy Blue Whale. The nearest foraging BIA occurs ~141 km southwest of the ensonified area, offshore from North West Cape; and as such is not exposed to underwater sound emissions resulting from the DS-1 exploration drilling activity. A study has indicated areas of probable foraging along the NWS based on proxy indicators (Ref. 201). Similarly, based on satellite tracking data, from another study suggests a 'suitable foraging area' extending out from the 200 m bathymetry contour of WA coast (Ref. 302); the OA overlaps with these 'most important areas' and 'suitable areas' for foraging. In accordance with regulatory guidance (Ref. 126), activities occurring outside designated Foraging Areas must adopt adaptive management approaches should indicators of whale foraging be evident. However, no credible impact pathway to foraging behaviours is identified in the consequence assessment. Consequently, adaptive management measures are not required. TTS and PTS from accumulated SEL_{24h} exposures to impulsive sounds from transponders used to position the MODU is not credible and thus is not predicted to occur. Therefore, continued use of the BIA without injury is expected.
	Conservation Advice Balaenoptera borealis Sei Whale No specific conservation action identified.	N/A.
	Conservation Advice Balaenoptera physalus Fin Whale No specific conservation action identified.	N/A.
Internal context	No CAPL management processes or procedures were deemed relevant for this aspect.	
External context	During relevant persons consultation, no objections or claims were raised regarding underwater sound emissions arising from the activity.	
Defined acceptable level	These impacts and risks are inherently acceptable as they are considered lower-order impacts and risks in accordance with Table 5-3. In addition, the potential impacts and risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.	

<table>
<tr><td></td><td colspan="2">However, in alignment with Section 5.6.2, where the aspect is listed as threat to a protected matter, or identified as a concern to a listed conservation value, CAPL will define an acceptable level of impact that aligns with the objectives of these documents. Objectives of the relevant documents are shown below:

<table><tr><th>Plan</th><th>Objective</th></tr><tr><td>Conservation Management Plan for the Blue Whale 2015–2025.</td><td>Recovery objective: Minimise anthropogenic threats to allow for their conservation status to improve so that they can be removed from the EPBC Act threatened species list.
Interim objective 4 Anthropogenic threats are demonstrably minimised.</td></tr></table>
Therefore, CAPL has defined the following acceptable level of impact such that it is not inconsistent with these documents:
impacts from the petroleum activity are managed such that it would not prevent the long-term recovery of protected species
no auditory injury (TTS or PTS) to Pygmy Blue Whales within a BIA resulting from underwater sound from the petroleum activity
no displacement of Pygmy Blue Whales from foraging areas resulting from underwater sound from the petroleum activity.
CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.</td></tr>
<tr><th>Environmental performance outcome</th><th>Environmental performance standard</th><th>Measurement criteria</th></tr>
<tr><td rowspan="3">(EPO 7a) No injury to marine fauna from underwater sound emissions associated with the petroleum activity.

(EPO 7b) No displacement of marine fauna, or disruption of biologically important behaviours of marine fauna, from biologically important areas or habitat critical to the survival of a species from underwater sound emissions within the OA associated with the petroleum activity

(EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.</td><td>(EPS 7.8) Limit the duration of transponder use
Use of transponders will be limited to positioning the MODU for a period of up to ~48 hours</td><td>(MC 7.8.1) Records confirm that use of transponders was limited to the positioning of the MODU.</td></tr>
<tr><td>(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)
Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol.</td><td>(MC 2.2.1) Relevant persons consultation records.</td></tr>
<tr><td>(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)
If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation.</td><td>(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.</td></tr>
</table>

7.7 Invasive marine pests

Source

Activities identified as having the potential to result in the introduction of an invasive marine pest (IMP) are:

- MODU— planned discharged of ballast water or presence of biofouling on the MODU within the OA during exploration drilling activity
- field support— planned discharged of ballast water or presence of biofouling on the support vessels within the OA during the exploration drilling activity.

Potential impacts and risks

Impacts	C	Risks	C
N/A	–	An introduction of an IMP has the potential to result in:	
		• displacement of, or compete with, native species	2
		• changes to cultural heritage values.	6

Consequence evaluation

Displacement of, or compete with, native species

The MODU and support vessels will be present within the OA during the exploration drilling activity, which are estimated to take ~50 days to complete. The OA consists of an area of ~78.5 km^2.

IMPs are considered 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 >250 established marine pests, and that approximately one in six introduced marine species becomes a pest (Ref. 133).

IMPs primarily occur in shallow waters with high levels of slow-moving or stationary shipping traffic (such as ports). The probability of successful IMP settlement and recruitment decreases in well-mixed, deep ocean waters away from coastal habitats. IMP colonisation also requires a suitable habitat in which to establish itself, such as rocky and hard substrates or subsea infrastructure. The Australian Government Bureau of Resource Sciences (BRS) established that the relative risk of an IMP becoming established around Australia decreases with distance from the coast. Modelling conducted by BRS (Ref. 134) estimates: 40% chance of colonisation at 3 nm, 30% chance at 12 nm, and 20% chance at 24 nm.

The OA is located in deeper waters between ~940 m to ~1,020 m, and as such low light levels are expected at the seabed. The OA is also located >95 km (>51 nm) from the closest coast (Barrow Island), and >140 km (>75 nm) from the mainland coast and large ports.

The benthic habitat within the OA is expected to predominantly be soft substrate (Section 4.3.1). The values and sensitivities within the OA with the potential to be impacted by seabed disturbance includes the following KEF:

- continental slope demersal fish communities.

Bacteria and fauna present on the continental slope are the basis of the food web for demersal fish and higher-order consumers in this KEF system (Ref. 72). The habitat type within the OA (i.e. soft sediment, with sparse epibenthic communities) is widespread through the region. Given the type of habitat present within the OA, and its location in deep, well-mixed offshore waters, which is not expected to facilitate the introduction and establishment of IMPs.

Once established, some IMPs can be difficult to eradicate and therefore there is the potential for a long-term change in habitat structure (Ref. 135). Highly disturbed shallow water and coastal marine environments (such as marinas) have been found to be more susceptible to colonisation than open-water environments, where the number of dilutions and the degree of dispersal is high (Ref. 136, Ref. 137, Ref. 138, Ref. 139). Though invasive species are identified as being of concern to the habitats under the *North-west Marine Bioregional Plan* (Ref. 72), the marine nature of the habitats within the OA are considered of less concern as the establishment would be difficult due to the water depths, lack of hard substrates, and the presence of soft sediment communities.

If an IMP was introduced, and if it did colonise an area, there is the potential for that colony to spread outside the OA resulting in a widespread long-term impact. As such, CAPL has ranked the consequence associated this impact as Severe (2).

Changes to cultural heritage values

There are no World, National, or Commonwealth heritage listed places or sites within the OA (Section 4.6).

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. One of the specific tangible values of Sea Country identified through consultation was the ocean (Table 4-14). The consequence evaluations to related receptors are provided above.

Intangible cultural heritage refers to the "practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage" (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from an unplanned introduction and establishment of an IMP within the OA is anticipated. The consequence evaluation to benthic habitat is provided above above; where if an IMP was introduced and was successful in colonising the area, was assessed as a wide-spread long-term impact. However, as described in the above evaluation the benthic habitats present within the OA and the distance from mainland coasts and ports, the OA is not likely to be suitable for IMP establishment. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of the exploration drilling activity (~50 days), a significant adverse change to cultural heritage values attributed to the offshore marine area is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Incidental (6).

ALARP decision context justification

Offshore vessel operations, and subsequent planned discharges, are commonplace and well-practised locally, nationally, and internationally.

The causes resulting in an introduction of an IMP from a planned release of ballast water or the presence biofouling are well understood by the industry and CAPL. The control measures to manage the risks associated with the introduction of an IMP are well defined via legislative requirements that are considered standard industry practice. These control measures are well understood and implemented by the petroleum industry and CAPL. Specifically, CAPL has worked in the region for over 10 years, thus has a demonstrated understanding of industry requirements and their operational implementation in these areas.

During relevant persons consultation, no objections or claims where raised regarding with IMPs arising from the activity.

The risk of introducing an IMP is considered a lower-order risk in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.

Good practice control measures

Control measure	Description
Quarantine procedure	CAPL's *Quarantine Procedure Marine Vessels* (Ref. 44) provides information about quarantine compliance to CAPL, contractors, and others associated with marine vessels. The procedure also ensures that the requirements of various legislative or relevant guidelines are met, including: • ballast water management in line with the Australian Ballast Water Management Requirements (Ref. 5) • undertaking biofouling risk assessments in line with the with the National *Biofouling Management Guidance for the Petroleum Production and Exploration Industry* (Ref. 8) and DPIRD Vessel Check system

	• requirements for biofouling management plans and/or biofouling record books, in accordance with the *Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species (Biofouling Guidelines)* MPEC.207(62) 2011 (Ref. 7) and Australian Ballast Water Management Requirements (Ref. 5). As described in Section 8.3.3.2, all vessels operating in title areas must comply with applicable Australian biofouling and ballast water requirements to prevent the introduction and spread of marine pests. Regardless of the origin of the vessel or where it will be operating, all vessels must be free from marine pests when mobilised and the contractor must demonstrate the vessel meets low risk rating for biofouling. The quarantine procedure requires that all vessels complete and submit to CAPL a *Quarantine Questionnaire – Marine Vessels*, of which Section 3 addresses ballast water and Section 4 addresses biofouling, including that all relevant biofouling information (e.g. Biofouling Management Plan, Biofouling Record Book, evidence of last vessel clean to remove biofouling. antifouling certificates, etc.) is provided to enable suitable risk assessments to be completed prior to vessel mobilisation to a title area. Once CAPL are satisfied that the vessel meets marine quarantine requirements, CAPL will issue authorisation to mobilise via the *Quarantine Certificate - Vessel Mobilisation.*
Ballast water management	The *Australian Ballast Water Management Requirements* (Ref. 5) describes the management requirements for ballast water exchange, including: • non-discharge of 'high-risk' ballast water in Australian ports or waters • full ballast exchange outside Australian territorial seas • documentation of all ballast exchange activities.
Anti-fouling certificate	The *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006 (*Cth*)* enacts Marine Order 98 (Marine pollution – anti-fouling systems). This marine order describes the conditions for when an antifouling certificate is required.
Maritime Arrivals Reporting System (MARS)	Under the *Biosecurity Act 2015 (*Cth*)*, pre-arrival information must be reported through MARS before a vessel arrives in Australian waters. In accordance with the Australian Biofouling Management Requirements (Ref. 5), from 15 June 2022, all operators of vessels intending to enter Australian territorial waters must also provide information relating to biofouling management as part of the pre-arrival reporting via MARS.
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.

Additional control measures and cost benefit analysis		
Control measure	**Benefit**	**Cost**
N/A	N/A	N/A

Likelihood and risk level summary	
Likelihood	As activities are occurring in deeper Commonwealth waters (not within shallow coastal areas), and with the well-known and implemented IMP control measures in place, it is considered Rare (6) that an IMP would be

<table>
<tr><td></td><td>introduced resulting in impacts to the ecological functions of benthic habitats within or in close proximity to the OA.</td></tr>
<tr><td>Risk level</td><td>Low (7)</td></tr>
<tr><td colspan="2">Determination of acceptability</td></tr>
<tr><td>Principles of ESD</td><td>The potential risk associated with this aspect is a widespread long-term impact to benthic communities, which are expected to comprise soft sediment communities. The introduction of an IMP to these communities has the potential to affect biological diversity and ecological integrity.
The consequence associated with this aspect is Severe (2).
Therefore, further evaluation against the remaining Principles of ESD is required.
There is little uncertainty associated with this aspect as the activities and cause pathways are well known and the activities are well regulated and managed. As such, there is limited scientific uncertainty associated with this aspect; consequently, the precautionary principle has not been applied.</td></tr>
<tr><td>Relevant environmental legislation and other requirements</td><td>Legislation and other requirements considered relevant for this aspect include:
Biosecurity Act 2015 (Cth)
Protection of the Sea (Harmful Anti-fouling Systems) Act 2006 (Cth) (enacted by Marine Order 98 [Marine pollution – anti-fouling systems])
Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species (Biofouling Guidelines) (Ref. 8)
Australian Ballast Water Management Requirements (Ref. 5)
Australian Biofouling Management Requirements (Ref. 6)
National Biofouling Management Guidance for the Petroleum Production and Exploration Industry (Ref. 7).
<table>
<tr><th>Requirements</th><th>Demonstration</th></tr>
<tr><td>Biosecurity Act 2015 (Cth)
Pre-arrival reporting through MARS.</td><td>Requirement for pre-arrival reporting has been incorporated into the MARS control measure.</td></tr>
<tr><td>Protection of the Sea (Harmful Anti-fouling Systems) Act 2006 (Cth)
Gives effect to Marine Order 98.</td><td>Anti-fouling certifications (as per Division 2) have been incorporated into the anti-fouling certificate control measure.</td></tr>
<tr><td>Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species (Biofouling Guidelines)
A biofouling management plan and record book to be available and maintained.</td><td>Proactive management of biofouling (e.g. use of biofouling management plan) has been incorporated into the quarantine procedure control measure.</td></tr>
<tr><td>Australian Ballast Water Management Requirements
Best practice guidance for ballast water management within Australian seas, including legislative obligations under Biosecurity Act 2015 (Cth).</td><td>Requirement for ballast water exchange has been incorporated into the ballast water management control measure.
Proactive management of ballast water (e.g. use of ballast water management plan) has been incorporated into the quarantine procedure control measure.</td></tr>
<tr><td>Australian Biofouling Management Requirements
Best practice guidance for biofouling management within</td><td>Requirement for pre-arrival reporting has been incorporated into the MARS control measure.</td></tr>
</table></td></tr>
</table>

	Australian seas, including legislative obligations under *Biosecurity Act 2015 (Cth).*	Proactive management of biofouling (e.g. use of biofouling management plan) has been incorporated into the **quarantine procedure** control measure.
	National Biofouling Management Guidance for the Petroleum Production and Exploration Industry Undertake a biofouling risk assessment.	Biofouling risk assessments for vessels have been incorporated into the **quarantine procedure** control measure.
Internal context	The following CAPL management processes or procedure were deemed relevant for this aspect: • *Quarantine Procedure Marine Vessels* (Ref. 44). Control measures related to each of the above management processes or procedures have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.	
External context	During relevant persons consultation, no objections or claims were raised regarding IMP arising from the activity.	
Defined acceptable level	These risks are inherently acceptable as they are considered lower-order risks in accordance with Table 5-3. In addition, the potential risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan. CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.	
Environmental performance outcome	**Environmental performance standard**	**Measurement criteria**
(EPO 8) No introduction and establishment of invasive marine pests from MODU and vessel activities within the OA associated with the petroleum activity. (EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 8.1) Quarantine procedure** All MODUs and marine vessels undertaking activities within the OA must meet the relevant requirements of the *Quarantine Procedure Marine Vessels*, including: • *Quarantine Questionnaire – Marine Vessels* has been completed and submitted to CAPL • biofouling risk assessments are completed • biofouling management plans and/or biofouling record books are available.	(MC 8.1.1) The *Quarantine Certificate - Vessel Mobilisation* issued by CAPL confirms that relevant vessels meet requirements of the *Quarantine Procedure Marine Vessels*.
	(EPS 8.2) Ballast water management International vessels will be required to comply with the key *Australian Ballast Water Management Requirements*, which are: • non-discharge of 'high-risk' ballast water in Australian ports or waters • full ballast exchange outside Australian territorial seas • documentation of all ballast exchange activities.	(MC 8.2.1) For international vessels, records show compliance with the Australian Ballast Water Management Requirements.
	(EPS 8.3) Antifouling certificate Vessels greater than 400 GT with an antifoul coating are to maintain up-to-date	(MC 8.3.1) Inspection reports confirm that international

	international antifouling coating certification in accordance with *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006* (Cth) and/or the International Convention on the Control of Harmful Anti-fouling Systems on Ships.	antifouling coating certifications are up to date.
	(EPS 8.4) MARS Vessels entering into the Australian territorial sea from outside Australian territory will complete pre-arrival reporting (unless Excepted under Biosecurity Determination 2016), in accordance with the *Biosecurity Act 2015* (Cth).	(MC 8.4.1) Records confirm that international vessels completed pre-arrival reporting (or can demonstrate meeting conditions for an exception).
	(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol.	(MC 2.2.1) Relevant persons consultation records.
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation.	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.

7.8 Planned discharges—facility and vessel operations

Source

Activities identified as having the potential to result in planned facility and vessel related discharges are:

- MODU—general MODU operations within the OA during the exploration drilling activity
- field support—general vessel operations within the OA during the exploration drilling activity.

Discharges may include sewage, greywater, food wastes, cooling water, deck wash-water, or oily bilge water.

Potential impacts and risks

Impacts	C	Risks	C
Planned discharge from vessel operations may result in: • localised and temporary reduction in water quality.	6	A change in ambient water quality has the potential to result in: • changes to predator-prey dynamics • changes to cultural heritage values.	 6 6

Consequence evaluation

Localised and temporary reduction in water quality

The MODU and support vessels will be present within the OA during the exploration drilling activity, which are estimated to take ~50 days to complete. The OA consists of an area of ~78.5 km^2, in water depths between ~940 m to ~1,020 m.

Open marine waters are typically influenced by regional wind and large-scale ocean current patterns resulting in the rapid mixing of surface and near-surface waters—where MODU and vessel discharges occur (Ref. 12). Therefore, nutrients from sewage, or other similar, discharges will not accumulate or lead to eutrophication due to the highly dispersive environment (Ref. 12). This outcome was verified by sewage discharge monitoring for another offshore project (Ref. 140), which determined that a 10 m^3 sewage discharge reduced to ~1% of its original concentration within 50 m of the discharge location. In addition, monitoring at distances 50 m, 100 m, and 200 m downstream, and at five different water depths, confirmed that discharges were rapidly diluted and no elevations in water quality monitoring parameters (e.g. total nitrogen, total phosphorous, and selected metals) were recorded above background levels at any station. This modelling was based on volumes that are expected to be similar to those identified for this activity. Therefore, the extent of impacts is expected to be localised to the discharge location.

Monitoring of desalination brine of continuous wastewater discharges (including cooling water) undertaken by Woodside for its Torosa South-1 drilling program in the Scott Reef complex found that discharge water temperature decreases quickly as it mixes with the receiving waters, with the discharge water temperature being <1 °C above ambient within 100 m (horizontally) of the discharge point, and 10 m vertically (Ref. 140). This modelling was based on volumes that are expected to be similar to those identified for this activity. Therefore, the extent of impacts is expected to be localised to the discharge location.

A bilge system is designed to safely collect, contain and dispose of oily water so that discharge of hydrocarbons to the marine environment is minimised or avoided. Bilge water is processed via an oil-water separator before being discharged to sea. Discharge is intermittent and occurs at or near surface waters. As such, oily bilge discharges are expected to readily dilute and disperse under the action of waves and currents in surface waters. In addition, once exposed to air, any volatile components of the oil will readily evaporate.

Consequently, CAPL considers that the change in water quality from these standard discharges is limited to a localised area around the discharge point and quickly returns to ambient levels following completion of the discharge; therefore, any impacts are Incidental (6).

Changes to predator-prey dynamics

The overboard discharge of sewage and macerated food waste creates a localised and temporary food source for scavenging marine fauna or seabirds, whose numbers may temporarily increase as a result, thus increasing the food source for predatory species.

However, the rapid consumption of this food waste by scavenging fauna, and physical and microbial breakdown, ensures that the impacts of food waste discharges are insignificant and temporary and that all receptors that may potentially be in the water column are not impacted.

The values and sensitivities within the OA with the potential to be affected by changes in predator–prey dynamics include:

- continental slope demersal fish communities (KEF).

Effects on environmental receptors along the food chain—fish, reptiles, birds, and cetaceans—are not expected beyond the immediate vicinity of the discharge in open waters (Ref. 12).

Studies into the effects of nutrient enrichment from offshore sewage discharges indicate that the influence of nutrients in open marine areas is much less significant than that experienced in enclosed areas (Ref. 141) and suggest that zooplankton composition and distribution in areas associated with sewage dumping grounds are not affected. However, if any changes in phytoplankton or zooplankton abundance and composition occur, they are expected to be localised, typically returning to background conditions within tens to a few hundred metres of the discharge location (Ref. 142; Ref. 143; Ref. 144).

As described above, plankton communities are not affected by sewage discharges, but if they are, such effects would be highly localised (expected to return to background conditions within tens to a few hundred metres of the discharge location). Consequently, subsequent indirect impacts to other marine fauna are not expected, and thus are not considered further.

Although fish may be attracted to these discharges, any attraction and consequent change to predator–prey dynamics is expected to be limited to close to the release and thus is expected to result in localised impacts to species. Any increased predation is not expected to result in more than a limited environmental impact; therefore, the consequence is Incidental (6).

Changes to cultural heritage values

There are no World, National, or Commonwealth heritage listed places or sites within the OA (Section 4.6).

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. Specific tangible values of Sea Country identified through consultation was the ocean and marine fauna (Table 4-14). The consequence evaluations to related receptors are provided above.

Intangible cultural heritage refers to the "practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage" (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from planned vessel discharges within the OA is anticipated. The consequence evaluation to marine fauna is provided above, and were assessed as having a limited environmental impact, and is not expected to affect the overall population of the species. Further, as described in the above evaluations, the source of planned discharges within the OA (i.e. MODU and vessels) is temporary and is not expected to affect the long-term environmental quality of the ocean. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected from planned vessel discharges within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of the exploration drilling activity (~50 days), a significant adverse change to cultural heritage values attributed to the offshore marine area from planned vessel discharges within the OA is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Incidental (6).

ALARP decision context justification

Offshore MODU and vessel operations, and subsequent planned discharges, are commonplace and well-practiced locally, nationally, and internationally. The control measures to manage the risk associated with these planned discharges are well defined via legislative requirements that are considered standard industry practice. These are well understood and implemented by the petroleum industry and CAPL.

During relevant persons consultation, no objections or claims where raised regarding these discharges arising from the activity.

The impacts and risks associated with these discharges are considered lower-order impacts and risks in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.

Good practice control measures

Control measure	Description
MARPOL 73/78 sewage discharge	Marine Order 96 (Sewage) gives effect to MARPOL 73/78 Annex IV. MARPOL is the International Convention for the Prevention of Pollution from Ships is aimed at preventing both accidental pollution and pollution from routine operations.
MARPOL 73/78 food waste discharge	Marine Order 95 (Marine pollution prevention – garbage) gives effect to MARPOL 73/78 Annex V, which details the conditions in which macerated and unmacerated food waste can be discharged to the environment.
MARPOL 73/78 oily bilge discharge	Marine Order 91 (Marine pollution prevention – oil) gives effect to MARPOL 73/78 Annex I, which details the conditions by which oily bilge is authorized to be discharged to the environment.
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3).

<table>
<tr><td></td><td colspan="2">Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.</td></tr>
<tr><td colspan="3">Additional control measures and cost benefit analysis</td></tr>
<tr><td>Control measure</td><td>Benefit</td><td>Cost</td></tr>
<tr><td>N/A</td><td>N/A</td><td>N/A</td></tr>
<tr><td colspan="3">Likelihood and risk level summary</td></tr>
<tr><td>Likelihood</td><td colspan="2">Given the nature and scale of this activity with standard control measures in place, it is considered Rare (6) that these discharges would result in any impact to the ecological function of the values and sensitivities present within the OA.</td></tr>
<tr><td>Risk level</td><td colspan="2">Very low (10)</td></tr>
<tr><td colspan="3">Determination of acceptability</td></tr>
<tr><td>Principles of ESD</td><td colspan="2">The potential impacts and risks associated with this aspect are limited to a short-term direct reduction in water quality in a localised area, which is not considered as having the potential to affect biological diversity and ecological integrity.
The consequence associated with this aspect is Incidental (6).
Therefore, no further evaluation against the Principles of ESD is required.</td></tr>
<tr><td>Relevant environmental legislation and other requirements</td><td colspan="2">Legislation and other requirements considered relevant to this aspect include:
• Marine Order 91
• Marine Order 95
• Marine Order 96
• MARPOL 73/78 Annex I, IV and V.
CAPL considers that impact and risk management is consistent with these requirements, as demonstrated below.
<table>
<tr><th>Requirement</th><th>Demonstration</th></tr>
<tr><td>Marine Order 96
Gives effect to Annex IV of MARPOL 73/78.</td><td>Requirements for offshore discharge of sewage have been incorporated into the MARPOL 73/78 sewage discharge control measure.</td></tr>
<tr><td>Marine Order 95
Gives effect to Annex V of MARPOL 73/78.</td><td>Requirements for offshore discharge of food have been incorporated into the MARPOL 73/78 food waste discharge control measure.</td></tr>
<tr><td>Marine Order 91
Gives effect to Annex I of MARPOL 73/78.</td><td>Requirements for offshore discharge of oily bilge water from vessels have been incorporated into the MARPOL 73/78 oily bilge water discharge control measure.</td></tr>
</table></td></tr>
<tr><td>Internal context</td><td colspan="2">This CAPL management process or procedure was deemed relevant for this aspect:
• Marine Standard Non Tankers: Corporate OE Standard (Ref. 39).
Control measures related to the above management process have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.</td></tr>
</table>

External context	During relevant persons consultation, no objections or claims were raised regarding these discharges arising from the activity.	
Defined acceptable level	These impacts and risks are inherently acceptable as they are considered lower order impacts and risks in accordance with Table 5-3. In addition, the potential impacts and risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan. CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.	
Environmental performance outcome	**Environmental performance standard**	**Measurement criteria**
(EPO 9) Planned discharges from MODU and vessel operations within the OA during the petroleum activity will meet MARPOL requirements.	**(EPS 9.1) MARPOL 73/78 sewage discharge** Offshore discharge of sewage from MODU and vessels will be in accordance with MARPOL 73/78 Annex IV requirements, including: • an IMO approved Sewage Treatment Plant will be in place; and • sewage discharges are treated in the Sewage Treatment Plant prior to discharge.	(MC 9.1.1) Records show sewage is discharged in accordance with MARPOL 73/78 Annex IV, including current International Sewage Pollution Prevention (ISPP) Certificate (for marine vessels >400 T or certified to carry more than 15 persons.
	(EPS 9.2) MARPOL 73/78 food waste discharge Offshore discharge of food waste will be in accordance with these MARPOL 73/78 Annex V requirements: • vessel waste – macerated to no greater than 25 mm and when the marine vessel is at least 3 nm from the nearest land; or – unmacerated when the marine vessel is at least 12 nm from the nearest land. • MODU waste – macerated to no greater than 25 mm when anchored onsite.	(MC 9.2.1) Records show food waste is discharged in accordance with MARPOL 73/78 Annex V.
	(EPS 9.3) MARPOL 73/78 oily bilge water discharge Oily bilge water will be discharged to marine environment only when the concentration is <15 ppm in accordance with MARPOL 73/78, Annex I: • through an IMO approved on board oil-water separator • when the marine vessel is *en route*.	(MC 9.3.1) Records show oily bilge water is discharged in accordance with MARPOL 73/78 Annex I, including current International Oil Pollution Prevention Certificate.
(EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)** Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective	(MC 2.2.1) Relevant persons consultation records.

	engagement plan and/or consultation protocol.	
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation.	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.

7.9 Planned discharges—drill cuttings and fluids

Source

Activities identified as having the potential to result in planned drilling related discharges are:

- drilling—planned and contingency activities (various discharges including drilling fluids and cuttings, spacer fluids, wellbore clean-up fluids, and unused bulk product)
- well abandonment—metal swarf cuttings, and wellbore content (e.g. drill fluid, cement contaminated mud, water, barite, cement, and polymers).

Potential impacts and risks

Impacts	C	Risks	C
Planned drilling discharges may result in:		A change in ambient water quality may result in:	
• localised and temporary change in water quality	5	• indirect impacts to fauna arising from chemical toxicity	5
• alteration/smothering of benthic habitat.	4	A change in ambient water quality or alteration to benthic habitat may result in:	
		• changes to cultural heritage values.	6

Consequence evaluation

Localised and temporary changes in water quality

Drilling related discharges occur both at the seafloor (e.g. during drilling of the top-hole sections), and in surface waters once the riser is installed (Section 3.3; Table 3-2).

Surface discharges will cause the largest (spatial) changes to water quality given influence by surface currents and wind speeds. Hinwood et al. (Ref. 145) details that when cuttings are discharged to the ocean from surface, the larger particles which represent ~90% of the mass of the cutting and associated mud solids, form a plume that settles quickly to seabed close to the release point. A similar finding was observed by Jones et al. (2021) over 95% of the cuttings were greater than 1 mm (and >35% >2 mm) and the settling time to the seabed was minutes to tens of minutes (Ref. 285). Neff (Ref. 146) states that in well-mixed oceans waters (as is the case within the OA), the drilling cuttings and fluid plume from a surface discharge is diluted by more than 100-fold within 10 m of the discharge point. Jones et al. (Ref. 285) conducted a study on drill cuttings and fluid discharges in the NWS region (near Rankin Bank) for a drilling program. The study used both modelling and ROV sampling and found total suspended solids (TSS) levels associated with drill cuttings and fluids. Maximum TSS levels were <500 mg/L at 200 m, <25 mg/L at 500 m and <15 mg/L at the 1,000 m from the drilling location. However, these concentrations only remained for periods of minutes due to the intermittent nature of drilling discharges from the MODU. For context, during cyclones and storms TSS concentrations of tens or hundreds of mg/L over a few hours are common in tropical shallow-water reef environments (Ref. 285). On this basis, CAPL expects that changes to water quality will predominantly be limited to within hundreds of metres and up to ~1 km of the discharge source.

The whole fluids and fluid components of the WBFs currently in use are ‘non-toxic’ or ‘almost non-toxic’ (Ref. 51). Similarly, many drilling fluid additives that are likely to be used, such as barite,

bentonite, or guar gum, are listed as an “E” Category fluids under the Offshore Chemical Notification Scheme (OCNS) and considered to pose little or no risk to the environment (PLONOR). Given their inert nature, adverse impacts to water quality from additives to WBF are not predicted to occur.

NADF use a non-aqueous base fluid, with water and chemical additives. The environmental effects of NADF are determined by the base fluid used; however the additives typically adsorb to particles in the cuttings (Ref. 154). NADF cuttings are hydrophobic and do not disperse or dissolve in the water column (Ref. 154). As such, they are not expected to dissolve into the water column.

Most of the metals detected in drilling muds are primarily trace impurities in barite, bentonite clay, or the sedimentary rocks (drill cuttings) in the formations penetrated by the drill bit (Ref. 206). A study investigating barite solubility and the release of trace metal compounds to the marine environment found that during one week of exposure of barite in seawater, <1% of the mercury, lead and cooper, and 15% of cadmium dissolved from the barite (Ref. 257). However, barite has very low concentrations of these components to begin with (Ref. 283) and it is referred to as practically inert from a toxicological perspective (Ref. 257). Considering the low concentrations of heavy metals within stock barite and combined with the low proportion of barite within a drilling fluid, the discharge of drilling fluids is not expected to have a significant adverse impact on water quality via the dissolution of metals.

Given the mixing potential for these discharges influenced by oceanic currents, impacts to water quality will be limited in duration and water quality is expected to rapidly recover following cessation of the discharges. Given the potential for limited environmental impact (i.e. within close proximity to the discharge point), CAPL has ranked this consequence as Minor (5).

Alteration/smothering of benthic habitat

Metal cuttings (swarf) will be generated from well abandonment activities. They are generated at the seafloor, and will remain in-situ at the seabed directly adjacent to the wellhead. Given the volumes of swarf that are generated from this activity (<0.01 m^3), the focus of impacts to seabed will focus on the discharges of drilling cuttings and associated fluids.

The main environmental disturbance from discharging drilling cuttings and fluids is associated with the smothering and burial of sessile benthic and epibenthic fauna (Ref. 145). Neff (Ref. 147) suggests that synthetic-based mud-coated cuttings tend to clump and settle rapidly as large particles over a small area near the discharge point and tend not to disperse rapidly, indicating that when drilling with synthetic-based muds, extent of dispersion is expected to decrease, but thickness of cuttings piles is expected to increase.

Many studies have shown that the effects on seabed fauna and flora from the discharge of drilling cuttings with WBFs are subtle, although the presence of drilling fluids in the seabed close to the drilling location (<500 m) can usually be detected chemically (Ref. 148, Ref. 149, Ref. 150, Ref. 151). Monitoring and modelling undertaken by Jones et al. (Ref. 285) of a drilling campaign on the NWS, indicated that an area up to ~50 m from the drilling site showed a build-up of WBF cuttings and muds. Beyond this distance, the build-up decreased and gradually thinned to a veneer of fine sediments. Overseas studies (Ref. 152, Ref. 153) compared pre and post-drilling ROV surveys and documented physical smothering effects from WBF cuttings within 100 m of the well. Outside the area of smothering, fine sediment was visible on the seafloor up to at least 250 m from the well. Similarly, Gates and Jones (Ref. 204) compared pre and post-drilling ROV transects, and identified that cuttings were visible extending over 100 m from the well 76 days after drilling completion, reducing to ~60 m from the well by three years after. Density of benthic megafauna within this disturbance area was lower than pre-drill transects (Ref. 204). On this basis, CAPL conservatively expects that these discharges have the potential to alter or smother benthic habitat conservatively within 50-500 m of the release location.

The benthic habitat within the OA is expected to predominantly be soft substrate (Section 4.3.1). The values and sensitivities within the OA with the potential to be impacted by seabed disturbance includes the following KEF:

- continental slope demersal fish communities.

Bacteria and fauna present on the continental slope are the basis of the food web for demersal fish and higher-order consumers in this KEF system (Ref. 72). Although physical habitat modification is considered a pressure of potential for this KEF, this modification has been associated with fishing activities (Ref. 72). The habitat type within the OA (i.e. soft sediment, typically unvegetated, and with low benthic invertebrate habitation) is widespread through the region.

Neff (Ref. 147) found that recolonisation of synthetic-based, mud-cuttings piles in cold-water marine environments began within one to two years of ceasing discharges once the hydrocarbon component of the cutting piles biodegraded. Ecological recovery of benthic communities usually

begins shortly after drilling activities are complete and is often well advanced within a year (Ref. 158). Additional studies indicate that benthic infauna and epifauna recover relatively quickly, with substantial recovery in deepwater benthic communities within three to ten years (Ref.153).

Shell Malaysia compared seabed conditions one month and one year after discharge of drill cuttings from shallow and deep water wells drilled using synthetic-based muds (Ref. 205). The synthetic based muds were either paraffin (e.g. Saraline 185V) or olefin based. Samples collected post drilling using paraffins as the synthetic base fluid showed limited areal coverage, predominately within 150 m of discharge and at depths <6 cm (Ref. 205). The farther station at 250 m showed approximately 50% of the surface concentration at 150 m and *de minimus* deposition below 4 cm (Ref. 205).

Jones et al. (Ref. 152, Ref. 153) considered habitat recovery following deposition of WBF and cuttings. After three years, there was significant removal of cuttings particularly in the areas with relatively low initial deposition (Ref. 155). The area impacted by complete cuttings cover had reduced from 90 m to 40 m from the drilling location, and faunal density within 100 m of the well had increased considerably and was no longer significantly different from conditions further away.

As soft sediment benthic communities are known to recover over a longer period of time (Ref. 153), the potential impacts associated with this program are considered to be localised long-term change of habitat and thus the consequence is Moderate (4).

Indirect impacts to fauna arising from chemical toxicity

The total discharge volumes of drilling cuttings and associated fluids are outlined in Table 3-2. Additionally, an estimate ~25 m^3 of each bulk product (i.e. barite and cement) may remain at the end of the exploration drilling activity. If this bulk product is discharged (refer to Figure 7-1 for management options), it will be discharged as a liquid (mud or slurry) close to the seabed.

The whole fluids and fluid components of the WBFs currently in use are ‘non-toxic’ or ‘almost non-toxic’ (Ref. 51). Similarly, many drilling fluid additives, including potential bulk products, that are likely to be used, such as barite, bentonite, or guar gum, are listed as an “E” Category fluids under the OCNS and considered to PLONOR.

Barium has been frequently used as a tracer of drilling fluid discharges (Ref. 255). International Association of Oil & Gas Producers (IOGP,Ref. 154) summarised several field studies of cuttings and associated WBFs from top-hole drilling—they found that cuttings could be detected visually or as elevated barium concentrations in benthic sediments within 10–150 m of the discharge, with a greater spread down-current. Jones et al. (Ref. 285) detected elevated sediment barium concentrations of up to 3 g/kg at 50 m, decreasing with increasing distance away from the wells to 1.2 g/kg and 0.75 g/kg at 100 m and 200 m, respectively. Other studies (e.g. Ref. 255) indicate barium sediment concentrations may be slightly elevated (tens of mg/kg) up to 3,000 m from drilling locations before decreasing to background levels. There are no sediment quality guidelines for barium, however, the drilling additive barite has a low solubility in seawater (Ref. 256). Barite has been referred to as practically inert from a toxicological perspective (Ref. 257).

Barite and bentonite may contain some heavy metal concentrations. Most of the metals detected in drilling muds are present primarily as trace impurities in barite, bentonite clay, or the sedimentary rocks (drill cuttings) in the formations penetrated by the drill bit (Ref. 206). The metals of environmental concern (because of their potential toxicity and persistence) that may be present in some drilling mud barites include cadmium, chromium, copper, mercury, lead, and zinc. These metals are present in barite primarily as inorganic, insoluble mineralised sulphide salts (Ref. 206), and have limited environmental mobility and low bioavailability (Ref. 206). The *Environmental, Health, and Safety Guidelines Offshore Oil and Gas Development* (Ref. 207) set stock barite limits of 1 mg/kg and 3 mg/kg for mercury and cadmium, respectively. These values are representative of the total heavy metal concentrations in barite (both soluble and insoluble). A study investigating barite solubility and the release of trace metal compounds to the marine environment found that during one week of exposure of barite in seawater, <1% of the mercury, lead and cooper, and 15% of cadmium dissolved from the barite (Ref. 257).

Given the low concentrations of heavy metals, including mercury and cadmium in stock barite and due to the low solubility of barite and metal sulphides in seawater, it is expected that environmental consequences associated with the presence of trace heavy metals in barite will be negligible.

Therefore, while trace levels of heavy metals may be released to the marine environment, and consequently have the potential to become bioavailable to, and bioaccumulate within, benthic invertebrates, the impact is considered to be limited given the limited concentrations and volumes of metals discharged.

Therefore, as WBFs are inherently less toxic, NADF was used for the remainder of this evaluation. NADF cuttings are hydrophobic and do not disperse or dissolve in the water column

(Ref. 154); and as such, they are not expected to dissolve into the water column. Neff (Ref. 146) states that in well-mixed oceans waters (as is the case within the OA), the drilling cuttings and fluid plume is diluted by more than 100-fold within 10 m of the discharge, following dilution, concentrations would be well below acute impact levels. Conservatively, CAPL expects that changes to water quality, and subsequently the potential to cause acute and chronic impacts to marine fauna, is limited to within hundreds of metres of the discharge source.

The values and sensitivities with the potential to be exposed to chemical toxicity from cuttings with adhered drilling fluids include:

- continental slope demersal fish communities (KEF)
- Pygmy Blue Whale (migration BIA).

Marine fauna most sensitive to changes in water quality within 200 m of the discharge are species that are sedentary within the discharge plume and thus exposed for a prolonged period of time. Marine fauna found in the water column, such as fish, marine mammals, and marine reptiles, are expected to actively avoid discharge plumes and associated turbidity and toxicity within the water column (Ref. 154; Ref. 349) and no site attached species are expected to occur given the absence of suitable habitat in these water depths.

The Continental slope demersal fish communities KEF overlaps with the OA; however, the habitat type within the OA (i.e. soft sediment, typically unvegetated, and with low benthic invertebrate habitation) is widespread in the region (Ref. 72). Consequently, impacts to the values and sensitivities of this KEF are expected to be limited to the localised and small footprint of the discharges.

On review, the *Conservation Management Plan for the Blue Whale* (Ref. 59) does not list water quality as a key threat to the species. The relevant BIAs do not suggest sedentary behaviour to occur within the OA. Consequently, only transient individuals would have the potential to be exposed to these discharges.

Based on the nature of receptors, extent of exposure and duration of the activity, these discharges are expected to result in localised, short-term impacts to a small number of individuals and thus CAPL has ranked the consequence as Minor (5).

Changes to cultural heritage values

As discussed in Section 4.6, there are no World, National, or Commonwealth heritage listed places or sites, and no protected UCH sites or artefacts have been identified within the OA. Therefore, no impacts to known protected seabed-based UCH (e.g. shipwrecks or archaeology), including First Nations UCH, are expected to occur.

Given known sea level history, the OA (which occurs in water depths >940 m), would not have been emergent land during the extended history of First Nations occupation of Australia. At the time of writing, CAPL understands through consultation with the relevant First Nations people and/or representative bodies that there are no known artefacts or specific sites of cultural value associated with the seabed within the OA. As such, it is anticipated that tangible heritage features would not be significantly adversely affected from planned subsea discharges within the OA.

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. Specific tangible values of Sea Country identified through consultation was the ocean and marine fauna (Table 4-14). The consequence evaluations to related receptors are provided above.

Intangible cultural heritage refers to the “practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage” (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from drill cuttings and fluids discharges within the OA is anticipated. The consequence evaluation to marine fauna is provided above, and were assessed as having a localised, short-term environmental impact, and is not expected to affect the overall population of the species. The consequence evaluation to benthic habitat is provided above, and it was assessed as localised long-term change. However, as described in the above evaluation the benthic habitats present within the OA are predominantly soft substrate. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of the exploration drilling activity (~50 days), a significant

adverse change to cultural heritage values attributed to the offshore marine area from planned discharges within the OA is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Incidental (6).

ALARP decision context justification

Offshore drilling operations, and the subsequent planned drilling discharges, are a well understood and practised activity within the industry. The control measures to manage the impacts and risks associated with these planned discharges are considered standard industry practice. These are well understood and implemented by the petroleum industry and CAPL.

Given the intermittent nature of the discharges, rapid dilution, absence of sensitive features, and transient nature of marine fauna in this area, the potential impact is expected to be Moderate based on impacts to benthic habitats supporting the KEF within the OA. Although there is the potential for a moderate impact, CAPLs knowledge of benthic habitat throughout the OA indicate this habitat is expected to be limited to soft sediment communities.

During relevant persons consultation, no objections or claims where raised regarding planned discharges from drilling operations arising from the activity.

The impacts and risks associated with these planned discharges are considered lower-order impacts and risks in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.

Good practice control measures

Control Measure	Description
Hazardous materials selection process	As part of the hazardous materials selection process, hazardous materials that will be discharged to the environment will undergo a detailed environmental assessment, as per CAPL's *Hazardous Materials Management Procedure* (Ref. 40).
Wells fluid field guidelines offshore	Discharges will be managed as per CAPL's *Wells Fluid Field Guidelines Offshore 2020* (Ref. 155), including: • no whole NADF will be discharged to the environment • maintain a <10% w/w synthetic based fluid on dry cuttings averaged over the combined well sections drilled with NADF • NADF will not be used to drill top holes • ensure that NADF tank wash discharges have <1% v/v residual synthetic based oil. These guidelines provide a guide to fluids management procedures, and ensure best practices are documented and applied across operations
Stock barite management	Table 1 of the *Environmental, Health, and Safety Guidelines Offshore Oil and Gas Development* (Ref. 207) provides the following limits for barite: • mercury: maximum 1 mg/kg dry weight in stock barite • cadmium: maximum 3 mg/kg dry weight in stock barite The Environmental, Health, and Safety Guidelines are considered reference documents containing general and industry specific examples of food international industry practice. CAPL has adopted the recommended stock barite mercury limit as a control measure to address reducing releases of mercury to the environment as also required by the Minamata Convention.
Solids control equipment	The industry-standard cuttings treatment technology comprises a combination of shale shakers, cuttings dryers, and centrifuges. This arrangement reduces the overall volume of synthetic base oil adhered drilling fluids discharged on drill cuttings consistently to < 6.9% w/w and addresses the *Minamata Convention* requirement to control releases of drill cuttings containing mercury.
Relevant persons consultation—Ongoing consultation (First Nations people and/or	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum

representative bodies)	activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.

Additional control measures and cost benefit analysis

Control Measure	Benefit	Cost
Limit NADF to contingency use only	WBF are inherently less toxic than NADF and therefore, limiting NADF to contingency use only will result in a reduction of potential environmental impacts and risks.	NADF has been used in applications where wellbore instability has been observed, and helps inhibit hydrates, limits differential sticking, increases penetration rates, and is qualified for use at high bottom hole temperatures. Notwithstanding, CAPL has determined that a technically suitable WBF solution is available for the drilling program and therefore the control measure of limiting NADF use to contingency use only has been adopted. NADF use will be retained as a contingency to account for potential conditions that may be encountered during the drilling program.
Submerged cuttings outlet	Setting the cuttings discharge outlet below the water line will reduce the dispersal distance of cuttings and drilling fluids.	Costs associated with implementing this control measure are not considered grossly disproportionate to the environmental benefit of reducing the dispersal distance of cuttings and drilling fluids. Therefore, the control has been adopted.
Additional solids control equipment - thermal desorption	Thermal desorption can result in very dry solids with residual synthetic base fluid on cuttings reduced to less than 1% w/w. This is the most viable equipment in reaching this level of performance, and thus is the most viable option in reducing the volume of drilling fluids adhered to cuttings and potential toxicity effects. However, this method also reduces cuttings particle sizes, resulting in increasing the plume extent and potential turbidity impacts.	This technology is not currently used in Australia and may result in operational inefficiencies. Modification to existing MODUs would be either impracticable due to MODU design or result in high costs. This technology is also energy intensive often requiring 1 to 1.5 Megawatts of additional power, which may not be available on most MODUs. Further assessment of deck space and loading associated engineering, and modification would also be required. In addition, as a technically suitable WBF solution has been identified for the drilling program, NADF will be limited to contingency use only, further reducing the benefit of thermal desorption for this drilling program. The costs and additional risks of implementing this option are considered to outweigh the small environmental benefit gained. Therefore, the control has not been adopted.

Contain and transfer cuttings to shore for treatment	Containing and transferring cuttings to shore will reduce impacts and risks to benthic communities; however, this control measure is considered to provide a small environmental benefit, given the extent of impact from drilling cuttings discharges (conservatively estimated as 500 m from the release area). There are limited values and sensitivities in the OA with the potential to be exposed, therefore, recovery is expected over time.	This option has high costs associated with the 'skip and ship' of all cuttings, requiring additional load-outs, dedicated vessels and docking time, and increases in emissions associated with the logistics chain. This control measure may also result in significant port congestion associated with time delays from transferring cuttings from the vessel to trucks for transport to the disposal location increasing timing and additional Health, safety, and environment (HSE) risks. In addition, the well location is in deep (~958 m), offshore (~95 km to the nearest land) waters and the substrate comprises of soft sediments (Section 4.3.1). The costs and additional risks of implementing this option are considered to outweigh the small environmental benefit gained. Therefore, the control has not been adopted.
Use riserless mud recovery (RMR) system for top hole section	RMR has the potential to reduce direct seabed deposition cuttings volumes from riserless drilling. However, RMR can only be used once the low pressure (LP) wellhead is in place as RMR equipment needs to connect directly to the LP wellhead; therefore, the only benefit for the well would be to reduce direct seabed deposition cuttings volumes from the surface hole (riserless) section. If RMR is deployed successfully, the cuttings returned to the rig still need to be disposed of. The options to dispose of cuttings when returned to the MODU are: • discharge overboard • contain and transport to shore for disposal These are briefly described in the Cost column. Because there are no known wellbore stability issues in the riserless section (based on previous drilling experience in this area), and because this section will be drilled with sea water and high-viscosity sweeps considered to be inert in the marine environment, naturally occurring benign materials, or readily biodegradable organic polymers with a very fast rate of biodegradation in the marine environment, there is little benefit other than reducing quantities of direct deposition.	RMR is typically used where borehole stability concerns exist, requiring an engineered drilling fluid system to be used in place of seawater and gel sweeps. RMR may also be used in this situation to enable the hole section to be drilled deeper, potentially eliminating a section of casing. Based on successful drilling experience in this area, the costs associated with the implementation of this control measure is only considered against environmental benefits, as there are no well construction or borehole stability benefits for implementing this technology. Additional tangible costs include ~2 extra rig days to rig up, test, and operate the equipment (with a conservative daily rig rate of $750,000, this is expected to cost at least $1,500,000), plus RMR equipment rental and additional trained personnel (~$1,000,000). Thus, the overall cost of implementing this control measure would be >$2,500,000. In addition, the well location is in deep (~958 m), offshore (~95 km to the nearest land) waters and the substrate comprises of soft sediments (Section 4.3.1). Consequently, the environmental benefit is considered negligible relative to the financial costs associated with its implementation.

		Therefore, this control measure has not been adopted.
Monitoring use of barite and cement	Monitoring the use of barite and cement will help to identify and reduce excess bulk products at the end of the exploration drilling activity. The barite bulk volume to be maintained on the MODU through to the end of the drilling operations (and supply of additional barite from onshore) will be managed and minimised to enable maintenance of the planned drilling fluid density and allow for a contingency drilling fluid density increase of 1 ppg for well control purposes. Cement bulk volume on the MODU will be managed and minimised to enable all planned well construction cementing and P&A cement plugs to be installed, and will account for potential contingency cementing operations.	Costs associated with implementing this control measure are not considered grossly disproportionate to the environmental benefit of reducing the excess bulk products. Therefore, the control has been adopted.
Unused bulk product managed as per Figure 7-1 at end of drilling program	CAPL is committed to investigating available solutions for management of excess bulk products. Passing unused bulk product to the next operator is not always an option (e.g. where bulk barite does not meet the next operators acceptance criteria or there is no contract for the MODU at the end of the campaign). Transport and transfers of bulk products introduce costly technical requirements and additional HSE risks. Barite may contain some trace levels of heavy metals, including mercury. However, these metals are present primarily as inorganic, insoluble sulphide minerals and have limited environmental mobility and low bioavailability (Ref. 206). While restricting overboard discharge would reduce the overall volume of discharge to the marine environment, with controls in place that limit the mercury concentrations in stock barite to ≤1 mg/kg dry weight, the low solubility and inert behaviour of barite in seawater, and the predominantly bare soft substrate habitats, the implementation of the no overboard discharge on unused bulk product management control is considered to be of limited environmental benefit and would not result in a reduction of residual risk of toxicity effects to benthic habitats or marine fauna.	Notwithstanding the HSE risks introduced from needing to transfer and transport onshore, and the limited environmental benefit gained from restricting overboard discharge of unused bulk product at the end of a campaign, CAPL will manage unused bulk product in accordance with Figure 7-1. If unused bulk product cannot be passed on to the next operator, or another MODU in the region, an assessment will be undertaken to ensure discharge to the marine environment only occurs when there are no other safe or feasible options and impacts and risks associated with the discharge can be managed to ALARP and acceptable levels. Consequently, the control has been adopted.
Industry collaboration on	The Australian petroleum industry is currently working to establish an	CAPL is currently involved in the industry collaboration efforts and will

management of unused bulk products	aligned position on management and disposal opportunities for unused bulk products. This includes an assessment of feasible onshore disposal solutions. Participating in industry efforts may help in the identification of feasible improvements to the management of unused bulk products at a regional level and reduce potential impacts and risks associated with disposal.	continue to be involved and monitor progress on improvements to the management of unused bulk products. CAPL is committed to investigating onshore disposal solutions for excess bulk products, and any improvements identified through industry collaboration will be implemented, if deemed ALARP, following the process outlined in Figure 7-1. Consequently, this control has been adopted for use.
Slim hole well design	Implementing a slim hole well design would result in a small, yet direct, reduction of the volumes of cuttings and drilling fluids discharged to the marine environment.	CAPL would be unable to deliver well objectives with a slim hole well design. The well design has already been optimised to minimise the size of hole drilled while still being able to reach the targets and meet evaluation objectives safely. As implementation of a slim hole well design is not considered feasible, this control has not been adopted.
Likelihood and risk level summary		
Likelihood	Due to the extent of potential water quality impacts, lack of sedentary sensitivities, and limited values and sensitivities within the OA, CAPL consider the likelihood of limited impacts to pelagic fauna occurring is Seldom (3).	
Risk level	Low (7)	
Determination of acceptability		
Principles of ESD	The impacts and risks associated with these discharges are not considered as having the potential to affect biological diversity and ecological integrity. The consequence associated with this aspect is Moderate (4) and subsequently the potential for serious or irreversible environmental damage is not expected. Therefore, no further evaluation against the Principles of ESD is required.	
Relevant environmental legislation and other requirements **Internal context**	Legislation and other requirements considered relevant to this aspect include: • *Conservation Management Plan for the Blue Whale (2015-2025)* (Ref. 59) CAPL considers that impact and risk management is consistent with these requirements, as demonstrated below.	
	Requirement	**Demonstration**
	Conservation Management Plan for the Blue Whale 2015–2025 No specific action identified.	N/A
	Minamata Convention Controlling, and where feasible, reducing releases of mercury or mercury compounds to land and water.	Requirement for controlling and reducing releases of mercury has been incorporated into the **stock barite management** and **solids control equipment** control measures.
	The following CAPL management processes or procedures were deemed relevant for this aspect: • *Hazardous Materials Management Procedure* (Ref. 40).	

<table>
<tr><td></td><td colspan="2">• Chevron Australia Wells Fluid Field Guidelines Offshore 2020 (Ref. 155).
Control measures related to each of the above management processes or procedures have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.</td></tr>
<tr><td>External context</td><td colspan="2">During relevant persons consultation, no objections or claims were raised regarding planned discharges from drilling operations arising from the activity.</td></tr>
<tr><td>Defined acceptable level</td><td colspan="2">These impacts and risks are inherently acceptable as they are considered lower order impacts in accordance with Table 5-3. In addition, the potential impacts and risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.
However, in alignment with Section 5.6.2, where the aspect is listed as threat to a protected matter, or identified as a concern to a listed conservation value, CAPL will define an acceptable level of impact that aligns with the objectives of these documents. Objectives of the relevant documents are shown below:
<table>
<tr><th>Plan</th><th>Objective</th></tr>
<tr><td>Conservation Management Plan for the Blue Whale 2015–2025</td><td>Recovery objective: Minimise anthropogenic threats to allow for their conservation status to improve so that they can be removed from the EPBC Act threatened species list.
Interim objective 4 Anthropogenic threats are demonstrably minimised.</td></tr>
</table>
Therefore, CAPL has defined the following acceptable level of impact such that it is not inconsistent with these documents:
• impacts from the petroleum activity are managed such that it would not prevent the long-term recovery of protected species.
CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.</td></tr>
<tr><th>Environmental performance outcome</th><th>Environmental performance standard</th><th>Measurement criteria</th></tr>
<tr><td rowspan="2">(EPO 10) No impacts to benthic habitats or marine fauna outside the OA from planned discharges during the petroleum activity.

(EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.</td><td>(EPS 10.1) Hazardous materials selection process
Fluids planned for discharge are subject to the hazardous materials selection process as per the CAPL Hazardous Materials Management Procedure.</td><td>(MC 10.1.1) Hazardous materials selection process assessment records (or similar).</td></tr>
<tr><td>(EPS 10.2) Wells fluid field guidelines offshore
Drilling fluids management procedures are implemented in accordance with the CAPL Wells Fluid Field Guidelines Offshore 2020, including:
• no whole NADF will be discharged to the environment
• maintain a <10% w/w synthetic base fluid on dry cuttings averaged over the combined well sections drilled with NADF</td><td>(MC 10.2.1) Records show that drilling fluid management procedures were implemented.</td></tr>
</table>

	• NADF will not be used to drill top holes • ensure that NADF tank wash discharges have <1% v/v residual synthetic based oil.	
	(EPS 10.3) Stock barite management Mercury and cadmium concentrations in stock barite will be limited to: • mercury: maximum 1 mg/kg dry weight in stock barite • cadmium: maximum 3 mg/kg dry weight in stock barite.	(MC 10.3.1) Records confirm that stock barite meets the maximum mercury and cadmium concentration specifications.
	(EPS 10.4) Solids control equipment Volumes of drill fluids discharged will be minimised through the use of solids control equipment.	(MC 10.4.1) Records confirm solids control equipment is used and discharge volumes are tracked.
	(EPS 10.5) Limit NADF to contingency use only NADF will be used as a contingency option only.	(MC 10.5.1) If NADF use is required, records confirm the technical justification for its use.
	(EPS 10.6) Submerged cuttings outlet Cuttings discharge outlet will be below the water line.	(MC 10.6.1) Records confirm the cuttings discharge point is set below the water line.
	(EPS 10.7) Monitoring use of barite and cement Use of barite and cement will be monitored to reduce excess of bulk products remaining at the end of the program.	(MC 10.7.1) Records confirm that the use of barite and cement were monitored and excess of bulk products were reduced to the minimum required.
	(EPS 10.8) Unused bulk product Unused bulk product (barite and cement) will be managed as per Figure 7-1 at end of drilling program.	(MC 10.8.1) Records demonstrate that the process outlined in Figure 7-1 was followed for the management of unused bulk product.
	(EPS 10.9) Industry collaboration on management of unused bulk products CAPL will: • continue to be involved in industry collaboration efforts relating to the management of unused bulk products • implement any improvements identified through industry-wide collaboration efforts, if deemed ALARP following the process outlined in Figure 7-1.	(MC 10.9.1) Records demonstrate CAPL is involved in industry collaboration efforts and any improvements are implemented, if deemed ALARP, following in the process outlined in Figure 7-1
	(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) Ongoing consultation with First Nations people and/or representative	(MC 2.2.1) Relevant persons consultation records.

	bodies is undertaken as per the respective engagement plan and/or consultation protocol.	
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation.	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.

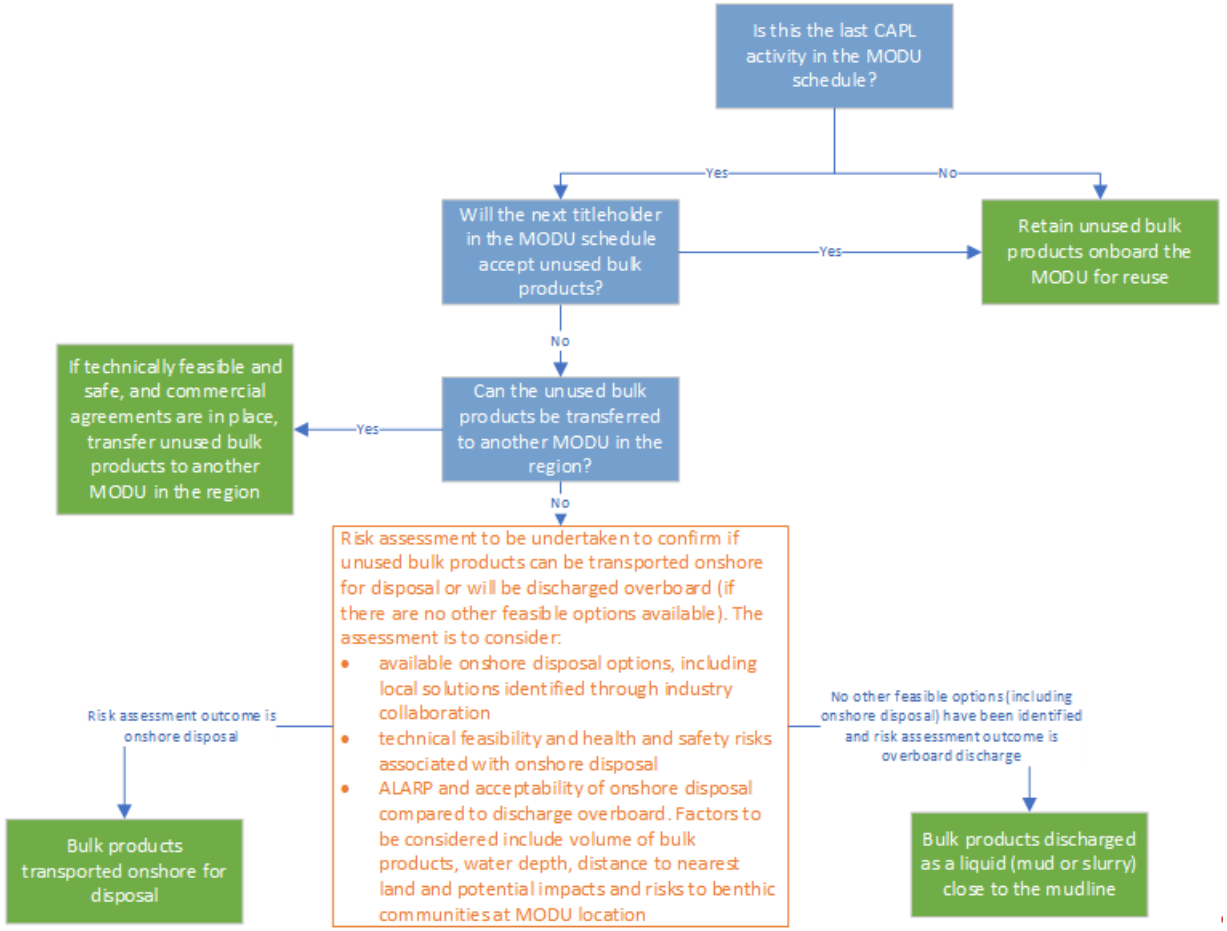


Figure 7-1: Process for management of unused bulk product

7.10 Planned discharges—cement

Source

Activities identified as having the potential to result in planned cement discharges are:

- drilling—cementing operations
- well abandonment—cement cuttings, contaminated cement discharge.

Potential impacts and risks

Impacts	C	Risks	C
Planned cement discharges may result in:		A change in ambient water quality or alteration to benthic habitat may result in:	
• localised and temporary change in water quality	5	• change to cultural heritage values	6
• alteration/smothering of benthic habitat.	4		

Consequence evaluation

Localised and temporary reduction in water quality

Cement related discharges occur both at the seafloor (e.g. during drilling of the top-hole sections), and at the surface once the riser is installed (Section 3.3; Table 3-2). Cement discharges have the potential to result in a localised and temporary reduction in water quality from an increase of suspended material in the water column.

Surface discharges will cause the largest (spatial) changes to water quality given influence by surface currents and wind speeds.

Modelling of cement discharges for another offshore project (Ref. 116) was used as it provides an appropriate (but conservative) comparison of the potential extent of exposure from this activity (cement discharge of ~78 m^3/hour). Two hours after the start of discharge, plume concentrations were determined to be between 5 and 50 mg/L with the horizontal and vertical extents of the plume ~150 m and 10 m, respectively. Five hours after ceasing the discharge, modelling indicates that the plume will have dispersed to concentrations <5 mg/L (Ref. 116). On this basis, CAPL expects that changes to water quality will be limited conservatively to within hundreds of metres of the discharge source.

Given the mixing potential for these discharges influenced by oceanic currents, and impacts to water quality will be limited in duration with water quality expected to rapidly recover following cessation of the discharges. Given the potential for limited environmental impact, CAPL has ranked this consequence as Minor (5).

Alteration/smothering of benthic habitat

Cement related discharges occur both at the seafloor (e.g. during drilling of the top-hole sections), and at the surface once the riser is installed (Section 3.3; Table 3-2). Cement discharges have the potential to smother the receiving benthic habitat.

The majority of these discharges occur during drilling activities and are associated with cementing of the conductor and surface casing strings. The potential impacts of smothering from a surface release are expected to be significantly less, due to small volumes, intermittent nature of these discharges, and high potential for dispersal by ocean currents. This is supported by comparative modelling completed previously for similar discharges (Ref. 116) which indicates that less than 0.1% of the cement solids from discharged cement slurry would be deposited on the seabed within 1.5 km of the point of discharge. Consequently, seabed release of cement is the focus of this assessment.

Cement discharged at the seabed is not expected to disperse as it is designed to set in a marine environment and will therefore set in-situ, limiting the impact to the area directly around the well. BP modelled a 200 T subsurface cement discharge (Ref. 116) and determined that impacts would be limited to a radius of approximately ~10–20 m (depending on height) from the well, resulting in the potential for disturbance of 0.002 km^2.

Although a KEF was identified within the OA, associated with the Continental Slope Demersal Fish Communities, benthic habitat within the OA is expected to comprise soft sediment infauna communities that are widespread and homogenous in the region (Section 4.3.1).

Once discharged cement hardens, the area directly adjacent to the well (10–20 m) will be altered, resulting in the permanent disturbance of seabed habitat within this area (Ref. 116). This impact

on soft sediment communities is not expected to affect the diversity or ecosystem function in this area, however, is considered a long term, localised impact thus has been assigned a Moderate (4) consequence.

Changes to cultural heritage values

As discussed in Section 4.6, there are no World, National, or Commonwealth heritage listed places or sites, and no protected UCH sites or artefacts have been identified within the OA. Therefore, no impacts to known protected seabed-based UCH (e.g. shipwrecks or archaeology), including First Nations UCH, are expected to occur.

Given known sea level history, the OA (which occurs in water depths >940 m), would not have been emergent land during the extended history of First Nations occupation of Australia. At the time of writing, CAPL understands through consultation with the relevant First Nations people and/or representative bodies that there are no known artefacts or specific sites of cultural value associated with the seabed within the OA. As such, it is anticipated that tangible First Nations heritage features would not be significantly adversely affected from cement discharges within the OA.

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. One of the specific tangible values of Sea Country identified through consultation was the ocean (Table 4-14). The consequence evaluations to related receptors are provided above.

Intangible cultural heritage refers to the “practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage” (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from cement discharges within the OA is anticipated. The consequence evaluation to benthic habitat is provided above, and it was assessed as localised long-term change. However, as described in the above evaluation the benthic habitats present within the OA are predominantly soft substrate. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of the exploration drilling activity (~50 days), a significant adverse change to cultural heritage values attributed to the offshore marine area from cement discharges within the OA is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Incidental (6).

ALARP decision context justification

Offshore drilling operations, and the subsequent planned discharges, are a well understood and practised activity within the industry. The control measures to manage the impacts and risks associated with these planned discharges are considered standard industry practice. These are well understood and implemented by the petroleum industry and CAPL.

During relevant persons consultation, no objections or claims where raised regarding planned discharges from subsea operations arising from the activity.

The impacts associated with these discharges are lower-order impacts in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.

Good practice control measures

Control measure	Source
Hazardous materials selection process	As part of the hazardous materials selection process, hazardous materials that will be discharged to the environment will undergo a detailed environmental assessment, as per CAPL’s *Hazardous Materials Management Procedure* (Ref. 40).
Drilling and cementing procedures	It is standard industry practice for drilling and cementing procedures to be developed prior to activities commencing. These procedures describe specific well locations, design, and fluid volumes. Specifically, the quantity of cement to be used for each cementing operation will be calculated, and

	the volumes mixed will not significantly (>30%) exceed the volumes identified in the cementing procedure. Managing excess cement incurs engineering effort and has associated costs. Therefore, reducing cement quantities to ALARP reduces material load-out costs and load-back of unused cement.
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.
Additional control measures and cost benefit analysis	
Control measure	**Benefit** / **Cost**
N/A	N/A / N/A
Likelihood and risk level summary	
Likelihood	Due to the localised nature of cement discharges within the OA, and with the control measures in place, the likelihood of impacts to cultural heritage values from air emissions is Rare (6).
Risk level	Very low (10)
Determination of acceptability	
Principles of ESD	The potential impacts associated with this aspect is limited to localised disturbance of benthic communities. Given the benthic habitat expected to be present in this area, this impact is not considered to have the potential to affect biological diversity and ecological integrity. The consequence associated with this aspect is Moderate (4) and subsequently the potential for serious or irreversible environmental damage is not expected. Therefore, no further evaluation against the Principles of ESD is required.
Relevant environmental legislation and other requirements	No legislation or other requirements were considered relevant to this aspect.
Internal context	The following CAPL management processes or procedure were deemed relevant for this aspect: • *Hazardous Materials Management Procedure* (Ref. 40). Control measures related to the above management procedure have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.
External context	During relevant persons consultation, no objections or claims were raised regarding planned discharges from subsea operations arising from the activity.
Defined acceptable level	These impacts are inherently acceptable as they are considered lower-order impacts in accordance with Table 5-3. In addition, the potential impacts and risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.

	CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.	
Environmental performance outcome	**Environmental performance standard**	**Measurement criteria**
(EPO 10) No impacts to benthic habitats outside of the OA from planned discharges during the petroleum activity.	**(EPS 10.1) Hazardous materials selection process** Fluids planned for discharge are subject to the hazardous materials selection process as per the CAPL *Hazardous Materials Management Procedure.*	(MC 10.1.1) Hazardous materials selection process assessment records (or similar).
	(EPS 10.10) Drilling and cementing procedures Detailed drilling and cementing procedures will be developed prior to activities commencing.	(MC 10.10.1) Records show that drilling and cementing procedures were developed.
	(EPS 10.11) Drilling and cementing procedures Detailed drilling and cementing procedures will be implemented, including: • quantity of cement mixed for each operation will not significantly (>30%) vary from the volume calculated.	(MC 10.11.1) Records show that drilling and cementing procedures were implemented.
(EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)** Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol**.**	(MC 2.2.1) Relevant persons consultation records.
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation**.**	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.

7.11 Planned discharges—BOP fluids

Source			
Activities identified as having the potential to result in planned BOP fluid discharges are: • drilling—pressure and function testing of the BOP.			
Potential impacts and risks			
Impacts	**C**	**Risks**	**C**

Planned subsea BOP fluid discharges may result in: • localised and temporary change in water quality.	6	A change in ambient water quality may result in: • changes to cultural heritage values.	6

Consequence evaluation

BOP fluid discharges occur at the seafloor during regular function and pressure testing (Section 3.3.4; Table 3-2). BOP fluid discharges are intermittent, non-continuous, and of short duration, and as such frequency of exposure is limited. These fluids have positive buoyancy, upon release the plume will dilute and disperse.

As detailed in Section 3.3.4 the BOP control system discharges water-based hydraulic control fluids into the sea upon operation. A full function test, which closes and opens all rams and annulars, discharges approximately 2,500 L of diluted control fluid weekly. The control fluid is a water-soluble product and is diluted to approximately 1–3% with potable water. The control fluid is fully biodegradable and expected to readily disperse after discharge from the BOP to the marine environment. The discharges occur within the OA at the well or near the drill centre, which is located in a water depth of depth of ~958 m.

Modelling undertaken for another offshore drilling project indicates that a release of BOP fluids during function testing is expected to reach a dilution of 3,000 times within a maximum displacement plume of 98 m (Ref. 116). Based on this information, it is expected concentrations of BOP control fluid would be approximately 10 ppm within 100 m of the BOP. Using a conservative ocean current speed of 0.1 m/s [noting that currents in the region can be up to 0.25 m/s (Ref. 156, Ref. 157)], fluids would be expected to travel 100 m (and thus reach concentrations of 10 ppm) in ~16 minutes.

On the expectation that a subsurface release of BOP fluids will result in changes to water quality within 100 m of the release location and recover rapidly within minutes of release, this discharge is expected to result in a limited impacts to water quality, thus have been ranked as an Incidental (6) consequence.

Changes to cultural heritage values

There are no World, National, or Commonwealth heritage listed places or sites within the OA (Section 4.6).

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. One of the specific tangible values of Sea Country identified through consultation was the ocean (Table 4-14). The consequence evaluations to related receptors are provided above.

Intangible cultural heritage refers to the “practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage” (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from BOP fluid discharges within the OA is anticipated. The consequence evaluation to a change in water quality is provided above, and it was assessed as limited and short term impact. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of the exploration drilling activity (~50 days), a significant adverse change to cultural heritage values attributed to the offshore marine area from BOP fluids discharges within the OA is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Incidental (6).

ALARP decision context justification

Offshore drilling operations, and the subsequent planned discharges, are a well understood and practised activity within the industry. The control measures to manage the impacts and risks associated with these planned discharges are considered standard industry practice. These are well understood and implemented by the petroleum industry and CAPL.

During relevant persons consultation, no objections or claims where raised regarding these discharges arising from the activity. The impacts associated with these discharges are considered lower-order impacts in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.		
Good practice control measures		
Control measure	**Description**	
Hazardous materials selection process	As part of the hazardous materials selection process, hazardous materials that will be discharged to the environment will undergo a detailed environmental assessment, as per CAPL's *Hazardous Materials Management Procedure* (Ref. 40) and Section 8.3.1.3.	
Critical equipment maintained.	Critical equipment will be identified (e.g. BOP) and maintained in accordance with manufacturers specifications. Regular maintenance ensures the integrity of critical equipment is maintained, which ensures optimal performance and reduces the risk of failure.	
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.	
Additional control measures and cost benefit analysis		
Control measure	**Benefit**	**Cost**
Monitor and record BOP discharges	Monitoring and recording BOP discharges to the ocean during the petroleum activity helps identify whether the estimates were accurate and strategies to reduce discharges may be identified.	The cost to implement this control is negligible and therefore, control measure has been adopted for use.
Limit BOP fluid product use to OCNS Group E products	OCNS Group E products have the lowest toxicity and highest biodegradability and therefore selection of Group E products may reduce potential impacts and risks associated with discharges to the marine environment. However, given the well location is in deep (~958 m), offshore (~95 km to the nearest land) waters and the substrate comprises of soft sediments (Section 4.3.1) and given the impact associated with discharge of BOP fluids has been assessed as Incidental (6), it is unlikely introducing this limitation would result in a material environmental benefit.	The BOP is safety critical equipment required for the prevention of uncontrolled releases of oil, gas and other fluids during drilling. Limiting BOP fluid product use to OCNS Group E products may introduce additional complexity in the management of well control risks and could introduce significant additional costs in change out of products. BOP fluids will be managed in accordance with the *Hazardous Materials Management Procedure* and given the consequence of BOP fluid discharges has been assessed as Incidental (6), the introduction of further limitations has been assessed as grossly disproportionate to any potential environmental benefits. Therefore, this control has not been adopted.

Likelihood and risk level summary		
Likelihood	Due to the localised and temporary nature of BOP fluids discharges within the OA, and with the control measures in place, the likelihood of impacts to cultural heritage values from BOP fluid discharges is Rare (6).	
Risk level	Very low (10)	
Determination of acceptability		
Principles of ESD	The potential impacts associated with this aspect is limited to a short-term direct reduction in water quality in a localised area, which is not considered as having the potential to affect biological diversity and ecological integrity. The consequence associated with this aspect is Incidental (6). Therefore, no further evaluation against the Principles of ESD is required.	
Relevant environmental legislation and other requirements	No legislation or other requirements were considered relevant to this aspect.	
Internal context	The following CAPL management processes or procedure were deemed relevant for this aspect: • *Hazardous Materials Management Procedure* (Ref. 40) Control measures related to the above management procedure have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.	
External context	During relevant persons consultation, no objections or claims were raised regarding these discharges arising from the activity.	
Defined acceptable level	These impacts are inherently acceptable as they are considered lower-order impacts in accordance with Table 5-3. In addition, the potential impacts and risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan. CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.	
Environmental performance outcome	**Environmental performance standard**	**Measurement criteria**
(EPO 11) Reduce the risk of impacts to sensitive environmental receptors within the OA from planned discharges during the petroleum activity.	**(EPS 10.1) Hazardous materials selection process** Fluids planned for discharge are subject to the hazardous materials selection process as per the CAPL *Hazardous Materials Management Procedure* and Section 8.3.1.3.	(MC 10.1.1) Hazardous materials selection process assessment records (or similar).
	(EPS 11.1) Equipment maintenance Critical equipment will be maintained in accordance with manufacturers specifications.	(MC 11.1.1) Records confirm the BOP is maintained in accordance with manufacturer specifications.
	(EPS 11.2) Monitor and record BOP discharges BOP discharges into the ocean are monitored and recorded during the petroleum activity.	(MC 11.2.1) Records show that BOP discharges were monitored and recorded.
(EPO 2b) No adverse change	**(EPS 2.2) Relevant persons consultation—Ongoing**	(MC 2.2.1) Relevant persons consultation records.

to First Nations cultural heritage values from the petroleum activity.	**consultation (First Nations people and/or representative bodies)** Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol.	
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation.	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.

7.12 Unplanned release—waste

Source

Activities identified as having the potential to result in the unplanned release of waste are:

- MODU—general MODU operations within the OA during the exploration drilling activity
- field support—general vessel operations within the OA during the exploration drilling activity.

Potential impacts and risks

Impacts	C	Risks	C
N/A	–	Unplanned release of waste to the environment may result in:	
		• marine pollution resulting in entanglement or injury of marine fauna	6
		• changes to cultural heritage values.	6

Consequence evaluation

Marine pollution resulting in injury and entanglement of marine fauna

Waste accidently released to the marine environment may occur within the OA. If hazardous or non-hazardous waste is lost overboard, the extent of exposure to the environment is limited.

Marine fauna most at risk from marine pollution include marine reptiles and seabirds, through ingestion or entanglement (Ref. 158; Ref. 159). Ingestion or entanglement has the potential to limit feeding or foraging behaviours and thus can result in marine fauna injury or death. In 2003, “[i]njury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris” was listed as a key threatening process under the EPBC Act (Ref. 158). However, the national Threat Abatement Plan (Ref. 158) identifies that harmful marine debris includes “land-sourced garbage, fishing gear from recreational and commercial fishing abandoned or lost to the sea, and vessel-sourced, solid, non-biodegradable floating materials disposed of or lost at sea”. This type of waste is not associated with the activities described under this EP.

Given the restricted exposures and the limited quantity of waste with the potential to cause marine pollution that is expected to be generated from petroleum activities, it is expected that any impacts from marine pollution would result in limited impacts to individuals. Thus, CAPL ranked this consequence as Incidental (6).

Changes to cultural heritage values

There are no World, National, or Commonwealth heritage listed places or sites within the OA (Section 4.6).

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. One of the specific tangible values of Sea Country identified through

consultation was marine fauna (e.g. whales, turtles). The consequence evaluations to these receptors are provided above.

Intangible cultural heritage refers to the “practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage” (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from an unplanned release of waste within the OA is anticipated. The consequence evaluation for marine fauna is provided above; if an interaction (e.g. entanglement) did occur, any impact would be to individuals, and is not expected to affect the overall population of the species. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected from an unplanned release of waste within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of the exploration drilling activity (~50 days), a significant adverse change to cultural heritage values attributed to the offshore marine area from an unplanned release of waste within the OA is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Incidental (6).

ALARP decision context justification

Offshore commercial vessel operations, and the subsequent management of waste, are commonplace and well-practiced activities within the industry. The control measures to manage the risk associated with the unplanned release of waste are well defined via legislative requirements that are considered standard industry practice. There is a good understanding of the release pathways, and the control measures required to manage these events are well understood and implemented by the petroleum industry and CAPL.

During relevant persons consultation, no objections or claims where raised regarding waste management arising from the activity.

An unplanned release of waste is considered lower-order impacts in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.

Good practice control measures

Control measure	Description
Marine Order 95 (Marine pollution prevention – garbage)	MARPOL 73/78 is the International Convention for the Prevention of Pollution from Ships and is aimed at preventing both accidental pollution, and pollution from routine operations. Specifically, MARPOL 73/78 Annex V requires that a garbage management plan and garbage record book is in place and implemented, and describes various requirements that are to be applied when managing waste offshore. Requirements include: • segregating waste on the MODU and support vessels • storing solid wastes in designated areas before sending them to shore for recycling, disposal, or treatment • waste receptacles that contain light-weight, solid waste will be covered to prevent waste from blowing overboard • no discharge of waste or plastic products from general operational activities or maintenance. Marine Order 95 (Marine pollution prevention – garbage) gives effect to MARPOL 73/78 Annex V.
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3).

	Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.

Additional control measures and cost benefit analysis

Control measure	Benefit	Cost
N/A	N/A	N/A

Likelihood and risk level summary

Likelihood	Marine pollution arising from mismanaged waste offshore has occurred previously in the industry but is not expected to occur during these activities, given the control measures in place. As such, the likelihood of incidental consequences to values and sensitivities from an unplanned release of waste is considered Remote (5).
Risk level	Very low (10)

Determination of acceptability

Principles of ESD	The potential risk associated with this aspect is limited to individuals and consequently is not expected to affect biological diversity and ecological integrity. The consequence associated with this aspect is Incidental (6). Therefore, no further evaluation against the Principles of ESD is required.
Relevant environmental legislation and other requirements	Legislation and other requirements considered relevant to this aspect include: • Marine Order 95 • MARPOL 73/78 • *Threat Abatement Plan for the impacts of Marine Debris on Vertebrate Wildlife of Australia's Coasts and Ocean* (Ref. 158) • *Wildlife Conservation Plan for Migratory Shorebirds* (Ref. 108) • *Wildlife Conservation Plan for Seabirds* (Ref. 220) • *Conservation Management Plan for the Blue Whale 2015–2025* (Ref. 59).

Requirement	Demonstration
Marine Order 95 Gives effect to Annex V of MARPOL 73/78.	Requirements for the prevention of pollution from garbage have been incorporated into the **Marine Order 95 (Marine pollution prevention – garbage)** control measure.
Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans No specific action identified.	N/A.
Wildlife Conservation Plan for Migratory Shorebird No specific action identified.	N/A.
Wildlife Conservation Plan for Seabirds No specific action identified.	N/A.
Conservation Management Plan for the Blue Whale No specific management action identified.	N/A.

<table>
<tr><td>Internal context</td><td colspan="2">No CAPL management processes or procedures were deemed relevant for this aspect.</td></tr>
<tr><td>External context</td><td colspan="2">During relevant persons consultation, no objections or claims were raised regarding waste management arising from the activity.</td></tr>
<tr><td>Defined acceptable level</td><td colspan="2">These risks are inherently acceptable as they are considered lower-order risks in accordance with Table 5-3. In addition, the potential impacts and risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.
However, in alignment with Section 5.6.2, where the aspect is listed as threat to a protected matter, or identified as a concern to a listed conservation value, CAPL will define an acceptable level of impact that aligns with the objectives of these documents. Objectives of the relevant documents are shown below:
<table>
<tr><th>Plan</th><th>Objective</th></tr>
<tr><td>Conservation Management Plan for the Blue Whale 2015–2025</td><td>Recovery objective: Minimise anthropogenic threats to allow for their conservation status to improve so that they can be removed from the EPBC Act threatened species list.
Interim objective 4 Anthropogenic threats are demonstrably minimised.</td></tr>
<tr><td>Wildlife Conservation Plan for Migratory Shorebirds</td><td>Objective 3: Anthropogenic threats to migratory shorebirds in Australia are minimised or, where possible, eliminated.</td></tr>
<tr><td>Wildlife Conservation Plan for Seabirds</td><td>Objective 2: Seabirds and their habitats are identified, protected and managed in Australia.</td></tr>
</table>
Therefore, CAPL has defined the following acceptable level of impact such that it is not inconsistent with these documents:
• impacts from the petroleum activity are managed such that it would not prevent the long-term recovery of protected species.
CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.</td></tr>
<tr><th>Environmental performance outcome</th><th>Environmental performance standard</th><th>Measurement criteria</th></tr>
<tr><td rowspan="4">(EPO 12a) No unplanned release of waste to the environment during the petroleum activity.

(EPO 12b) No injury or mortality to marine fauna from an unplanned release of waste within the OA associated with the petroleum activity.</td><td>(EPS 12.1) Marine Order 95 (Marine pollution prevention – garbage)
Marine vessels >100 T (or certified to carry >15 persons) will have a Garbage Management Plan on board, in accordance with MARPOL 73/78 Annex V.</td><td>(MC 12.1.1) OVIS report / ABU Marine OE Inspection Checklist verifies that a Garbage Management Plan is on board marine vessels >100 T or certified to carry >15 persons.</td></tr>
<tr><td>(EPS 12.2) Marine Order 95 (Marine pollution prevention – garbage)
Marine vessels >400 T (or certified to carry >15 persons) will have a Garbage Record Book on board, in accordance with MARPOL 73/78 Annex V.</td><td>(MC 12.2.1) Current and completed Garbage Record Book (for marine vessels >400 T or certified to carry >15 persons.</td></tr>
<tr><td rowspan="2">(EPS 12.3) Marine Order 95 (Marine pollution prevention – garbage)
For waste that is incinerated on board a marine vessel, the incinerator is to be IMO-approved and the waste incinerated is to be recorded in accordance with MARPOL 73/78 Annex V.</td><td>(MC 12.3.1) Current IAPP Certificate (for marine vessels >400 T or certified to carry >15 persons).</td></tr>
<tr><td>(MC 12.3.2) Current and completed Garbage Record Book (for marine vessels >400 T or certified to carry >15 persons).</td></tr>
</table>

(EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 12.4) Marine Order 95 (Marine pollution prevention – garbage)** A Garbage Management Plan will be implemented, including: • segregating waste on the MODU and support vessels • storing solid wastes in designated areas before sending them to shore for recycling, disposal, or treatment • waste receptacles that contain light-weight, solid waste will be covered to prevent waste from blowing overboard • no discharge of waste or plastic products from general operational activities or maintenance.	(MC 12.4.1) Records demonstrate compliance against the Garbage Management Plan requirements.
	(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol.	(MC 2.2.1) Relevant persons consultation records.
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation.	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.

7.13 Unplanned release—minor loss of containment

Source

Exploration drilling operations and supporting vessel operations includes handling, using, and transferring hazardous materials, and has the potential to result in a minor loss of containment (LOC) event. Based on the activities described in this EP, the following potential LOC scenarios were identified:

- using, handling, and transferring hazardous materials and chemicals on board (<1 m^3)[1]
- transferring hazardous materials between MODU and support vessels (50 m^3)[2]
- hydraulic line failure from equipment (<1 m^3)
- emergency disconnect (~180 m^3 WBF or NADF).
- slip joint packer failure (~5 m^3 WBF or NADF)

[1] *A range of hydrocarbons and other hazardous chemicals/materials are expected to be present on the vessels and/or MODU; however, the maximum credible volume associated with a single-point failure was estimated to be ~1 m^3 based on the loss of an entire intermediate bulk container due to rupture while handling.*

[2] *AMSA (Ref. 160) suggests the maximum credible spill volume from a refuelling incident with continuous supervision is approximately the transfer rate × 15 minutes. Assuming failure of dry-break couplings and an assumed 200 m^3/h transfer rate (based on previous operations), this equates to an instantaneous spill volume of ~50 m^3. Assuming the same equipment is used to complete bulk transfers of any bulk liquid (such as NADF), a similar volume (50 m^3) could be expected for an accidental release of drilling fluid during transfer.*

This is considered conservative because transfer rates are typically slower than the peak transfer rates (described above).

Potential impacts and risks

Impacts	C	Risks	C
N/A	–	Unplanned release of hazardous material to the environment may result in: • indirect impacts to fauna arising from chemical toxicity • changes to cultural heritage values.	 5 6

Consequence evaluation

Indirect impacts to fauna arising from chemical toxicity

Upon release, a loss of 50 m^3 of a hazardous product would be expected to change the water quality of both surface and pelagic waters.

The environmental impacts associated with a surface release of 50 m^3 of MDO or other hazardous materials (e.g. NADF) are expected to be much less than those associated with a loss of hydrocarbons from a vessel collision (Section 7.14), and thus are not evaluated further here.

The values and sensitivities with the potential to be exposed to decreased water quality from an unplanned LOC release within the OA include:

- Pygmy Blue Whale (migration BIA)
- Wedge-tailed Shearwater (breeding BIA)
- continental slope demersal fish communities (KEF)
- commercial fisheries.

Based on the nature of these unplanned releases, which are non-continuous and expected to occur in a location where no specific sedentary behaviours for values and sensitivities have been identified, the extent and severity of any potential impact is expected to be limited.

Given the nature of unplanned releases covered under this EP and the transient nature of identified values and sensitivities, fauna would need to pass directly through the plume almost immediately upon release to be impacted.

Any potential impact from such an event is expected to be short term and limited to a small number of individuals, thus the consequence level was determined as Minor (5).

Changes to cultural heritage values

There are no World, National, or Commonwealth heritage listed places or sites within the OA (Section 4.6).

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. One of the specific tangible values of Sea Country identified through consultation was marine fauna (e.g. whales; Table 4-14). The consequence evaluations to these receptors are provided above.

Intangible cultural heritage refers to the “practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage” (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

No impact pathway to a change in access to Country from an unplanned minor LoC within the OA is anticipated. The consequence evaluation to marine fauna is provided above, and was assessed as having localised and limited environmental impacts that are not expected to affect the overall population of the species. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected from an unplanned minor LOC within the OA.

Given the offshore location of the OA (~95 km from Barrow Island, and ~145 km from the mainland; Figure 2-1) and duration of the exploration drilling activity (~50 days), a significant adverse change to cultural heritage values attributed to the offshore marine area from an

unplanned minor LoC event is not predicted to occur. As such, CAPL has ranked the consequence for cultural heritage values as Incidental (6).

ALARP decision context justification

Offshore exploration drilling operations are commonplace and well-practiced industry activities. The control measures to manage the risk associated with LOC scenarios from these activities are well defined via legislative requirements that are considered standard industry practice. There is a good understanding of potential spill sources, and the control measures required to manage these are well understood and implemented by the petroleum industry and CAPL.

During relevant persons consultation, no objections or claims where raised regarding LOC scenarios arising from the activity.

The risks associated with this minor LOC are considered lower-order risks in accordance with Table 5-3. As such, CAPL applied ALARP Decision Context A for this aspect.

Good practice control measures

Control measure	Description
Marine Standard	The Marine Standard (Ref. 39) ensures that various legislative requirements and CAPL standards are met. Specifically, pre-mobilisation inspections may include: • visual checks of accessible equipment and hydraulic hoses for defects • confirmation that dry-break couplings or similar automated stop devices are available for use on marine vessels that are refuelled at sea • secondary containment is available for hydrocarbons and chemicals stored on the deck of marine vessels • bunkering procedures are available.
Bulk transfer management	Bulk transfers of NADF from vessels to MODU will be undertaken in accordance with CAPL's *Wells Fluid Field Guidelines Offshore 2020* (Ref. 155) and the relevant MODU contractor procedure. The requirements include: • Job Safety Analysis (JSA) to be held before all transfers to or from vessels • review and assess the weather forecast, ensuring prevailing and anticipated weather conditions are within capabilities of vessel and working limits • transfers to occur during daylight hours • communications established and continuous watch maintained for the duration of transfer.
Equipment maintenance	Critical equipment will be identified (e.g. slip joint packers, seals, dry break couplings) and maintained in accordance with manufacturers specifications. Regular maintenance ensures the integrity of critical equipment is maintained, which ensures optimal performance and reduces the risk of failure.
Permit system	CAPL will implement a permit system to control the isolation of overboard drainage aboard the MODU where there is potential for unplanned release of hazardous materials.
Riser visual inspection	A riser visual inspection will be conducted weekly (via ROV) following latch up of the BOP to the well. The initial inspection will occur prior to commencement of drilling activities with the riser in place.
Ship Oil Pollution Emergency Plan (SOPEP) / Shipboard Marine Pollution	MARPOL 73/78 Annex I and Marine Order 91 (Marine pollution prevention – oil) requires that each vessel has an approved SOPEP in place. To prepare for a spill event, the SOPEP details: • response equipment available to control a spill event • review cycle to ensure that the SOPEP is kept up to date

Emergency Plan (SMPEP)	• testing requirements, including the frequency and nature of these tests. In the event of a spill, the SOPEP details: • reporting requirements and a list of authorities to be contacted • activities to be undertaken to control the discharge of oil • procedures for coordinating with local officials.
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.

Additional control measures and cost benefit analysis

Control measure	Benefit	Cost
N/A	N/A	N/A

Likelihood and risk level summary

Likelihood	The likelihood that a LOC event results in a Minor (5) consequence was determined to be Remote (5). With the control measures in place, it was considered very unlikely that a large LOC event associated with this activity would occur, and even more unlikely that such an event would impact any of the identified values and sensitivities, which are known to be transient and unlikely to be present at the exact location of the LOC.
Risk level	Very Low (9)

Determination of acceptability

Principles of ESD	The potential risk associated with this aspect would be short-term, apply to some individuals, and consequently is not expected to affect biological diversity and ecological integrity. The consequence associated with this aspect is Minor (5). Therefore, no additional evaluation against the Principles of ESD is required.
Relevant environmental legislation and other requirements	Legislation and other requirements considered relevant for this aspect include: • Marine Order 91, Marine pollution prevention – oil • MARPOL 73/78. CAPL considers that impact and risk management is consistent with these requirements, as demonstrated below.

Requirement	Demonstration
Marine Order 91 Gives effect to Annex I of MARPOL 73/78.	Requirements for a vessel to have a SOPEP have been incorporated into the **SOPEP** control measure.

Internal context	The following CAPL management processes or procedures were deemed relevant for this aspect: • Marine Standard *Non Tankers: Corporate OE Standard* (Ref. 39) • *Chevron Australia Well Fluid Field Guidelines Offshore 2020* (Ref. 155).

	Control measures related to each of the above management processes or procedures have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.	
External context	During relevant persons consultation, no objections or claims were raised regarding minor LOC managing arising from the activity.	
Defined acceptable level	These risks are inherently acceptable as they are considered lower-order risks in accordance with Table 5-3. In addition, the potential impacts and risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan. CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.	
Environmental performance outcome	**Environmental performance standard**	**Measurement criteria**
(EPO 13) No unplanned release of hydrocarbons or hazardous materials to the environment during the petroleum activity. (EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 1.3) Marine Standard** Prior to commencement of the petroleum activity, the following will be undertaken during a pre-mobilisation vessel inspection, as per the Marine Standard: • visual checks of accessible equipment and hydraulic hoses for defects • confirmation that dry-break couplings or similar automated stop devices are available for use on marine vessels that are refuelled at sea • confirmation that secondary containment is available for hydrocarbons and chemicals stored on the deck of marine vessels.	(MC 1.3.2) OVIS report / ABU Marine OE Inspection Checklist confirms that equipment and hydraulic hoses are visually free of defects, dry-break couplings or similar are available for use, and, and secondary containment is available on the deck of the marine vessel.
	(EPS 13.1) Bulk transfer management Bulk transfers of NADF are implemented in accordance with the CAPL *Wells Fluid Field Guidelines Offshore 2020* and the relevant MODU contractor procedure. The requirements include: • JSA to be held before all transfers to or from vessels • review and assess the weather forecast, ensuring prevailing and anticipated weather conditions are within capabilities of vessel and working limits • transfers to occur during daylight hours • communications established and continuous watch	(MC 13.1.1) Records confirm that bulk transfers of NADF were conducted in accordance with the *Chevron Australia Wells Fluid Field Guidelines Offshore* 2020 and the relevant MODU contractor procedure.

	maintained for the duration of transfer.	
	(EPS 11.1) Equipment maintenance Critical equipment (e.g. slip joint packers, seals, dry break couplings) will be maintained in accordance with manufacturers specifications.	(MC 11.1.2) Records confirm critical equipment is maintained in accordance with manufacturer specifications.
	(EPS 13.2) Permit system Implement a permit system to control the isolation of overboard drainage aboard the MODU and vessels, where there is potential for unplanned discharge of hazardous materials.	(MC 13.2.1) Where required, records confirm the implementation of a permit system
	(EPS 13.3) Riser visual inspection A riser visual inspection weekly (via ROV) following latch up of the BOP to the well. The initial inspection will occur prior to commencement of drilling activities with the riser in place.	(MC 13.3.1) Records confirm a riser inspections are conducted.
	(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol**.**	(MC 2.2.1) Relevant persons consultation records.
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation**.**	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.
(EPO 14) Reduce the risk of impacts to the environment from the unplanned release of hydrocarbons or hazardous	**(EPO 14.1) SOPEP** Marine vessels >400 T will carry on board a SOPEP in accordance with MARPOL 73/78 Annex I – Prevention of Oil Pollution.	(MC 14.1.1) OVIS report / ABU Marine OE Inspection Checklist confirms an approved SOPEP is on board marine vessels >400 T.
		(MC 14.1.2) Inspection records (or similar) show drills conducted in accordance with SOPEP.

materials during the petroleum activity		(MC 14.1.3) Inspection records (or similar) show spill kits available in accordance with SOPEP.
	(EPO 14.2) SOPEP In the event of a vessel-based spill event, emergency response activities will be implemented in accordance with the vessel SOPEP (or equivalent).	(MC 14.2.1) Records confirm that emergency response activities were implemented in accordance with the vessel SOPEP in the event of a vessel-based spill.

7.14 Unplanned release—vessel collision event

7.14.1 Credible scenario

A vessel collision event within the OA is considered a credible (but unlikely) unplanned event. A major marine spill because of vessel collision is only expected to occur under exceptional circumstances (e.g. loss of DP, navigational error, inclement weather conditions). Given the location, water depths, and lack of submerged features within the OA, grounding is not considered credible, and is not considered further.

Based upon the types of vessels typically used to support exploration drilling activities, size of largest fuel tanks and fuel type to be utilised for the activities in this EP, CAPL was able to identify the typical credible worst-case scenario (as per AMSA guidelines; Ref. 160) as being a surface release of 598 m^3.

7.14.2 Spill modelling

CAPL commissioned RPS to conduct spill modelling to inform the risk assessment associated with a vessel collision event (Ref. 163). The spill modelling was completed for a release within the OA. (Table 7-8).

A three-dimensional oil spill model (SIMAP) was used to simulate the drift, spread, weathering and fate of the spilled oil (Ref. 163). Modelling was conducted using a stochastic approach, where multiple simulations (using the same spill parameters) were conducted, but under varying meteorological and oceanographic conditions.

Table 7-8 summarises the model settings; Table 7-9 summarises the hydrocarbon properties for MDO; and Table 7-10 describe the modelled environmental impact thresholds.

Table 7-8: Vessel collision spill scenario model settings

Parameter	Details
Release Location	DS-1 exploration well
Latitude	20°28'37.60" S
Longitude	114°25'3.70" E
Water Depth	~958 m
Oil type	MDO
Simulation spill type	Surface
Simulation spill volume	598 m^3
Simulation spill duration	6 hours
Total simulation duration	40 days
Number of randomly selected spill simulation start times	100 per season (300 total)
Seasons modelled	Summer (September to the following March) Transitional (April and August) Winter (May to July)

Table 7-9: Physical properties and boiling point ranges for MDO

Characteristic	Value			
Density	890.0 kg/m^3 (at 25 °C)			
Dynamic viscosity	14 cP			
Pour point	-14 °C			
API gravity	24 API			
Classification	Group II, light persistent oil			
Boiling point	Volatile <180 °C	Semi-volatile 180–265 °C	Low volatility 265–380 °C	Residual >380 °C
	4.0%	32%	54%	10%

Table 7-10: Hydrocarbon environmental thresholds

Environmental threshold	Hydrocarbon Ecological EMBA^	Hydrocarbon Social EMBA^	Planning Area for Scientific Monitoring*	Justification
Surface ≥1 g/m^2 (low)		✓	✓	In accordance with NOPSEMA's oil spill modelling bulletin (Ref. 14), CAPL has set the ≥1 g/m^2 surface impact threshold for social, economic, and cultural receptors. This threshold is equivalent to ~1,000 L/km^2 or a layer thickness of ~1 µm. At this concentration, oil on the water surface is expected to be visible. The Bonn Agreement Oil Appearance Code (Ref. 164) describes a 0.3–5.0 µm thick oil layer as having a rainbow-coloured appearance. Due to this visibility, there is the potential to impact nature-based activities (such as tourism) via a reduction in aesthetics. In accordance with NOPSEMA's oil spill modelling bulletin (Ref. 14), this low threshold for surface oil establishes the planning area for scientific monitoring.
Surface ≥10 g/m^2 (moderate)	✓	✓	✓	In accordance with NOPSEMA's oil spill modelling bulletin (Ref. 14), CAPL has set the≥10 g/m^2 surface impact threshold for ecological receptors. This threshold is equivalent to ~10,000 L/km^2 or a layer thickness of ~10 µm. The Bonn Agreement Oil Appearance Code (Ref. 164) describes a 5–50 µm thick oil layer as having a metallic appearance. This threshold is considered by NOPSEMA to approximate the lower limit of harmful effects to birds and marine mammals (Ref. 14). This threshold is consistent with observations ranging from physical oiling to toxicity effects for marine fauna within literature, including French et al. (Ref. 165), French-McCay (Ref. 166), Engelhardt (Ref. 167), Clark (Ref. 168), Geraci and St. Aubin (Ref. 169) and Jenssen (Ref. 170).
In-water (dissolved) ≥10 ppb (low)			✓	In accordance with NOPSEMA's oil spill modelling bulletin (Ref. 14), this low threshold for dissolved oil establishes the planning area for scientific monitoring based on potential for exceedances of water quality triggers.

Environmental threshold	Hydrocarbon Ecological EMBA^	Hydrocarbon Social EMBA^	Planning Area for Scientific Monitoring*	Justification
In-water (dissolved) ≥50 ppb (moderate)	✓	✓	✓	Laboratory studies have shown that dissolved oil exert most of the toxic effects of oil on aquatic biota (e.g. Carls et al. [Ref. 171], Nordtug et al. [Ref. 172], Redman [Ref. 173]). Being soluble, the dissolved oil can be taken up by organisms directly from the water column by absorption through external surfaces and gills, as well as through the digestive tract. In accordance with NOPSEMA's oil spill modelling bulletin (Ref. 14), CAPL has set the ≥50 ppb in-water (dissolved) impact threshold for sublethal ecological effects and for social, economic, and cultural receptors. This threshold is considered by NOPSEMA to approximate potential toxic effects, particularly sublethal effects to sensitive species (Ref. 14). This threshold is based on an instantaneous concentration, and therefore only requires the dissolved oil to be at this concentration for one-hour (based on minimum model time-step) to trigger this threshold.
In-water (entrained) ≥10 ppb (low)			✓	In accordance with NOPSEMA's oil spill modelling bulletin (Ref. 14), this low threshold for entrained oil establishes the planning area for scientific monitoring based on potential for exceedances of water quality triggers.
In-water (entrained) ≥100 ppb (high)	✓	✓	✓	Entrained oil are insoluble droplets suspended in the water column, and as such exposure pathways are direct contact with external tissue or direct oil consumption. In accordance with NOPSEMA's oil spill modelling bulletin (Ref. 14), CAPL has set the ≥100 ppb in-water (entrained) impact threshold for sublethal ecological effects and for social, economic, and cultural receptors. This threshold is considered by NOPSEMA as appropriate for informing risk evaluation (Ref. 14). This threshold is based on an instantaneous concentration, and therefore only requires the entrained oil to be at this concentration for one-hour (based on minimum model time-step) to trigger this threshold. French-McCay (Ref. 174) identified that if total hydrocarbons in entrained oil droplets was to be evaluated as a risk, 100 ppb would be an extremely conservative sublethal threshold.
Shoreline ≥10 g/m^2 (low)		✓	✓	In accordance with NOPSEMA's oil spill modelling bulletin (Ref. 14), CAPL has set the ≥10 g/m^2 shoreline impact threshold for social, economic, and cultural receptors. This threshold is equivalent to ~10 mL/m^2 or ~2 teaspoons/m^2. At this concentration, oil on the shoreline is expected to be visible. Due to this visibility, there is the potential to impact nature-based activities (such as tourism or recreational use) via a reduction in aesthetics.
Shoreline	✓	✓	✓	In accordance with NOPSEMA's oil spill modelling bulletin (Ref. 14), CAPL has set the≥100 g/m^2 shoreline impact

Environmental threshold	Hydrocarbon Ecological EMBA^	Hydrocarbon Social EMBA^	Planning Area for Scientific Monitoring*	Justification
≥100 g/m^2 (moderate)				threshold for ecological receptors. This threshold is equivalent to ~100 mL/m^2 or 20 teaspoons/m^2. French et al. (Ref. 165) and French-McCay (Ref. 166) define shoreline oil accumulation at ≥100 g/m^2 as potentially harmful to wildlife (including invertebrates, birds, furbearing aquatic mammals and marine reptiles), based on studies for sub-lethal and lethal impacts. Impacts on vegetated habitats (such as saltmarsh and mangroves) have been observed at higher concentrations of shoreline oil. Observations by Lin and Mendelssohn (Ref. 175) demonstrated that loadings of >1,000 g/m^2 of oil during the growing season would be required to impact marsh plants significantly. Similar thresholds have been found in studies assessing oil impacts on mangroves (e.g. Grant et al. [Ref. 176], Suprayogi and Murray [Ref. 177]).

^ Environmental thresholds used to define the Hydrocarbon EMBAs, and the presence of environmental values and sensitivities within this area have been identified in Section 4. These thresholds and the spatial extent of the Hydrocarbon EMBAs are used as part of the environmental impact and risk assessment presented below.

** Environmental thresholds used to define the Planning Area for Scientific Monitoring, and the presence of environmental values and sensitivities within this area have been identified within the Operational and Scientific Monitoring Plan: Environmental Monitoring in the Event of an Oil Spill to Marine or Coastal Waters (Ref. 3).*

7.14.2.1 Weathering and fate

MDO is a light-persistent fuel oil used in the maritime industry. It has a density of 890.0 kg/m^3, an API of 24, and a low pour point (−14 C) (Table 7-9). The low viscosity (14 cP) indicates that this oil will spread quickly when released and will form a thin film on the sea surface, increasing the evaporation rate.

Generally, about 40% of the MDO mass should evaporate within the first 12 hours (boiling point <180 °C); a further 32% should evaporate within the first 24 hours (boiling point 180°C–265 °C); and an additional 54% should evaporate over several days (boiling point 265°C–380 °C). Approximately 10% (by mass) of MDO will not evaporate at atmospheric temperatures, though will decay slowly over time.

While MDO will typically remain on the water surface (where it is subject to evaporation), it is noted that some of the heavy components 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 (Ref. 163).

7.14.2.2 Modelling outputs

Stochastic modelling outputs from RPS (Ref. 163) are summarised in Table 7-11, having regard to the relevant values and sensitivities identified in Section 4.

For the 598 m^3 MDO release in the OA:

- the maximum distance from the release location to the ≥1 g/m^2 and ≥10 g/m^2 floating oil exposure thresholds was 74.0 km north-northeast (transitional) and 40.6 km east (summer), respectively.
- no shoreline accumulation was predicted during the transitional and winter seasonal conditions. The probability of accumulation on any shoreline at ≥10 g/m^2 during summer was 2%, while the minimum time before shoreline accumulation was 7.46 days and the maximum volume of oil ashore ≥10 g/m^2 threshold was 5.4 m^3. No shoreline accumulation at ≥1,000 g/m^2 was predicted to occur.
- dissolved and entrained oil at ≥50 ppb and ≥100 ppb impact thresholds respectively, were predicted to occur. However, dissolved and entrained oil was predicted to remain in the surface layers, with no exposure at depths >10 m below the surface predicted to occur during any season.

Table 7-11: Vessel collision event spill modelling EMBA receptor exposure summary

Sensitivity	Name	Surface^		In-water (dissolved)^	In-water (entrained)^	Shoreline^	
		≥1 g/m²	≥10 g/m²	≥50 ppb	≥100 ppb	≥10 g/m²	≥100 g/m²
		(probability of exposure, minimum time to exposure)		(probability of exposure)	(probability of exposure)	(probability of exposure, minimum time to exposure, mean length of shoreline)	
AMP	Gascoyne	—	—	—	4-7%	—	—
State protected area	Pilbara Islands Group	—	—	—	—	1%, 7.46-21.4 days, 1-9.6 km	0-1%, 13.6 days, 0-1 km
KEF	Ancient coastline at 125 m depth contour	0-1%, 2.3 days	—	—	0-2%	—	—
	Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	—	—	—	1-2%	—	—
	Continental slope demersal fish communities	72-89%, 0.04 days	—	7-23%	70-86%	—	—
	Exmouth Plateau	—	—	—	4-5%	—	—
World Heritage Properties / National Heritage Places	The Ningaloo Coast *(inferred from Cape Range IBRA, Exmouth shoreline)*	—	—	—	—	1%, 19.7 days, 6.7 km	—

^ *Ranges in values shown are due to the different results between seasons.*

7.14.3 Risk Assessment

Source

Activities identified as having the potential to result in a vessel collision event are:

- field support—vessels operations within the OA.

A vessel collision event may occur as a result of a loss of DP, navigational error or floundering due to weather

Potential impacts and risks

Impacts	C	Risks	C
N/A	-	The potential environmental impacts associated with hydrocarbon exposures from a vessel collision event are:	
		• marine pollution resulting in sublethal or lethal effects to marine fauna	4
		• smothering of subtidal and intertidal habitats	5
		• indirect impacts to fisheries	6
		• reduction in amenity resulting in impacts to tourism and recreation.	5
		• changes to values and sensitivities of Australian Marine Parks	5
		• changes to cultural heritage values.	4

Consequence evaluation

Marine pollution resulting in sublethal or lethal effects to marine fauna

Marine mammals

Marine mammals may be exposed to hydrocarbons from an oil spill at the water surface or within the water column. Marine mammals can be exposed to oil externally (e.g. swimming through surface slick) or internally (e.g. swallowing the oil, consuming oil-affected prey, or inhaling of volatile oil related compounds) (Ref. 162; Ref. 178).

An avoidance response (i.e. avoiding spilled hydrocarbons) has been identified for several species of cetacean, suggesting that cetaceans have the ability to detect and avoid surface slicks (Ref. 167). However, detection seems to depend on oil thickness and colour (Ref. 260), and observations during large oil spill events (Deepwater Horizon [DWH] and the Mega Borg spills) have recorded whales and dolphins travelling through and feeding in oil slicks (Ref. 258, Ref. 259, Ref. 260).

Direct contact with hydrocarbons may result in skin and eye irritation, burns to mucous membranes of eyes and mouth, and increased susceptibility to infection (Ref. 169). The effect of oil on cetacean skin is likely minor and temporary (Ref. 169) due to the skins effectiveness as a barrier. However it was observed that existing skin lesions, cuts, or abrasions could allow oil to be absorbed more readily into the bloodstream (Ref. 258). French-McCay (Ref. 166) identifies that a ≥10 g/m^2 oil thickness threshold has the potential to impart a lethal dose to the species; however, also estimates a probability of 0.1% mortality to cetaceans if they encounter these thresholds based on the proportion of the time spent at surface.

Dugongs have smooth skin surfaces and therefore are less likely to be affected by oil adhering to their skin. If surfacing in a slick, the Dugongs may foul their sensory hairs (around their mouths) or their eyes; these could lead to inflammation/infections that then affect their ability to feed or breed (Ref. 244). Dugongs may also ingest oil (directly, or indirectly via oil-affected seagrass), and depending on the amount and type of oil, the effects could be short-term to long-term/chronic (e.g. organ damage). However, it is noted that reports on oil pollution damage to Dugongs are rare (Ref. 243).

The physical impacts from ingested hydrocarbons with subsequent lethal or sublethal impacts are possible; however, the susceptibility of cetaceans varies with feeding habits. Baleen whales are not particularly susceptible to ingestion of oil in the water column as they feed by skimming the

surface (i.e. they are more susceptible to surface slicks). Toothed whales and dolphins may be susceptible to ingestion of dissolved and entrained oil as they gulp feed at depth. As highly mobile species, in general it is not expected that these animals will be constantly exposed to concentrations of hydrocarbons in the water column for continuous durations (e.g. >48–96 hours) that would lead to chronic effects.

Marine mammals are vulnerable if they inhale volatiles when they surface within a hydrocarbon slick. For the short period that they persist, vapours from the spill are a significant risk to mammal health, with the potential to damage mucous membranes of the airways and the eyes, which will reduce the health and potential survivability of an animal. Inhaled volatile hydrocarbons are transferred rapidly to the bloodstream and may also accumulate in tissues (Ref. 169).

As identified in Section 4.3.3.1, several marine mammal species listed as threatened and/or migratory under the EPBC Act have the potential to occur within the Hydrocarbon Ecological EMBA. The following BIAs intersect the Hydrocarbon Ecological EMBA:

- Humpback Whale (migration)
- Pygmy Blue Whale (migration, foraging).

As these species are considered most sensitive to surface and entrained exposures, deterministic analysis were utilised to understand the potential extent and duration of exposure.

The deterministic model for the largest swept area of floating oil indicates that surface hydrocarbons concentrations ≥10 g/m^2 are present for <3 days following the spill event, with a maximum area of coverage of ~11 km^2 occurring the same day the spill commenced. This deterministic scenario is considered most relevant for offshore waters and subsequent impacts to offshore BIA's in those regions. Using the Pygmy Blue Whale migration BIA as an example, modelling indicates that the extent of surface exposures was predicted to be limited to <0.1% of the entire BIA.

The deterministic model for the largest area of entrained hydrocarbon indicates that entrained hydrocarbons concentrations ≥100 ppb are present for <10 days following the spill event, with a maximum area of coverage of ~110 km^2 occurring ~4 days after the spill commenced. This deterministic scenario is considered most relevant for offshore waters, and subsequent impacts to offshore BIA's in those regions. Using the Pygmy Blue Whale migration BIA as an example, modelling indicates that the extent of entrained exposures was predicted to be limited to <0.1% of the entire BIA.

Based on an assessment of the predicted magnitude and duration of surface and entrained oil, it is expected that only a small proportion of any marine mammal population would be exposed above the defined impact exposure thresholds. Therefore, the potential impacts of oil to cause sublethal or lethal effects was ranked as Incidental (6) and Minor (5), respectively.

Reptiles

Marine reptiles may be exposed to hydrocarbons from an oil spill at the water surface or on the shoreline. Marine reptiles can be exposed to oil externally (e.g. swimming through surface slick) or internally (e.g. swallowing the oil, consuming oil-affected prey, or inhaling of volatile oil related compounds) (Ref. 179).

Marine turtles are vulnerable to the effects of oil at all life stages: eggs, hatchlings, juveniles, and adults. Several aspects of turtle biology and behaviour place them at risk, including a lack of avoidance behaviour, indiscriminate feeding in convergence zones, and large pre-dive inhalations (Ref. 180). Oil effects on turtles can include impacts to the skin, blood, digestive, and immune systems, and increased mortality due to oiling.

Shoreline hydrocarbons can impact turtles coming ashore at nesting beaches. Eggs may also be exposed during incubation, potentially resulting in increased egg mortality and detrimental effects on hatchlings. Hatchlings may be particularly vulnerable to toxicity and smothering as they emerge from the nests and make their way over the intertidal area to the water (Ref. 179).

As identified in Section 4.3.3.2, several reptile species listed as threatened and/or migratory under the EPBC Act have the potential to occur within the Hydrocarbon Ecological EMBA. The following BIAs intersect the Hydrocarbon Ecological EMBA:

- Flatback Turtle, Green Turtle, Hawksbill Turtle and Loggerhead Turtle (internesting buffer)
- Green Turtle and Loggerhead Turtle (nesting)

The deterministic model for the longest length of shoreline accumulation indicates that hydrocarbons concentrations ≥100 g/m^2 occurs at North of Muiron Island only. Shoreline accumulation would occur ~14 days after the spill commenced, with a maximum area of coverage of ~1 km and a duration of ~2 days. Therefore, as the extent and duration of exposure to shorelines and associated nesting areas is expected to be limited, the potential for environmental impacts would also be limited.

The deterministic model for the largest swept area of floating oil indicates that surface hydrocarbons concentrations ≥10 g/m^2 are present for <3 days following the spill event, with a maximum area of coverage of ~11 km^2 occurring the same day the spill commenced. This deterministic scenario is considered most relevant for offshore waters and subsequent impacts to offshore BIA's. Using the Green Turtle internesting buffer BIA around North and South Muiron Island as an example, modelling indicates that the extent of surface exposures was predicted to be limited to <1% of the entire BIA. This information indicates that if a vessel spill event occurred during the nesting season, it is not expected to impact entire local nesting populations.

The EPBC threatened Short-nosed Seasnake and Leaf-scaled Seasnake, and other EPBC marine listed seasnake species, may be present within the Hydrocarbon Ecological EMBA. Oil pollution has been identified as a pressure 'of potential concern' (Ref. 245) to seasnakes[40]. Sea snakes are susceptible to oil on the sea surface (Ref. 245; Ref. 246; Ref. 247). Being air breathers and obligate bottom feeders oil may be either inhaled or ingested (Ref. 245; Ref. 248). As described above, surface oil exposure above impact thresholds are predicted to be only be present for a short (<3 days) duration and over a relatively small (maximum ~11 km^2) area. Any exposure to benthic habitats is only predicted to occur within nearshore (<20 m water depth) areas. Using the shoreline exposure described above as indicative of oil presence in a nearshore environment, the duration and extent of exposure from a single spill event is predicted to be limited.

Based on an assessment of the predicted magnitude and duration of surface and shoreline exposure to oil, it is expected that only a small proportion of any marine reptiles population would be exposed above the defined impact thresholds. Therefore, the potential impacts of oil to cause sublethal or lethal effects was ranked as Minor (5) and Moderate (4), respectively.

Fishes, including sharks and rays

Fish, including sharks and rays, may be exposed to hydrocarbons from an oil spill within the water column. Most fish do not break the sea surface, and therefore the risk from surface oil is not relevant; however, some shark species (including Whale Sharks) feed in surface waters, so there is also the potential for surface hydrocarbons to be ingested.

Potential effects include damage to the liver and lining of the stomach and intestine, and toxic effects on embryos (Ref. 181). Fish are most vulnerable to oil during embryonic, larval and juvenile life stages. However, very few studies have demonstrated increased mortality of fish as a result of oil spills (Ref. 182; Ref. 183; Ref. 184).

Demersal fish are not expected to be impacted given the presence of dissolved and entrained oil are predicted in the surface layers (<10 m water depth) only.

Pelagic free-swimming fish and sharks are not expected to suffer long-term damage from oil spill exposure because dissolved/entrained hydrocarbons are typically insufficient to cause harm (Ref. 185). Pelagic species are also generally highly mobile and as such are not expected to suffer extended exposure (e.g. >48–96 hours) at concentrations that would lead to chronic effects due to their patterns of movement. Near the sea surface, fish can detect and avoid contact with surface slicks meaning fish mortalities rarely occur in the event of a hydrocarbon spill in open waters (Ref. 186). Fish that have been exposed to dissolved hydrocarbons can eliminate the toxicants once placed in clean water; hence, individuals exposed to a spill would recover (Ref. 187). Marine fauna with gill-based respiratory systems, including Whale Sharks, are expected to have higher sensitivity to exposures of entrained oil.

As identified in Section 4.3.3.3, several fish species listed as threatened and/or migratory under the EPBC Act have the potential to occur within the Hydrocarbon Ecological EMBA. The following BIA intersects the Hydrocarbon Ecological EMBA:

- Whale Shark (foraging).

As these species are considered most sensitive to surface and entrained hydrocarbon exposures, deterministic analysis were utilised to understand the potential extent and duration of exposure.

The deterministic model for the largest swept area of floating oil indicates that surface hydrocarbons concentrations ≥10 g/m^2 are present for <3 days following the spill event, with a maximum area of coverage of ~11 km^2 occurring the same day the spill commenced. This deterministic scenario is considered most relevant for offshore waters and subsequent impacts to offshore BIA's in those regions. Using the Whale Shark foraging BIA as an example, modelling indicates that the extent of surface exposures was predicted to be limited to <0.1% of the entire BIA.

[40] The pressure analysis distinguished between oil pollution from shipping ('of less concern') and oil rigs ('of potential concern') (Ref. 245). Although the aspect source for this risk assessment is a spill from a vessel, the higher pressure concern has been adopted.

The deterministic model for the largest area of entrained hydrocarbon indicates that entrained hydrocarbons concentrations ≥100 ppb are present for <10 days following the spill event, with a maximum area of coverage of ~110 km^2 occurring ~4 days after the spill commenced. This deterministic scenario is considered most relevant for offshore waters, and subsequent impacts to offshore BIA's in those regions. Using the Whale Shark foraging BIA as an example, modelling indicates that the extent of entrained exposures was predicted to be limited to <0.1% of the entire BIA

Based on an assessment of the predicted magnitude and duration of surface and entrained exposure to oil, it is expected that only a small proportion of any fish population would be exposed above the defined impact threshold. Therefore, the potential impacts of oil to cause sublethal or lethal effects was ranked as Incidental (6) and Minor (5), respectively.

Seabirds and shorebirds

Birds may be exposed to hydrocarbons from an oil spill at the water surface (e.g. foraging, resting) or on the shoreline (e.g. roosting, nesting).

Birds that rest at the water's surface (e.g. shearwaters) or surface-plunging birds (e.g. terns, boobies) are particularly vulnerable to surface hydrocarbons (Ref. 168; Ref. 180). Damage to external tissues, including skin and eyes, can occur, along with internal tissue irritation in lungs and stomachs (Ref. 189). Acute and chronic toxic effects may result where the product is ingested as the bird attempts to preen its feathers (Ref. 188).

As identified in Section 4.3.3.4, several bird species listed as threatened and/or migratory under the EPBC Act have the potential to occur within the Hydrocarbon Ecological EMBA. The Wedge-tailed Shearwater breeding BIA intersects the Hydrocarbon Ecological EMBA.As these species are most sensitive to surface and shoreline hydrocarbon exposures, deterministic analysis were utilised to understand the potential extent and duration of nearshore hydrocarbon exposures.

The deterministic model for the longest length of shoreline accumulation indicates that hydrocarbons concentrations ≥100 g/m^2 occurs at North of Muiron Island only. Shoreline accumulation would occur ~14 days after the spill commenced, with a maximum area of coverage of ~1 km and a duration of ~2 days. This deterministic scenario is considered most relevant for nearshore waters and subsequent impacts to nearshore BIA's. Using the Wedge-tailed Shearwater breeding BIA surrounding the Pilbara coast as an example, modelling indicates that the extent of surface exposures was predicted to be limited to <0.1% of the entire BIA. This information indicates that if a vessel spill event occurred during the breeding season, it is not expected to impact entire local nesting populations.

The deterministic model for the largest swept area of floating oil indicates that surface hydrocarbons concentrations ≥10 g/m^2 are present for <3 days following the spill event, with a maximum area of coverage of ~11 km^2 occurring the same day the spill commenced. This deterministic scenario is considered most relevant for offshore waters and subsequent impacts to offshore BIA's. Using the Wedge-tailed Shearwater breeding BIA surrounding the Pilbara coast as an example, modelling indicates that the extent of surface exposures was predicted to be limited to <0.1% of the entire BIA.

Based on an assessment of the predicted magnitude and duration of surface and shoreline oil, it is expected that only a small proportion of any bird population would be exposed above the defined impact thresholds. Therefore, the potential impacts of oil to cause sublethal or lethal effects was ranked as Incidental (6) and Minor (5), respectively.

Smothering of subtidal and intertidal habitats

Coral

Direct contact of hydrocarbons to coral can cause smothering, resulting in a decline in metabolic rate, and may cause varying degrees of tissue decomposition and death. A range of impacts may also result from toxicity, including partial mortality of colonies, reduced growth rates, bleaching, and reduced photosynthesis (Ref. 190; Ref. 191).

As identified in Section 4.3.2, exposure to coastal habitats from the Hydrocarbon Ecological EMBA may occur. The Hydrocarbon Ecological EMBA interface with North Muiron Island.

The deterministic model for the longest length of shoreline accumulation indicates that hydrocarbons concentrations ≥100 g/m^2 occurs at North of Muiron Island only. Shoreline accumulation would occur ~14 days after the spill commenced, with a maximum area of coverage of ~1 km and a duration of ~2 days. This deterministic scenario is considered most relevant for nearshore waters and subsequent impacts to nearshore corals or other intertidal habitats. Therefore, as the extent and duration of exposure to nearshore environments is expected to be limited the potential for environmental impacts would also be limited.

Stochastic modelling did not predict floating oil concentrations ≥10 g/m^2 in State Waters. Therefore, impacts from smothering within intertidal areas due to surface oil is not expected to occur and no further evaluation has been undertaken.

Based on an assessment of the predicted magnitude and duration of shoreline oil exposure, it is expected that only a small proportion of any coral habitat would be exposed above the defined impact thresholds. Therefore, the potential impacts of oil to cause smothering was ranked as Minor (5).

Indirect impacts to fisheries

As identified in Section 4.4.1, several commercial fisheries have management areas and recent fishing effort recorded within the Hydrocarbon EMBAs. As identified in Section 4.4.2, some recreational fishing is expected to occur within the Hydrocarbon Ecological EMBA. Direct impacts commercially targeted fish species are expected to occur from in-water exposures.

Stochastic modelling predicted that dissolved and entrained oil above impact thresholds (≥50 ppb; ≥100 ppb respectively) was predicted to occur; however, was predicted to remain in the surface layers, with no exposure at depths >10 m below the surface predicted to occur during any season. As described above, very few studies have demonstrated increased mortality of fish as a result of oil spills. However, fish stocks may be especially vulnerable to oil spills close to the spawning grounds or egg and larval drift areas (Ref. 183; Ref. 261). Fish eggs and larvae are typically vulnerable to toxic oil compounds due to their small size, poorly developed membranes and detoxification systems as well as their position in the water column (Ref. 261). Despite potential mortality of eggs and larvae following a spill, subsequent depletion of adult wild fish stocks is rarely recorded (Ref. 243).

As identified in Section 4.4.1.1, the spawning grounds for the EPBC Act listed conservation dependent Southern Bluefin Tuna intersects with the Hydrocarbon Ecological EMBA. As such, the available deterministic analyses from the hydrocarbon spill modelling were utilised to understand the potential extent and duration of exposure to these spawning grounds.

The deterministic analysis for the largest area of entrained hydrocarbon indicates that entrained hydrocarbons concentrations ≥100 ppb are present for <10 days following the spill event, with a maximum area of coverage of ~110 km^2 occurring ~4 days after the spill commenced. Based on the spatial extent of the Southern Bluefin Tuna spawning ground (~1,850,534 km^2), modelling indicates that the extent of entrained exposures was predicted to be limited to ~0.006% of the entire spawning ground.

Although exposures above impact thresholds have the potential to affect the recruitment of targeted commercial and recreational fish species, any acute impacts are expected to be limited, given this event is singular, non-continuous, and will result in a limited volume of hydrocarbon being released over a short time. On this basis recruitment of targeted species is not expected to be impacted significantly given the extent of exposure to concentrations above impact thresholds are expected to be limited due to rapid dilution and dispersion upon release.

Spill events also have the potential to impact commercial fisheries through indirect impacts associated with tainting. Tainting is a change in the characteristic smell or flavour, and renders the catch unfit for human consumption or sale due to public perception. Tainting may not be a permanent condition but will persist if the organisms are continuously exposed; but when exposure is terminated, depuration will quickly occur (Ref. 192). Regardless of the small potential for tainting, customer perception that tainting has occurred may cause a larger impact then the direct impact itself. However, as this event is singular, non-continuous, and will result in a limited volume of hydrocarbon being released over a short time period, and the low persistence of the hydrocarbon in the environment, customer perceptions are not expected to be altered for a prolonged period.

Modelling predicts that inshore exposure would be limited, whilst offshore exposures are expected to dilute and disperse over a longer period of time. In both instances, it is expected that any impacts from this type of event would be short term in duration. Therefore, CAPL assesses the consequence to fisheries as Incidental (6).

Reduction in amenity resulting in impacts to tourism and recreation

Stochastic modelling predicts shoreline exposure ≥10 g/m^2 (visible impact threshold) from a vessel spill event has the potential to occur along Muiron and Serrurier Islands and around the Point Cloates / Ningaloo Station area during summer months, depending on the environmental conditions at the time of the event. No shoreline contact was predicted to occur during other (winter, transitional) seasons.

Stochastic modelling did not predict surface exposure ≥1 g/m^2 within State waters.

Deterministic model for longest length of oil ashore, predicts the maximum length of shoreline oil above the visible impact threshold (≥10 g/m^2) at any given time was ~9.6 km, occurring ~6 days after the spill commenced.

Shoreline loading can impact the visual amenity of coastal areas and limit beach access for users, impacting tourism and recreation activities. However, it is expected that any impacts from this type of event would be non-continuous, short term in duration and will result in a limited volume ashore.

On this basis, CAPL assesses the reduction in amenity resulting in impacts to tourism and recreation as Minor (5).

Changes to values and sensitivities of marine protected areas

Stochastic modelling predicts a low probability (<7%) of entrained exposure ≥100 ppb within the Gascoyne Marine Park (Table 7-11). Entrained exposure ≥100 ppb was not identified for other marine protected areas (Table 7-11). Based on the deterministic model for the largest area of entrained hydrocarbons, concentrations of ≥100 ppb are present for <10 days following the spill event. Consequently, it is expected that potential environmental impacts would be limited in this marine protected area.

Modelling also predicted a low (≤1%) probability of shoreline exposure above impact threshold (≥10 g/m^2) within the Pilbara islands group, specifically the northwest of the Muiron Islands, which is part of the Ningaloo Coast World Heritage area. Shoreline exposure was only predicted to occur during summer (Ref. 163). Based on the deterministic model, shoreline accumulation ≥10 g/m^2 would occur ~14 days following the spill event, with a maximum area of coverage of ~1 km and a duration of ~2 days. Consequently, it is expected that potential environmental impacts would be limited to a small portion of this protected area.

No interaction with seabed or surface exposure ≥1 g/m^2 within any marine protected area was predicted to occur.

The natural values of these Marine Parks include species listed as threatened, migratory, marine, or cetacean under the EPBC Act, as well as any identified BIAs for regionally significant marine fauna. Social and economic values of the Marine Parks include fishing and tourism and recreation**.**

The consequence evaluations to marine fauna and commercial fisheries are provided above.

Given the expected behaviour and weathering of the oil, limited spatial and temporal exposure to marine fauna or commercial fish species above impact exposure thresholds, the potential impacts of a vessel spill event to the values and sensitivities of Marine Parks have been ranked as Minor (5).

Changes to cultural heritage value

As discussed in Section 4.6, there are heritage listed places or sites within the Hydrocarbon EMBAs, including World and National heritage listed Ningaloo Coast (within both Hydrocarbon Ecological and Social EMBA), a First Nation Heritage site around Ningaloo Station and a Native Title Determination area around the Ningaloo Coast (both within the Hydrocarbon Social EMBA only).

Protected UCH sites have been identified within the Hydrocarbon EMBAs; these sites are related to shipwrecks, with no other types (e.g. aircraft or other artefacts) identified (Section 4.6.2). Given known sea level history, parts of the Hydrocarbon EMBAs (e.g. those <125 m water depth), would have been emergent land during the extended history of First Nations occupation of Australia. At the time of writing this EP, CAPL understands through consultation with the relevant First Nations people and/or representative bodies that there are no known artefacts or specific sites of cultural values associated with the seabed within the Hydrocarbon EMBAs (Section 4.6.2 and Section 6). Stochastic modelling did not predict interaction with seabed in offshore waters. Therefore, no impacts to seabed-based UCH (e.g. shipwrecks or archaeology), including First Nations UCH, are expected.

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. It is understood that the term ‘Country’ refers to more than just a geographical area, and includes values, places, resources, stories, and cultural obligations associated with that geographical area (Ref. 138; Ref. 313). Specific tangible values of Sea Country identified through literature and/or consultation include:

- marine fauna (e.g. whales, dugongs, turtles)
- offshore islands and parts of the mainland coast (e.g. Ningaloo Coast)
- marine resources (e.g. fish).

The consequence evaluations to marine fauna (including fish) are provided above and were assessed as having a moderate environmental impact. Further, as described in the above evaluations, if an unplanned hydrocarbon (marine fuel) release did occur it is not expected to have an effect at population-levels.

BTAC identified that the Thalanyji people have a deep connection to a number of the Pilbara inshore islands (Table 4-14). Depending on the environmental conditions at the time of the spill event, of the named islands within the Hydrocarbon EMBAs, some Pilbara islands (i.e. Muiron, South Muiron, North Muiron and Serrurier Islands) may be exposed to shoreline loading above the visible impact threshold (≥10 g/m^2) and the ecological impact threshold (≥100 g/m^2). The consequence evaluations to shoreline habitats and marine fauna are provided above and were assessed as having a moderate environmental impact.

Stochastic model predicted shoreline exposure ≥10 g/m^2 from a vessel spill event around the Ningaloo Station area and some Pilbara islands (Table 7-11). Shoreline would be contacted ~19.7 days and ~7.46 days after the spill commenced and the maximum volume of oil was 4.3 m^3 and 4.6 m^3 at Ningaloo station area and Muiron Island, respectively. Shoreline exposure ≥100 g/m^2 was predicted to occur at North Muiron Island only. Shoreline accumulation would occur ~14 days after the spill commenced, with a maximum area of coverage of ~1 km and a duration of ~2 days. There is a low probability (≤1%) of shoreline contact during summer. No shoreline contact was predicted to occur during winter or transitional seasons.

Shoreline loading can impact the visual amenity of coastal areas and limit beach access for users. However, if shoreline contact occurs (highly unlikely), it is expected that any impacts from this type of event would be non-continuous short term in duration and will result in a limited volume ashore. As such, given the volume, type of oil (marine fuel) and predicted weathering, no prolonged impact pathway to a change in access to Country is anticipated.

Intangible cultural heritage refers to the “practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural heritage” (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

Given the volume, type of oil (marine fuel) and predicted weathering, no prolonged impact pathway to a change in access to Country is anticipated. The consequence evaluations to marine fauna are provided above and were assessed as having a moderate environmental impact to a proportion of the population—if they are present within the area at the time of a spill. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected in the long-term from an unplanned hydrocarbon (marine fuel) release within the OA.

Given the expected behaviour and weathering of the oil, limited spatial and temporal exposure, only a relatively small area is expected to be exposed due to a single spill event. However, it is acknowledged that the sea and coast that may be exposed could represent important cultural values. Therefore, the potential impacts of oil to cultural heritage values was ranked as Moderate (4).

ALARP decision context justification

Support vessels commonly operate near each other during offshore surveys, and these activities are well-practised nationally and internationally.

The control measures to manage the risk associated with vessel collisions are well defined via legislative requirements that are considered standard industry practice. These are well understood and implemented by the petroleum industry and CAPL. Specifically, CAPL has worked in the region for over 10 years, and has a demonstrated understanding of industry requirements and their operational implementation in these areas.

During relevant persons consultation, no objections or claims were raised regarding vessel collision scenarios arising from the activity.

The risks associated with a vessel collision are considered lower-order risks in accordance with Table 5-3. As such, CAPL would apply ALARP Decision Context A for this aspect.

Good practice control measures	
Control measure	**Description**
Marine Standard	Chevron's Marine Standard (Ref. 39) ensures that various legislative requirements are met. These include: • crew meet the minimum standards for safely operating a vessel, including watchkeeping requirements • navigation, radar equipment, and lighting meet industry standards. These requirements will ensure that direct MODU and vessel radio contact is available to other marine users operating in this area to enable ease of communication in highlighting risks and safety exclusion zone.
Maritime safety information	Maritime safety information, such as AUSCOAST navigational warnings, are issued by the JRCC Australia, part of AMSA. Under the *Navigation Act 2012 (*Cth*)*, the AHO is also responsible for maintaining and disseminating navigational charts and publications, including providing safety-critical information to mariners (including any change to prohibited/restricted areas, obstructions to surface navigation, etc.) via the Notice to Mariners system. Notice to Mariners can be permanent or temporary notifications. Maritime safety information (radio-navigation warnings and/or Notice to Mariners will be issued; thus, enabling other marine users to also safely plan their activities.
SOPEP / SMPEP	MARPOL 73/78 Annex I and Marine Order 91 (Marine pollution prevention – oil) requires that each vessel has an approved SOPEP in place. To prepare for a spill event, the SOPEP details: • response equipment available to control a spill event • review cycle to ensure that the SOPEP is kept up to date • testing requirements, including the frequency and nature of these tests. In the event of a spill, the SOPEP details: • reporting requirements and a list of authorities to be contacted • activities to be undertaken to control the discharge of oil • procedures for coordinating with local officials.
OPEP	Under the OPGGS(E)R, NOPSEMA require that the petroleum activity has an accepted OPEP in place before commencing the activity. If a vessel collision occurs, the OPEP will be implemented. CAPL has developed an OPEP (Ref. 2) to support level 2 or 3 spill response activities across all its assets.
OSMP	The OSMP details the arrangements and capability in place for operational and scientific monitoring. Operational monitoring collects information about the oil spill to aid planning and decision making for executing spill response or clean-up operations. Scientific monitoring focuses on the environmental impact attributable to the spill or the associated response activities and informs requirements for remediation (if required). CAPL has developed an OSMP (Ref. 3) to support all spill monitoring activities across all its assets.
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3).

	Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.	
Additional control measures and cost benefit analysis		
Control measure	**Benefit**	**Cost**
N/A	N/A	N/A
Likelihood and risk level summary		
Likelihood	Based on industry data, vessel collisions are considered rare, with only 3% of all marine incidents that occurred in Australian waters between 2005 and 2012 associated with a vessel collision event. As most vessel collisions involve the LOC of a forward tank, which are generally double-lined and smaller than other tanks, the loss of the maximum credible volumes used in this scenario is not expected. Considering the inherent low likelihood of a collision occurring, the safeguards in place, and enactment of the OPEP, the potential likelihood of causing the consequences described in this section is Remote (5).	
Risk level	Low (8)	
Determination of acceptability		
Principles of ESD	The potential risks associated with this aspect would be short term, apply to some individuals, and consequently is not expected to affect biological diversity and ecological integrity. The consequence associated with this aspect is Moderate (4). Therefore, no additional evaluation against the Principles of ESD is required.	
Relevant environmental legislation and other requirements	Legislation and other requirements considered relevant to this aspect include: • *Navigation Act 2012 (*Cth*)* • Marine Order 91, Marine Pollution Prevention – oil • Marine Order 30, Prevention of collisions • *Conservation Management Plan for the Blue Whale 2015–2025* (Ref. 59) • *Conservation Advice Balaenoptera borealis Sei Whale* (Ref. 58) • *Conservation Advice Balaenoptera physalus Fin Whale* (Ref. 57) • *Recovery Plan for Marine Turtles in Australia* (Ref. 159) • *Approved Conservation Advice for Aipysurus apraefrontalis (Short-nosed Sea Snake)* (Ref. 226) • *Approved Conservation Advice for Aipysurus foliosquama (Leaf-scaled Sea Snake)* (Ref. 227) • *National Recovery Plan for the Southern Right Whale (Eubalaena australis)* (Ref. 240) • *Conservation Advice Rhincodon typus Whale Shark* (Ref. 161) • *North-west Marine Parks Network Management Plan* (Ref. 189).	
	Requirement	**Demonstration**
	Navigation Act 2012 (Cth) Notice to Mariners.	Requirement to issue a Notice to Mariners has been incorporated into the **maritime safety information** control measure.
	Marine Order 30	Requirements for navigation, lights, and signals have been incorporated

	Gives effect to the Prevention of Collisions Convention.	into the **Marine Standard** control measure.
	Navigation Act 2012 (Cth) and *Protection of the Sea (Prevention of Pollution from Ships) Act* Marine Order 91 and Annex I of MARPOL 73/78.	Requirements for a vessel to have a SOPEP have been incorporated into the **SOPEP** control measure
	Conservation Management Plan for the Blue Whale 2015–2025 No specific management action identified.	N/A.
	Conservation Advice Balaenoptera borealis Sei Whale No specific conservation action identified.	N/A.
	Conservation Advice Balaenoptera physalus Fin Whale No specific conservation action identified.	N/A.
	Conservation Advice Rhincodon typus Whale Shark No specific conservation action identified.	N/A.
	Recovery Plan for Marine Turtles in Australia Management action A4.2: Ensure spill risk strategies and response programs adequately include management for marine turtles and their habitats, particularly in reference to 'slow to recover habitats', e.g. nesting habitat, seagrass meadows or coral reefs.	Assessment of spill risk strategies is within scope of the OPEP (Ref. 2). Response and recovery of habitats and marine fauna is within the scope of the OSMP (Ref. 3). Therefore, the DS-1 exploration drilling is not considered to be inconsistent with the *Recovery Plan for Marine Turtles in Australia.*
	Approved Conservation Advice for Aipysurus apraefrontalis (Short-nosed Sea Snake) No specific conservation action identified.	N/A
	Approved Conservation Advice for Aipysurus foliosquama (Leaf-scaled Sea Snake) No specific conservation action identified.	N/A
	National Recovery Plan for the Southern Right Whale (Eubalaena australis) No specific management action identified.	N/A
	North-west Marine Parks Network Management Plan The Plan requires that "[a]ctions required to respond to oil pollution incidents, including environmental monitoring and remediation, in connection with mining operations authorised under the OPGGS Act	The Gascoyne Marine Park is a multiple use zone (IUCN VI). The control measures identified for the management of an unplanned release provide for the response to, and environmental monitoring and remediation of, an oil pollution incident.

<table>
<tr><td></td><td>may be conducted in all zones. The Director should be notified in the event of an oil pollution incident that occurs within, or may impact upon, an Australian Marine Park and, so far as reasonably practicable, prior to a response action being taken within a marine park.”</td><td>Requirements to report oil pollution incidents that occur within, or may impact upon, an AMP is included in Section 8.4.2.
Therefore, the DS-1 exploration drilling is not considered to be inconsistent with the North-west Marine Parks Network Management Plan.</td></tr>
<tr><td>Internal context</td><td colspan="2">The following CAPL management processes or procedures were deemed relevant for this aspect:
• Marine Standard Non Tankers: Corporate OE Standard (Ref. 39)
• OPEP (Ref. 2)
• OSMP (Ref. 3).
Control measures related to each of the above management processes or procedures have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.</td></tr>
<tr><td>External context</td><td colspan="2">During relevant persons consultation, no objections or claims were raised regarding a vessel collision event arising from the activity.</td></tr>
<tr><td>Defined acceptable level</td><td colspan="2">These risks are inherently acceptable as they are considered lower-order risks in accordance with Table 5-3. In addition, the potential impacts and risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.
However, in alignment with Section 5.6.2, where the aspect is listed as threat to a protected matter, or identified as a concern to a listed conservation value, CAPL will define an acceptable level of impact that aligns with the objectives of these documents. Objectives of the relevant documents are shown below:
<table>
<tr><th>Plan</th><th>Objective</th></tr>
<tr><td>Conservation Management Plan for the Blue Whale 2015–2025</td><td>Recovery objective: Minimise anthropogenic threats to allow for their conservation status to improve so that they can be removed from the EPBC Act threatened species list.
Interim objective 4 Anthropogenic threats are demonstrably minimised.</td></tr>
<tr><td>National Recovery Plan for the Southern Right Whale (Eubalaena australia)</td><td>Recovery objective: Minimise anthropogenic threats to allow the conservation status of the southern right whale to improve so that it can be removed from the threatened species list under the EPBC Act.
Interim objective 5 Anthropogenic threats are demonstrably minimised.</td></tr>
<tr><td>Recovery Plan for Marine Turtles in Australia</td><td>Recovery objective: The long-term recovery objective for marine turtles is to minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so that they can be removed from the EPBC Act threatened species list.
Interim objective 3: Anthropogenic threats are demonstrably minimised.</td></tr>
<tr><td>North-west Marine Parks Network Management Plan 2018</td><td>As per Section 4.5.1.</td></tr>
</table></td></tr>
</table>

	Therefore, CAPL has defined the following acceptable level of impact such that it is not inconsistent with these documents: • impacts from the petroleum activity are managed such that it would not prevent the long-term recovery of protected species • no adverse change to the values of the Australian Marine Park. CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level. In particular that by managing the unplanned release, that the risk to marine fauna and/or values of the AMP are also subsequently managed.	
Environmental performance outcome	**Environmental performance standard**	**Measurement criteria**
(EPO 13) No unplanned release of hydrocarbons or hazardous materials to the environment during the petroleum activity. (EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 1.3) Marine Standard** MODU and vessels will meet the crew competency, navigation equipment, and radar requirements of the Marine Standard.	(MC 1.3.1) Records indicate that MODU and vessels meet the crew competency, navigation equipment, and radar requirements of the Marine Standard.
	(EPS 1.2) Maritime safety information Notify relevant agency of activities, vessel movements, and requested safety exclusion zone, to enable them to generate radio-navigation warnings and/or Notice to Mariners prior to commencing offshore activities.	(MC 1.2.1) Record of lodgement of notification to relevant agency.
	(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol**.**	(MC 2.2.1) Relevant persons consultation records.
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation**.**	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.
(EPO 14) Reduce the risk of impacts to the environment from the unplanned release of hydrocarbons or hazardous	**(EPO 14.1) SOPEP** Marine vessels >400 T will carry on board a SOPEP in accordance with MARPOL 73/78 Annex I – Prevention of Oil Pollution.	(MC 14.1.1) OVIS report / ABU Marine OE Inspection Checklist confirms an approved SOPEP is on board marine vessels >400 T.
		(MC 14.1.2) Records show drills conducted in accordance with SOPEP.

materials during the petroleum activity.	**(EPO 14.2) SOPEP** In the event of a vessel-based spill event, emergency response activities will be implemented in accordance with the vessel SOPEP (or equivalent).	(MC 14.2.1) Records confirm that emergency response activities were implemented in accordance with the vessel SOPEP in the event of a vessel-based spill.
	(EPO 14.3) OPEP In the event of a Level 2 (or above) oil spill occurring to marine or coastal waters, response activities are implemented in accordance with the *ABU Consolidated OPEP*.	(MC 14.3.1) Records confirm the OPEP has been activated and response activities implemented.
	(EPO 14.4) OPEP CAPL will maintain the following minimum preparedness capability for the duration of the petroleum activity: • number and type of response packages as identified in Table 7-15 (vessel collision event).	(MC 14.4.1) Records confirm that CAPL has arrangements in place to access the minimum number and type of responses packages before the petroleum activity commences.
	(EPO 14.5) OPEP—Oil spill response organisation (OSRO) Capability Arrangements CAPL shall maintain service agreements with oil spill response organisations (as per Section 8.3.9.7.3) that have capabilities to support a response to an oil spill event for the duration of the petroleum activity.	(MC 14.5.1) Records confirm that service agreements are in place before, and for the duration of, the petroleum activity.
	(EPO 14.6) OPEP—Mutual Aid Capability Arrangements CAPL shall maintain membership to mutual aid frameworks (as per Section 8.3.9.7.4) that have capabilities to support a response to an oil spill event for the duration of the petroleum activity.	(MC 14.6.1) Records confirm that memberships to mutual aid frameworks agreements are in place before, and for the duration of, the petroleum activity.
	OPEP Refer to the *ABU Consolidated OPEP* for environmental performance outcomes, standards and measurement criteria related to emergency management, emergency preparedness, and each response tactic.	
	(EPO 14.7) OSMP In the event of a Level 2 (or above) oil spill occurring to marine or coastal waters, the OSMP will be activated, and: • operational and scientific monitoring program are initiated[41] once the specific initiation criteria are met • operational and scientific monitoring program are	(MC 14.7.1) Records confirm the OSMP has been activated. (MC 14.7.2) Records confirm that once initial criteria have been met, operational and scientific monitoring programs were initiated. (MC 14.7.3) Records confirm that operational and scientific monitoring programs were implemented within the timeframes outlined in the OSMP.

[41] As per Section 2.1 of the OSMP, for this plan initiation means starting preparation for implementation.

	implemented within the timeframes outlined in the OSMP • operational and scientific monitoring components are continued until respective termination criteria are met.	(MC 14.7.4) Records confirm that once termination criteria have been met, operational and scientific monitoring programs were ceased.
		(MC 14.7.5) If any OSMP programs requiring vessels are activated, records demonstrate that CAPL EMT identified vessel availability through existing contracts within 12 hours of OMSP component initiation activation.
		(MC 14.7.6) If any OSMP programs requiring aircraft are activated, records demonstrate that CAPL EMT identified aircraft availability through existing contracts within 12 hours of OMSP component initiation activation.
		(MC 14.7.7) Records show CAPL EMT mobilised a minimum of one identified, contracted vessel within 24 hours to Onslow, Dampier or Barrow Island (subject to Barrow Island quarantine requirements).
	(EPO 14.8) OSMP Capability required to implement all operational and scientific monitoring programs are in place to meet the requirements outlined in the OSMP.	(MC 14.8.1) Internal personnel capability is documented every six months in the *ABU OSMP Capability Register*.
		(MC 14.8.2) External contractors self-assess their capability against the requirements and provide a Statement of Personnel Capability and Readiness every six months.
		(MC 14.8.3) Hydrocarbon characterisation sample kits are maintained at Barrow Island and Karratha.
	(EPS 2.4) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) In the event of a spill occurring, CAPL will engage with relevant First Nations people and/or representative bodies	(MC 2.4.1) Relevant persons consultation records

7.15 Unplanned release—well control event

7.15.1 Scenario

Drilling of a subsea well introduces the potential for an unplanned release of gas and condensate. CAPL categorise well control into two categories:

- loss of well integrity—where integrity of the well has been compromised, but the well remains under control (which would prompt a Level 1 or Level 2 well control emergency response)

- loss of effective well control—where control of the well has been lost (which would require a Level 3 well control emergence response).

The WOMP (Ref. 4) identifies that well control events are a feasible risk during well construction, suspension, or abandonment activities and have the potential to occur by:

- dropped objects onto the well envelope (potential damage to wellhead)
- mechanical failure (including failure of wellhead components or cement plugs)
- corrosion (corrosion leading to loss of casing integrity)
- loss of effective well control (including hydrocarbon influx or breach of well fluids to surface)
- loss of effective well control (unable to shear pipe in an emergency situation)
- loss of effective well control (loss of hydrostatic barrier)
- loss of station keeping (anchoring/mooring failure with potential damage to wellhead)
- operating error (such as incorrect operation of well control systems).

As detailed in the WOMP, risk controls (e.g. casing and formation integrity testing, well control system standards) are in place to mitigate well control events during well construction activities.

As detailed in the WOMP, primary and secondary barriers (e.g. hydrostatic volume and BOP) are in place to mitigate well integrity impacts during well suspension and abandonment activities.

Based upon the feasible risks identified during activities within scope of this EP (i.e. well construction, well suspension, well abandonment), a loss of effective well control (LOWC) was deemed to present the worst-case credible spill scenario and has been used as the basis for the following risk assessment.

7.15.1.1 Loss of well control volume

The *ABU Wells Worst Case Discharge Calculation and Relief Well Planning Standard Operational Procedure* (Ref. 278) describes the methodology for estimating a worst case discharge (WCD) for a loss of effective well control event. The methodology aligns with the *Australian Offshore Titleholders Source Control Guideline* (Ref. 268) and the *Society of Petroleum Engineers (SPE) Technical Report – Calculation of Worst-Case Discharge* (Ref. 275).

As the exploration well is anticipated to have high gas flow rates, the WCD calculations consider internal resistance from turbulent (Non-Darcy) flow. The basis for the WCD calculation also includes the following well flow characteristics:

- open hole across all flow zones
- no mechanical obstruction in the hole (e.g. no pipe, tools, or debris to choke the flow)
- no sand bridging of the wellbore, hydrates, or washouts
- zero mechanical skin or geometric skin
- no BOP attached with full WCD fluid evacuation to mudline.

Based on the above WCD calculation method, a subsea release of 97 m^3/day (614 bbl/day) of condensate was determined for the DS-1 exploration well.

7.15.1.2 Loss of well control duration

Response time models (RTMs) for DS-1 exploration well indicate it is reasonable to expect that the DS-1 well could be killed, via drilling a relief well, within an approximate 13-week (90 days) period. Therefore, this 90 days was used as the duration for the worst case credible spill scenario. The RTMs take into account the preparation, assessment, and approval of the Safety Case revisions for the relief well rig and support vessels. The RTM is based on a rig being available on the NWS, and activated by the AEP MoU (refer to Section 8.3.9.7 for oil spill response resourcing arrangements). Further details on the RTM are provided in the *Source Control Emergency Response Plan* (SCERP) (Ref. 195).

The SCERP (see Section 8.3.9.1.1) has been specifically developed to align with relevant industry guidance and standards, including the AEP *Australian Offshore Titleholders Source Control Guideline* (Ref. 268), IOGP's *Source Control Emergency Response Planning Guide for Subsea Wells* (Ref. 276) and NOPSEMA's *Source control planning and procedures Information Paper* (Ref. 277).

The SCERP contents satisfy the information recommendations in these industry documents and include topics such as a plume and dispersion study, capping stack landing analysis, capping stack selection, well to BOP to cap interface analysis, capping stack and ROV interfaces, capping stack mobilisation, and deployment planning, WCD calculation, relief well locations and designs, relief well dynamic well kill plan, relief well long lead inventory management, simultaneous operations (SIMOPS) planning, debris clearance plan, subsea dispersant operations and supply planning, source control Incident Management Team (IMT) arrangements and notifications, mutual aid arrangements via AEP, wellhead structural integrity analysis, source control and Emergency Response Plan training and drills, response vessels and tracking, and response time modelling for source control strategy.

The SCERP (Ref. 195) which contains all steps necessary to affect the direct intervention on a well that has experienced loss of well containment, with the intent to halt or control the release of hydrocarbons to the environment. The SCERP also provides information to align source control response expectations within the Wells function between the ABU and the Chevron Global Wells Source Control Team, based in Houston.

As per the SCERP and associated RTM, drilling of a relief well would be the progressed concurrently with capping stack deployment (see Section 7.16.3.3 for capping stack deployment timeframes). The detailed and well specific relief well planning will be contained in a Relief Well Plan (Ref. 280).

In addition to the detailed Relief Well Plan, the SCERP (Ref. 195) summarises relief well rig specifications, arrangements for monitoring the availability of appropriate rig units and the capabilities required for the rig mud pumps. The rig mud pumps require the capability to pump at up to 99 BPM with at least 15 ppg kill mud at up to 6,200 psi pump pressure. Other specifications to be evaluated include water depth capability, maximum hook load, BOP pressure rating and rig choke and kill line size, which will provide a limit on the kill rate that can be delivered.

A summary of the key tasks associated with drilling a relief well (and incorporated into the RTMs) are:

- incident reporting and notifications, and activation of Emergency Management Team (EMT)
- source and contract vessel, and mobilise capping stack from Singapore
- source and contract a relief well rig, rig suspends operations, prepare and mobilisation to site
- preparation, assessment, and approval of Safety Case revisions for the relief well rig and support vessels
  - timing for the assessment and approval of the Safety Case revisions and WOMP is based on undertaking this concurrently with the relief well rig suspending operations, preparing, and mobilising to site
  - preference would be for a relief well rig that has a NOPSEMA-accepted Safety Case in place.
- transport equipment and materials ready for deployment
- position, drill well, intersect, and dynamically kill DS-1 well.

Relief well preparedness and preparation also involves a number aspects:

- CAPL has a number of specialist contractors and organisations available to support a response to a LOWC incident, including having contractual arrangements in place to access such services as required
- CAPL has service agreements or memberships with Wild Well Control, Add Energy, Trendsetter, Haliburton, Oceaneering, Australian Marine Oil Spill Centre (AMOSC) Subsea First-response Toolkit (SFRT) and Oil Spill Response Limited (OSRL) Subsea Well Intervention Services (SWIS). Activation of these resources will occur upon authorisation by the Chevron IMT Incident Commander or delegate.
- CAPL tracks and assesses the availability and suitability of available MODUs through the OSRL sea/response vessel tracking software. MODUs expected to be located in Australia (with a Safety Case) or located in the region for the duration of the project are identified during the planning phase and immediately before spudding. The AEP MoU: Mutual Aid is also in place to enable access to rigs contracted by other titleholders for relief well drilling
- before commencing well operations, the availability of suitable wellhead equipment and sufficient casing for the relief well will be confirmed through the Chevron inventory management system and requirements detailed in the well-specific relief well plan. This inventory check extends to any items that would normally be considered long-lead items, including liner hanger systems if used in the well design. In many cases the relief well design will be similar to that of the incident well. This will either eliminate the need to purchase separate equipment tubular sizes, weights, grades and casing accessories for contingency purposes, or reduce the additional quantities required
- as detailed in the WCD calculations and Relief Well Planning SOP (Ref. 278), CAPL maintains an active Relief Well Equipment list together with a Relief Well equipment management process to ensure equipment readiness, completeness and availability before commencing well operations.

7.15.1.3 Hydrocarbon type

As described in Section 3.1.4, CAPL identified the most appropriate analogue as Isoceles-1, a previous dry gas exploration well located ~4 km to the east of DS-1. A partial assay report for the Isosceles-1 condensate was to inform the condensate characteristics used in the modelling. Gorgon condensate was selected from the SIMAP database and used to inform the condensate characteristics used in the modelling.

7.15.2 Spill modelling

CAPL commissioned RPS to conduct spill modelling to inform the risk assessment associated with loss of effective well control event at the DS-1 exploration well (Ref. 193).

The spill modelling was undertaken using a higher discharge rate (~105 m^3/day) in comparison to the WCD (~97 m^3/day) estimated for the DS-1 well; therefore the modelling is considered appropriate and conservative for use in the subsequent risk assessment. Two models were used as part of the spill modelling: OILMAP-DEEP was used to simulate the nearfield multiphase plume rise dynamics from the subsea release, and a three-dimensional oil spill model (SIMAP) was used to simulate the drift, spread, weathering and fate of the spilled oil. Modelling was conducted using a stochastic approach, where multiple simulations (using the same spill parameters) were conducted, but under varying meteorological and oceanographic conditions (Ref. 193).

Table 7-12 summarises the model settings; Table 7-13 summarises the hydrocarbon properties for condensate; and Table 7-10 (in Section 7.14) describe the environmental impact thresholds.

Table 7-12 Well control event spill scenario model settings

Parameter	Details
Release Location	DS-1 exploration well
Latitude	20º28’37.60” S
Longitude	114º25’3.70” E
Water Depth	~958 m
Oil type	Condensate
Simulation spill type	Subsea
Simulation spill volume	9,428 m^3
Simulation spill duration	90 days
Total simulation duration	104 days
Number of randomly selected spill simulation start times	100 per season (300 total)
Seasons modelled	Summer (September to the following March) Transitional (April and August) Winter (May to July)

Table 7-13 Physical properties and boiling point ranges for condensate

Characteristic	Value
Density	847.8 kg/m^3 (at 15 °C)

Characteristic	Value			
Dynamic viscosity	2.8 cP (at 20 °C)			
Pour point	-9 °C			
API gravity	35.3 API			
Classification	Group II, light persistent oil			
Boiling point	**Volatile <180 °C**	**Semi-volatile 180–265 °C**	**Low volatility 265–380 °C**	**Residual >380 °C**
% total	33.3%	28.5%	32.3%	5.9%
% aromatics	10.3%	4.0%	9.9%	–

7.15.2.1 Weathering and fate

Gorgon condensate is light persistent oil, with a density of 847.8 kg/m^3, an API of 35.3, and a low pour point (−9 °C) (Table 7-13). The low viscosity (2.8 cP) indicates that this oil will spread quickly when released and will form a thin film on the sea surface, increasing the evaporation rate.

Gorgon condensate is a mixture of volatile and persistent hydrocarbons with high proportions of volatile and semi-volatile components. In favourable conditions, ~33.3% of the Gorgon condensate mass should evaporate within the first 12 hours (boiling point <180 °C); a further ~28.5% should evaporate within the first 24 hours (boiling point 180°C–265 °C); and an additional ~32.3% should evaporate over several days (boiling point 265°C–380 °C). Approximately 5.9% of the oil mass is shown to be persistent.

The whole oil has no asphaltene content, indicating no propensity for the mixture to take up water to form water-in-oil emulsion over the weathering cycle (Ref. 193).

Soluble, aromatic, hydrocarbons contribute approximately 24.2% by mass of the whole oil (Ref. 193). Approximately 10.3% by mass is highly soluble and highly volatile, and ~4.0% by mass has semi-volatility. These compounds dissolve more slowly but tend to persist in soluble form for longer. Discharge onto the water surface will favour the process of evaporation over dissolution under calm sea conditions, but increased entrainment of oil and dissolution of soluble compounds can be expected under breaking wave conditions (Ref. 193).

7.15.2.2 Modelling outputs

Stochastic modelling outputs from RPS (Ref. 193) are summarised in Table 7-14 having regard to the relevant values and sensitivities within the EMBA as identified in Section 4.

For the 9,428 m^3 subsea release of condensate at DS-1:

- The maximum distance from the release location to the ≥1 g/m^2 surface impact thresholds was ~13 km north-northeast (winter) and ~1.2 km east-northeast (summer), respectively. No surface exposure above the ≥10 g/m^2 threshold was predicted to occur during any season.
- no shoreline accumulation was predicted during the transitional and winter seasonal conditions. The probability of accumulation on any shoreline at ≥10 g/m^2 during summer was 6%, while the minimum time before shoreline accumulation was 12.38 days and the maximum volume of oil ashore ≥10 g/m^2 threshold was 5.5 m^3. No shoreline accumulation at ≥100 g/m^2 or ≥1,000 g/m^2

was predicted to occur. Dissolved and entrained oil at ≥50 ppb and ≥100 ppb impact thresholds respectively, was predicted to occur; however, dissolved and entrained oil was predicted to remain in the surface layer with no exposure at depths >10 m below the surface predicted to occur during any season.

Table 7-14: LOWC spill modelling EMBA receptor exposure summary

Sensitivity	Name	Surface^		In-water (dissolved)^	In-water (entrained)^	Shoreline^	
		≥1 g/m²	≥10 g/m²	≥50 ppb	≥100 ppb	≥10 g/m²	≥100 g/m²
		(probability of exposure, minimum time to exposure)		(probability of exposure)	(probability of exposure)	(probability of exposure, minimum time to exposure, mean length of shoreline)	
AMP	Gascoyne	—	—	1%	—	—	—
State protected area	Pilbara Islands Group	—	—	—	—	6%, 12.4-15.4 days, 3 km	—
KEF	Ancient coastline at 125 m depth contour	—	—	0-1%	—	—	—
	Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	—	—	0-1%	—	—	—
	Continental Slope Demersal Fish Communities	100%, 0.21-0.25 days	—	4-5%	94-99%		
	Exmouth Plateau	—	—	1%	—	—	—
World Heritage Properties / National Heritage Places	The Ningaloo Coast *(inferred from Cape Range IBRA, Exmouth shoreline)*	—	—	—	—	5%, 30.4 days, 1.7 km	—
Commonwealth Heritage Properties	Ningaloo Marine Area – Commonwealth Waters *(inferred from Ningaloo IMCRA)*	—	—	—	—	—	—

^ *Ranges in values shown are due to the different results between seasons.*

7.15.3 Risk assessment

Source			
Activities identified as having the potential to result in a loss of effective well control event are: • drilling—unplanned hydrocarbon influx, breach of well fluids, or loss of hydrostatic barrier			
Potential impacts and risks			
Impacts	**C**	**Risks**	**C**
N/A	–	The potential environmental impacts associated with hydrocarbon exposures from a LOWC are: • marine pollution resulting in sublethal or lethal effects to marine fauna • indirect impacts to fisheries • reduction in amenity resulting in impacts to tourism and recreation. • changes to values and sensitivities of Australian Marine Parks • changes to cultural heritage values.	 5 6 5 5 4
Consequence evaluation			

Marine pollution resulting in sublethal or lethal effects to marine fauna

Marine mammals

Marine mammals may be exposed to hydrocarbons from an oil spill at the water surface or within the water column. Marine mammals can be exposed to oil externally (e.g. swimming through surface slick) or internally (e.g. swallowing the oil, consuming oil-affected prey, or inhaling of volatile oil related compounds) (Ref. 162; Ref. 178).

Instances of an avoidance response (i.e. avoiding spilled hydrocarbons) have been identified for several species of cetacean, suggesting that cetaceans may have the ability to detect and avoid surface slicks (Ref. 167). However, detection seems to depend on oil thickness and colour (Ref. 260). Observations during oil spill events (DWH and the Mega Borg oil spills) have recorded whales and dolphins travelling through and feeding in oil slicks (Ref. 258, Ref. 259, Ref. 260).

Direct contact with hydrocarbons may result in skin and eye irritation, burns to mucous membranes of eyes and mouth, and increased susceptibility to infection (Ref. 169). The effect of oil on cetacean skin is likely minor and temporary (Ref. 169) due to the skins effectiveness as a barrier. However it was observed that existing skin lesions, cuts, or abrasions could allow oil to be absorbed more readily into the bloodstream (Ref. 258). French-McCay (Ref. 166) identifies that a ≥10 g/m^2 oil thickness threshold has the potential to impart a lethal dose to the species; however, also estimates a probability of 0.1% mortality to cetaceans if they encounter these thresholds based on the proportion of the time spent at surface.

Dugongs have smooth skin surfaces and therefore are less likely to be affected by oil adhering to their skin. If surfacing in a slick, the Dugongs may foul their sensory hairs (around their mouths) or their eyes; these could lead to inflammation/infections that then affect their ability to feed or breed (Ref. 244). Dugongs may also ingest oil (directly, or indirectly via oil-affected seagrass), and depending on the amount and type of oil, the effects could be short-term to long-term/chronic (e.g. organ damage). However, it is noted that reports on oil pollution damage to Dugongs is rare (Ref. 243).

The physical impacts from ingested hydrocarbons with subsequent lethal or sublethal impacts are possible; however, the susceptibility of cetaceans varies with feeding habits. Baleen whales are not particularly susceptible to ingestion of oil in the water column as they feed by skimming the surface (i.e. they are more susceptible to surface slicks). Toothed whales and dolphins may be susceptible to ingestion of dissolved and entrained oil as they gulp feed at depth. As highly mobile species, in general it is not expected that these animals will be constantly exposed to concentrations of hydrocarbons in the water column for continuous durations (e.g. >48–96 hours) that would lead to chronic effects.

Studies have shown little impact on Bottlenose Dolphins after hydraulic and mineral oil immersion and ingestion, although there was evidence of temporary skin damage in dolphins and a Sperm Whale from contact with various oil products including crude oil (Ref. 169; Ref. 167).

During the DWH spill, Bottlenose Dolphins were observed with oil adhered to the skin, resulting in skin lesions from prolonged exposure (Ref. 259). After the DWH spill, adverse health effects, including lung and adrenal disease, reproductive failure, mortality, and poor body condition were also identified in Bottlenose Dolphins (Ref. 258). However, given the nature of crude oil from the DWH spill, adherence to the skin by condensate may be considered less likely based on the hydrocarbon properties.

Marine mammals are vulnerable if they inhale volatiles when they surface within a hydrocarbon slick. For the short period that they persist, vapours from the spill are a significant risk to mammal health, with the potential to damage mucous membranes of the airways and the eyes, which will reduce the health and potential survivability of an animal. Inhaled volatile hydrocarbons are transferred rapidly to the bloodstream and may also accumulate in tissues (Ref. 169).

As identified in Section 4.3.3.1, several marine mammal species listed as threatened and/or migratory under the EPBC Act have the potential to occur within the Hydrocarbon Ecological EMBA. The following BIAs intersect the Hydrocarbon Ecological EMBA:

- Humpback Whale (migration)
- Pygmy Blue Whale (migration, foraging).

As these species are considered most sensitive to surface and entrained exposures, deterministic analysis were utilised to understand the potential extent and duration of exposure.

Stochastic modelling predicted no surface hydrocarbons concentrations ≥10 g/m^2; therefore, impact to offshore species from surface exposure is not predicted to occur and no further evaluation has been undertaken.

The deterministic model for the largest area of entrained hydrocarbon indicates that entrained hydrocarbons concentrations ≥100 ppb are present for several days following the spill event, with a maximum area of coverage of ~20 km^2 occurring ~20 days after the spill commenced. This deterministic scenario is considered most relevant for offshore waters, and subsequent impacts to offshore BIA's in those regions. Using the Pygmy Blue Whale migration BIA as an example, modelling indicates that the extent of entrained exposures was predicted to be limited to <0.1% of the entire BIA.

Based on an assessment of the predicted magnitude and duration of surface and entrained oil, it is expected that only a small proportion of any marine mammal population would be exposed above the defined impact exposure thresholds. Therefore, the potential of oil to cause sublethal or lethal effects was ranked as Incidental (6) and Minor (5), respectively.

Reptiles

Marine reptiles may be exposed to hydrocarbons from an oil spill at the water surface or on the shoreline. Marine reptiles can be exposed to oil externally (e.g. swimming through surface slick) or internally (e.g. swallowing the oil, consuming oil-affected prey, or inhaling of volatile oil related compounds) (Ref. 179).

Marine turtles are vulnerable to the effects of oil at all life stages: eggs, hatchlings, juveniles, and adults. Several aspects of turtle biology and behaviour place them at risk, including a lack of avoidance behaviour, indiscriminate feeding in convergence zones, and large pre-dive inhalations (Ref. 180). Oil effects on turtles can include impacts to the skin, blood, digestive, and immune systems, and increased mortality due to oiling.

Shoreline hydrocarbons can impact turtles coming ashore at nesting beaches. Eggs may also be exposed during incubation, potentially resulting in increased egg mortality and detrimental effects on hatchlings. Hatchlings may be particularly vulnerable to toxicity and smothering as they emerge from the nests and make their way over the intertidal area to the water (Ref. 179).

As identified in Section 4.3.3.2, several reptile species listed as threatened and/or migratory under the EPBC Act have the potential to occur within the Hydrocarbon Ecological EMBA. The following BIAs intersect the Hydrocarbon Ecological EMBA:

- Flatback Turtle, Green Turtle, Hawksbill Turtle and Loggerhead Turtle (internesting buffer)
- Green Turtle and Loggerhead Turtle (nesting).

The EPBC threatened Short-nosed Seasnake and Leaf-scaled Seasnake, and other EPBC marine listed seasnake species, may be present within the Hydrocarbon Ecological EMBA. Oil pollution has been identified as a pressure 'of potential concern' (Ref. 245) to seasnakes. Sea snakes are susceptible to oil on the sea surface (Ref. 245; Ref. 246; Ref. 247). Being air breathers and obligate bottom feeders oil may be either inhaled or ingested (Ref. 245; Ref. 248).

Stochastic modelling predicted no shoreline accumulation above the ≥100 g/m^2 or surface hydrocarbons concentrations ≥10 g/m^2 impact threshold; therefore, impacts to marine reptiles from LOWC is not predicted to occur and no further evaluation has been undertaken.

Fishes, including sharks and rays

Fish, including sharks and rays, may be exposed to hydrocarbons from an oil spill within the water column. Most fish do not break the sea surface, and therefore the risk from surface oil is not relevant; however, some shark species (including Whale Sharks) feed in surface waters, so there is also the potential for surface hydrocarbons to be ingested.

Potential effects include damage to the liver and lining of the stomach and intestine, and toxic effects on embryos (Ref. 181). Fish are most vulnerable to oil during embryonic, larval and juvenile life stages. However, very few studies have demonstrated increased mortality of fish as a result of oil spills (Ref. 182; Ref. 183; Ref. 184).

Demersal fish are not expected to be impacted given the presence of dissolved and entrained oil are predicted in the surface layers (<10 m water depth) only.

Pelagic free-swimming fish and sharks are not expected to suffer long-term damage from oil spill exposure because dissolved/entrained hydrocarbons are typically insufficient to cause harm (Ref. 185). Pelagic species are also generally highly mobile and as such are not expected to suffer extended exposure (e.g. >48–96 hours) at concentrations that would lead to chronic effects due to their patterns of movement. Near the sea surface, fish can detect and avoid contact with surface slicks meaning fish mortalities rarely occur in the event of a hydrocarbon spill in open waters (Ref. 186). Fish that have been exposed to dissolved hydrocarbons can eliminate the toxicants once placed in clean water; hence, individuals exposed to a spill would recover (Ref. 187). Marine fauna with gill-based respiratory systems, including Whale Sharks, are expected to have higher sensitivity to exposures of entrained oil.

As identified in Section 4.3.3.3, several fish species listed as threatened and/or migratory under the EPBC Act have the potential to occur within the Hydrocarbon Ecological EMBA. The following BIAs intersect the Hydrocarbon Ecological EMBA:

- Whale Shark (foraging).

As these species are considered most sensitive to surface and entrained hydrocarbon exposures, deterministic analyses were utilised to understand the potential extent and duration of exposure.

Stochastic modelling predicted no surface hydrocarbons concentrations ≥10 g/m^2; therefore, impact to offshore species from surface exposure is not predicted to occur and no further evaluation has been undertaken.

The deterministic model for the largest area of entrained hydrocarbon indicates that entrained hydrocarbons concentrations ≥100 ppb are present for several days following the spill event, with a maximum area of coverage of ~20 km^2 occurring ~20 days after the spill commenced. This deterministic scenario is considered most relevant for offshore waters, and subsequent impacts to offshore BIA's in those regions. Using the Whale Shark foraging BIA as an example, modelling indicates that the extent of entrained exposures was predicted to be limited to ~0.1% of the entire BIA.

Based on an assessment of the predicted magnitude and duration of entrained exposure to oil, it is expected that only a small proportion of any fish population would be exposed above the defined impact thresholds. Therefore, the potential impacts of oil to cause sublethal or lethal effects was ranked as Incidental (6) and Minor (5), respectively.

Seabirds and shorebirds

Birds may be exposed to hydrocarbons from an oil spill at the water surface (e.g. foraging, resting) or on the shoreline (e.g. roosting, nesting).

Birds that rest at the water's surface (e.g. shearwaters) or surface-plunging birds (e.g. terns, boobies) are particularly vulnerable to surface hydrocarbons (Ref. 168; Ref. 180). Damage to external tissues, including skin and eyes, can occur, along with internal tissue irritation in lungs and stomachs (Ref. 189). Acute and chronic toxic effects may result where the product is ingested as the bird attempts to preen its feathers (Ref. 188).

As identified in Section 4.3.3.4, several bird species listed as threatened and/or migratory under the EPBC Act have the potential to occur within the Hydrocarbon Ecological EMBA. The Wedge-tailed Shearwater breeding BIA intersect the Hydrocarbon Ecological EMBA.

Stochastic modelling predicted no shoreline accumulation above the ≥100 g/m^2 or surface hydrocarbons concentrations ≥10 g/m^2 impact threshold would occur; therefore, impacts to seabirds or shorebirds from LOWC is not predicted to occur and no further evaluation has been undertaken.

Indirect impacts to fisheries

As identified in Section 4.4.1, several commercial fisheries have management areas and recent fishing effort recorded within the Hydrocarbon Ecological EMBA. As identified in Section 4.4.2,

some recreational fishing is expected to occur within the Hydrocarbon Ecological EMBA. Direct impacts commercially targeted fish species are expected to occur from in-water exposures.

Stochastic modelling predicted that dissolved and entrained oil above impact thresholds (≥50 ppb; ≥100 ppb respectively) was predicted to occur; however, was predicted to remain in the surface layers, with no exposure at depths >10 m below the surface predicted to occur during any season. As described above, very few studies have demonstrated increased mortality of fish as a result of oil spills. However, fish stocks may be especially vulnerable to oil spills close to the spawning grounds or egg and larval drift areas (Ref. 183; Ref. 261). Fish eggs and larvae are typically vulnerable to toxic oil compounds due to their small size, poorly developed membranes and detoxification systems as well as their position in the water column (Ref. 261).

As identified in Section 4.4.1.1, the spawning grounds for the EPBC Act listed conservation dependent Southern Bluefin Tuna intersects with the Hydrocarbon Ecological EMBA. As such, the available deterministic analyses from the hydrocarbon spill modelling were utilised to understand the potential extent and duration of exposure to these spawning grounds. The deterministic analysis for the largest area of entrained hydrocarbon indicates that entrained hydrocarbons concentrations ≥100 ppb are present for several days following the spill event, with a maximum area of coverage of ~20 km^2 occurring ~20 days after the spill commenced. Based on the spatial extent of the Southern Bluefin Tuna spawning ground (~1,850,534 km^2), modelling indicates that the extent of entrained exposures was predicted to be limited to ~0.001% of the entire spawning ground.

Although exposures above impact thresholds have the potential to affect the recruitment of targeted commercial and recreational fish species, any acute impacts are expected to be limited, given this event is singular, non-continuous, and will result in a limited volume of hydrocarbon being released over a short time. On this basis, recruitment of targeted species is not expected to be impacted significantly given the extent of exposure to concentrations above impact thresholds are expected to be limited due to rapid dilution and dispersion upon release.

Following the DWH oil spill in the northern Gulf of Mexico, studies found that concentrations of crude oil measured in Gulf spawning habitats could cause cardiac-related deformities in commercially important species including bluefin and yellowfin tuna (Ref. 262). Initial research has shown that subtle perturbations of the embryonic heartbeat can produce permanent changes in heart shape that negatively affect swimming performance and other behaviours critical for fish survival (Ref. 262). However, a deterministic end-to-end ecosystem model that simulates DWH oil spill event suggests that fisheries closures and loss of larvae due to oil exposure have little impact on ecosystem biomass (Ref. 263). Impact equated to a 5.8% loss of the larval population in the year of the oiling (Ref. 263). Therefore, impacts to commercial fisheries are expected to be limited.

Spill events also have the potential to impact commercial fisheries through indirect impacts associated with tainting. Tainting is a change in the characteristic smell or flavour, and renders the catch unfit for human consumption or sale due to public perception. Tainting may not be a permanent condition but will persist if the organisms are continuously exposed; but when exposure is terminated, depuration will quickly occur (Ref. 192). Regardless of the small potential for tainting, customer perception that tainting has occurred may cause a larger impact then the direct impact itself. However, as this event is singular, non-continuous, and will result in a limited volume of hydrocarbon being released over a short time period, and the low persistence of the hydrocarbon in the environment, customer perceptions are not expected to be altered for a prolonged period.

Modelling predicts that inshore exposure would be limited, whilst offshore exposures are expected to dilute and disperse over a longer period of time. In both instances, it is expected that any impacts from this type of event would be short term in duration. Therefore, CAPL assesses the consequence to fisheries as Incidental (6).

Reduction in amenity resulting in impacts to tourism and recreation

Stochastic modelling predicts shoreline exposure ≥10 g/m^2 (visible impact threshold) from LOWC has the potential to occur along Pilbara Islands (Muiron and Serrurier Islands) and around the Point Cloates / Ningaloo Station area during summer months, depending on the environmental conditions at the time of the event. No shoreline contact was predicted to occur during other (winter, transitional) seasons.

Stochastic modelling did not predict surface exposure ≥1 g/m^2 within State waters.

Deterministic model for longest length of oil ashore, predicts the maximum length of shoreline oil above the visible impact threshold (≥10 g/m^2) at any given time was ~3 km, occurring ~15.4 days after the spill commenced. Shoreline loading can impact the visual amenity of coastal areas and limit beach access for users, impacting tourism and recreation activities. However, it is expected

that any impacts from this type of event would be non-continuous, short term in duration and will result in a limited volume ashore.

On this basis, CAPL assess the reduction in amenity resulting in impacts to tourism and recreation as Minor (5).

Changes to values and sensitivities of Marine protected areas

Stochastic modelling predicts a low probability (1%) of dissolved exposure ≥50 ppb within the Gascoyne Marine Park (Table 7-14). Modelling also predicted a low (6%) probability of shoreline exposure above impact threshold (≥10 g/m^2) within the Pilbara islands group. No interaction with seabed or surface exposure ≥1 g/m^2 within any marine protected area was predicted to occur. The natural values of these Marine Parks include species listed as threatened, migratory, marine, or cetacean under the EPBC Act, as well as any identified BIAs for regionally significant marine fauna. Social and economic values of the Marine Parks include fishing and tourism and recreation.

The consequence evaluations to marine fauna and commercial fisheries are provided above.

Given the expected behaviour and weathering of the oil, limited spatial and temporal exposure to marine fauna or commercial fish species above impact exposure thresholds, the potential impacts of a LOWC to the values and sensitivities of the Marine Parks have been ranked as Minor (5).

Changes to cultural heritage value

As discussed in Section 4.6, there are heritage listed places or sites within the Hydrocarbon EMBAs, including World and National heritage Ningaloo Coast (within both Hydrocarbon Ecological and Social EMBA), a First Nation Heritage site around Ningaloo station and a Native Title Determination area around the Ningaloo Coast (both within the Hydrocarbon Social EMBA only).

Protected UCH sites have been identified within the Hydrocarbon EMBAs; these sites are related to shipwrecks, with no other types (e.g. aircraft or other artefacts) identified (Section 4.6.2). Given known sea level history, parts of the Hydrocarbon EMBAs (e.g. those <125 m water depth), would have been emergent land during the extended history of First Nations occupation of Australia. At the time of writing this EP, CAPL understands through consultation with the relevant First Nations groups that there are no known artefacts or specific sites of cultural values associated with the seabed within the Hydrocarbon EMBAs (Section 4.6.2 and Section 6). Stochastic modelling did not predict interaction with seabed in offshore waters. Therefore, no impacts to seabed-based UCH (e.g. shipwrecks or archaeology), including First Nations UCH, are expected.

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. It is understood that the term ‘Country’ refers to more than just a geographical area, and includes values, places, resources, stories, and cultural obligations associated with that geographical area (Ref. 138; Ref. 313). Specific tangible values of Sea Country identified through literature and/or consultation include:

- marine fauna (e.g. whales, dugongs, turtles)
- offshore islands (e.g. Barrow Island) and parts of the mainland coast (e.g. Ningaloo Coast)
- marine resources (e.g. fish).

The consequence evaluations to marine fauna (including fish) are provided above and were assessed as having a minor environmental impact. Further, as described in the above evaluations, if an unplanned hydrocarbon (gas and condensate) release did occur it is not expected to have an effect at population-levels.

BTAC identified that the Thalanyji people have a deep connection to a number of the Pilbara inshore islands (Table 4-14). Depending on the environmental conditions at the time of the spill event, of the named islands within the Hydrocarbon EMBAs, some Pilbara islands (e.g. Muiron Islands, Serrurier Island) may be exposed to shoreline loading above the visible impact threshold (≥10 g/m^2) (Table 7-14). Shoreline would be contacted ~15.4 days after the spill commenced and the maximum volume of oil was and 1.5 m^3 at Pilbara Islands. There is a low probability (≤6%) of shoreline contact during summer; no shoreline contact was predicted to occur during winter or transitional seasons. No shoreline exposure ≥100 g/m^2 was predicted to occur. Shoreline loading can impact the visual amenity of coastal areas and limit beach access for users. However, if shoreline contact occurs (highly unlikely), it is expected that any impacts from this type of event would be non-continuous short term in duration and will result in a limited volume ashore. As such, given the volume, type of oil (condensate) and predicted weathering, no prolonged impact pathway to a change in access to Country is anticipated.

Intangible cultural heritage refers to the “practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognise as part of their cultural

heritage" (Ref. 270). Specific intangible values of Sea Country identified through consultation included Dreamtime stories and songlines (Table 4-14). In particular, representatives from MCH identified the existence of songlines that go through Barrow Island and offshore (Table 4-14). Note: for further description of songlines and associated access and connection to Country, refer to the description provided previously in Section 7.2.

Given the volume, type of oil (condensate) and predicted weathering, no prolonged impact pathway to a change in access to Country is anticipated. The consequence evaluations to marine fauna are provided above and were assessed as having a minor environmental impact to individuals—if they are present within the area at the time of a spill, and is not expected to affect the overall population of the species. As such, it is anticipated that intangible heritage values such as songlines and connection to Country would not be significantly adversely affected in the long-term from an unplanned hydrocarbon (gas and condensate) release within the OA. Given the expected behaviour and weathering of the oil, limited spatial and temporal exposure, only a relatively small area is expected to be exposed due to a single spill event. However, it is acknowledged that the sea and coast that may be exposed could represent important cultural values. Therefore, the potential impacts of oil to cultural heritage values was ranked as Moderate (4).

ALARP decision context justification

Exploration drilling activities offshore is a well-practised nationally and internationally activity.

The control measures to manage the risk associated with a loss of effective well control event are well defined via legislative requirements that are considered standard industry practice. These are well understood and implemented by the petroleum industry and CAPL. Specifically, CAPL has worked in the region for over 10 years and has a demonstrated understanding of industry requirements and their operational implementation in these areas.

During relevant persons consultation, no objections or claims where raised regarding LOWC arising from the activity.

The risks associated with a LOWC event are considered lower-order risks in accordance with Table 5-3. As such, CAPL would apply ALARP Decision Context A for this aspect.

Good practice control measures

Control measure	Description
WOMP	Under the OPGGS (Resource Management and Administration) Regulations 2011, NOPSEMA require that the petroleum activity have an accepted WOMP in place before commencing the activity. A WOMP ensures systems are in place to manage well integrity and well activities.
Wellsafe Standard Operational Procedure (Wellsafe SOP)	CAPL's *Wellsafe Standard Operational Procedure* (Ref. 194) is an assurance program used to certify that specified requirements have been met; this provides assurance that well control can be maintained at all times. Specifically, Wellsafe requires: • MODU certification • well design and plan certification • well execution certification • Business Unit WellSafe certification.
Blowout preventor	For these exploration drilling activities, a BOP will be installed and tested in accordance with the WOMP (Ref. 4).
Equipment maintenance	Critical equipment will be identified (e.g. BOP) and maintained in accordance with manufacturers specifications. Regular maintenance ensures the integrity of critical equipment is maintained, which ensures optimal performance and reduces the risk of failure.
EMT	An emergency management team (EMT) capable of managing a response to the worst-case discharge scenario described in this EP will be maintained.
OPEP	Under the OPGGS(E)R, NOPSEMA require that the petroleum activity have an accepted OPEP in place before commencing the activity. Should a LOWC scenario occurs, the OPEP will be implemented. CAPL has developed an OPEP (Ref. 2) to support level 2 or 3 spill response activities across all its assets.

SCERP	Source control is part of the first actions taken to minimise the volume of hydrocarbon released and therefore reduce potential impacts and risks to the environment. Key source control options for this LOWC event include a capping stack (primary option) and relief well drilling (progressed concurrently with capping stack deployment), covered in the SCERP (Ref. 195). Where applicable to the activities, the SCERP will address: • arrangements for providing Source Control specialists (numbers, competency, capability for the duration of the response) • arrangements for providing equipment and supplies • arrangements for equipment and personnel monitoring and tracking • activation and mobilisation plans, including activation and expenditure authority and regulatory approval processes • logistics plans and providers • well kill and shut-in plans. Further information on the SCERP is provided in Section 8.3.9.1.1.
Relief Well Plan	The *ABU Worst Case Discharge Calculation and Relief Well Planning SOP* (Ref. 278) provides detailed guidance on the planning and engineering required when planning for relief wells in the event of a LOWC incident. Specific relief well plans are prepared for each well activity, and will include the following aspects in the design of the well: • blowout modelling and dynamic well kill analysis • selection of surface relief well location • wellbore ranging and survey uncertainty requirements • relief well trajectory planning • relief well casing design • equipment availability and contingency services contract arrangements • kill rate limitations. A Dino South-1 Relief Well Plan (Ref. 280) has been developed by CAPL. Further information on the relief well plan is provided in Section 8.3.9.1.2.
Relief Well Equipment List	As detailed in the *ABU Worst Case Discharge Calculation and Relief Well Planning SOP* (Ref. 278), ABU maintains an active Relief Well Equipment List to ensure equipment readiness, completeness and availability prior to well operations. Before commencing exploration drilling, the availability of suitable wellhead equipment and sufficient casing for the relief well will be confirmed through the Chevron inventory management system. This inventory check extends to any items that would normally be considered long-lead items (e.g. liner hanger systems if used in the well design).
Relief Well Rig Availability	CAPL tracks and assesses the availability and suitability of available relief well drilling rigs through the OSRL sea/response vessel tracking software. At the time of writing this EP, suitable drilling rigs are expected to be located on or within the vicinity of the North West Shelf for the duration of the exploration drilling campaign. The APPEA MoU Mutual Aid framework (see Section 8.3.9.7.4 for further description) is also in place to enable access to rigs contracted by other titleholders for relief well drilling.
OSMP	The OSMP details the arrangements and capability in place for operational and scientific monitoring. Operational monitoring collects information about the oil spill to aid planning and decision making for executing spill response or clean-up operations. Scientific monitoring focuses on the environmental impact attributable to the spill or the associated response activities and informs requirements for remediation (if required). CAPL has developed an OSMP (Ref. 3) to support all spill monitoring activities across all its assets.

Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.

Additional control measures and cost benefit analysis

Control measure	Benefit	Cost
Pyrotechnic subsea isolation device	A new technology utilising pyrotechnic energy that can be used as a supplementary device together with a traditional hydraulic-mechanical BOP. The device is marketed in two configurations, either retrofitted to a rig BOP by modifying the device and BOP to replace a traditional Blind Shear Rams (BSRs) / Casing shear ram (CSR) or deployed as a standalone device fitted within a dedicated 'spool' with appropriate connector below and wellhead hub enabling installation between the wellhead and BOP stack. Benefits of such a device include reportedly being able to shear traditionally "unshearable" tubulars such as drill collars, heavy walled casing, and heavy landing strings (including those with slip proof sections), seal the wellbore following a shear, with no requirement to discharge control fluid to the marine environment. In the event of a LOWC following failure of all existing rig BOP elements to isolate the well (e.g. BSRs, pipe rams and annular preventors), the activation of the device that successfully shears any tubulars and then achieves a seal could provide an additional means to isolate the well and thus reduce the response time taken to control the LOWC, in turn reducing the volume of hydrocarbon released.	In an ALARP assessment of the cost and feasibility vs. potential benefits of deploying a pyrotechnic subsea isolation device for the planned exploration drilling campaign as an additional control measure, CAPL offer the following discussion points for either the BOP retrofit or standalone configuration deployment options: The rig contractor owned subsea BOP stack will be installed on the wellhead and tested prior to drilling through any subsurface flow zones. Utilisation of subsea BOPs are broadly accepted by oil and gas drilling regulators worldwide as capable and redundant systems in the context of ability to seal (via multiple annulars and pipe rams), shear (via multiple blind/shear rams) and be controlled via multiple systems (surface and subsea accumulators for power fluid, surface hydraulic or electric pilot signals, or subsea ROV hot-stab panels at the lower marine riser package). For any given well control situation encountered, the rig BOP is described, reviewed and accepted by NOPSEMA within the MODU Safety Case to meet ALARP for control of formation hydrocarbons entering the wellbore, and BOP equipment and control systems are qualified against API Standard 53, revision 5. Pyrotechnic shearing and isolation devices have not been deployed to date in Australia for either land or subsea well applications. CAPL is aware of a limited number of international subsea deployments of the device in North and South American offshore basins, all known subsea applications to date have involved the retrofitted configuration where the device has replaced a BOP blind/shear or casing shear ram. Although the vendor has evaluated the technology maturity of its device as 'field proven' in line with API guidelines, together with a reported Det Norske Veritas (DNV) validation process to qualify the device as a blind shear BOP, CAPL is not aware of any known activations to shear and then seal an active subsea LOWC. Currently, source control measures widely adopted by industry and accepted by international regulators such as BOPs, relief

		well drilling / dynamic well kills, and installation/closure of a subsea capping stack have all been utilised in actual LOWC scenarios to successfully halt an uncontrolled flowing wellbore via sealing or hydrodynamic overbalance. The experience of the pyrotechnic subsea isolation device technology to seal off a flowing subsea well (following a successful shear) is currently based on testing, modelling, and/or simulation under controlled and/or optimal conditions. It is further noted that in the North American subsea deployments, CAPL is aware that the devices have been approved by the regulator (Bureau of Safety and Environmental Enforcement) as non-sealing shear devices only. CAPL notes that despite anticipated significant costs for adoption the device (further described below), it would only potentially be used during a remote worst case LOWC scenario (as a last line of defense if all other barriers fail) to shear any obstructing tubulars and attempt to seal the flowing well. The device would offer no additional preventative safeguard utility during more routine well control operations (managing influxes) or other operational well integrity challenges as current BOP rams routinely provide. This device is a mitigative safeguard to stop a LOWC already having occurred and does not reduce the likelihood of occurrence of the LOWC. As the device is a one-shot activation only, an evaluation of the readiness state (functionality) of the technology during operations is unconventional and can only be indirectly inferred via diagnostics of its electrical control system and/or monitoring the device body for leaks. It is reasoned by the vendor that these methods are comparable (given the design of the device) to traditional BOP BSR or pipe ram function and pressure testing governed by API Standard 53 Revision 5, which positively demonstrate the ability to seal on a wellbore after closure. It is CAPLs view that the inability to traditionally test the device's capability to positively seal on a well during operations renders its ultimate effectiveness as uncertain. CAPL do not plan to use many of the unshearable tubulars that the subsea isolation device is primarily intended for. For example, the well will not run any landing stings with slip-proof sections, or unshearable landing strings across the BOP, will not run any unshearable casing strings with reservoir sections open, and will not run any completions with control lines, screens, or subsea test trees for the programmed activities. Running of unshearable bottom hole assembly tubular components across the BOP when hydrocarbon reservoir sections are open would be typically limited in duration to several hours and efforts made to minimize time of exposure. The control measures described within the rig contractor procedures, the CAPL drilling

		program, Well Control bridging document and the MODU Safety Case to manage this risk are well established and accepted as ALARP. The rig BOP is planned to contain two BSRs that the CAPL Wellsafe assurance process will validate are appropriate for shearing and/or sealing planned tubulars to be run on the well and that they have available or calculated shear test data to verify effectiveness of these rams at the anticipated wellbore pressures and temperature. Further ALARP consideration specific to the device retrofit configuration option (as part of the rig BOP) is discussed in the points below: • the rig selected by CAPL for this drilling campaign has a BOP containing five ram cavities. This ram 'stack' consists of a blind/shear ram 'double' spool (to enable installation of two BSRs or a combination of BSR and CSR), and a pipe ram 'triple' spool (for installation of a combination of fixed size pipe rams and/or variable bore rams). This configuration is typical for 3rd or 4th generation MODUs available in Australia • it is CAPLs understanding that the device retrofit configuration has only been deployed to date on subsea BOPs containing six ram cavities, whereby an existing ram (typically BSR or CSR) is required to be removed and substituted with the device. It is noted that in general, only newer generation MODUs (operating in deep water and/or drilling high pressure, high temperature wells) will have BOP stacks containing six rams, typically two shearing rams and four pipe rams. The retrofit configuration is likely aimed at these larger BOPs where the substitution of any one key secondary well control barrier (e.g. BSR/CSR ram) accepted in the MODU Safety Case could be arguably less compromising to the overall BOP system effectiveness as a well control safeguard • removal of either the CAPL contracted MODUs existing BOP 'double' or 'triple' ram spool to accommodate the retrofit installation of the device (which would only be used in an unlikely LOWC scenario) is viewed by CAPL as an unacceptable compromise to the existing BOP system redundancy which has been validated and accepted as part of the MODU HSE Case to meet ALARP for management of formation hydrocarbons entering the well • in addition, retro-fitting this device into the selected MODU BOP stack is assessed by CAPL to require ~12 months or more lead time for device fabrication, assembly and commissioning with a custom build body and connectors to interface with the rigs 18-15 M NOV Shaffer NXT BOP model

		• following fabrication and device delivery, a BOP modification scope would be required in shipyard, the rig contractor would take additional time for integration of the modified BOP stack into an updated Base Safety Case • CAPL estimates a retrofit option would ultimately take ~18-24 months and lead to a cost increase of ~50%+ of the well cost when accounting for device shipping and rental costs, current MODU contract termination/deferral costs, rig BOP modification and device install costs, associated engineering works and regulatory approval and permitting costs. Considerations specific to the standalone device configuration (below the rig BOP) are noted below: • adding the device as a dedicated 'spool' between the wellhead and MODU BOP would result in extending the height and weight of equipment attached to the wellhead and conductor system by ~3.5 m and 35 metric tons, respectively • assessment of the stability/fatigue life of the already procured wellhead, conductor and surface casing does not consider the additional loads (bending and fatigue) that would be applied as a result of installation of the device between the wellhead and BOP stack. Based on the analysis, it is likely that additional engineering controls would be required to accommodate the device, such as replacement of wellhead and conductor components. Lead time for a replacement wellhead and conductor components is ~12 months, and would therefore, impact campaign commencement timing, a resulting program delay may cost ~$10+ million. • the execution of the drilling campaign using the standalone device configuration would require running and recovery of the device independent of the rig BOP and on critical path of operations. It is assessed this would add ~3-4 rig days to the campaign leading to an increase in costs per well of ~$3-4 million. • use of the device in a standalone configuration spool to potentially shear and seal in an actual LOWC event may further complicate planning/executing a well kill and subsequent plug and abandonment operations as pumping access does not appear to be available below the device based on current design. It is CAPLs assessment that the application of existing controls and barriers captured in the MODU Safety Case, CAPLs Well Delivery Process, CAPL's WellSafe assurance process and Safety Management Systems provide a resulting low LOWC risk level that meets ALARP without the deployment of this additional

		control measure (refer to section 7.15.3 for likelihood and risk level summary, and Table 5-1 for Chevron Integrated Risk Matrix). CAPL assesses the costs of this additional control measure as grossly disproportionate to the potential environmental benefit and , the control has not been adopted.
Relief well MODU on standby	In the event of a LOWC, having a second MODU on standby could reduce the length of time taken to drill a relief well. It is estimated that the LOWC duration could reduce from ~90 days to ~75 days. This may reduce the total volume of condensate released into the marine environment and therefore, represents a reduction in potential impacts and risks. However, the reduction in consequence is expected to be incidental and with no change in risk consequence as the hydrocarbon is a dry gas, with heavy residuals comprising only 5.9%—most of the hydrocarbons are expected to rapidly evaporate/disperse.	The cost of having a second MODU and personnel/equipment on standby would increase the overall activity cost in the order of 50%+. Furthermore, an additional MODU on standby would also introduce additional environmental and safety risks. Given the additional cost and risks, implementing this control measure is considered grossly disproportionate to the small reduction in consequence (no change in risk consequence) that could be expected, and the likelihood of the event occurring is low. As such, the control has not been adopted.
Pre-drill relief well down to surface casing depth	This could reduce the time taken for the relief well to be drilled by ~10 days; therefore, stopping the LOWC event sooner and resulting in less condensate released to the marine environment. Given the potential volume of release, the reduction in hydrocarbons is considered incidental (based on reducing the time to control the well from 90 days to 80 days). However, any reduction in consequence is expected to be incidental with no change in risk consequence, as the hydrocarbon is a dry gas, with heavy residuals comprising only 5.9%—most of the hydrocarbon is expected to rapidly evaporate/disperse.	This activity would take ~10 days and require two additional rig moves, and a separate plug and abandonment activity. An incremental cost of ~30%+ of the activity cost. Additionally, there are environmental impacts associated with partially drilling a relief well (including additional drill cuttings and fluid discharges). In the event of a LOWC, detailed relief well designs will be re-evaluated and adjusted. Multiple potential relief well locations will be identified proactively, but the optimal location will be selected based on real-time information after a LOWC incident (considering factors like prevailing weather). Pre-drilling the top section of a relief well might lead to using a sub-optimal design and location, which is not an industry-standard practice. Such a pre-drilled, riserless interval could adversely impact the functionality and reliability of the relief well. With these potential costs, this control measure is considered grossly disproportionate to the level of environmental benefit gained. Therefore, the control has not been adopted.
Relief Well Injection Spool (RWIS)	Deploying RWIS on a relief well subsea wellhead enables additional pumping capacity to be added below the relief well BOP where dynamic kill modelling shows that a single relief well kill	Access to this equipment is not currently contracted and is via subscription fee plus costs for interface equipment (such as flexible hoses and subsea connectors). Given these potential costs and no additional benefit was identified by deploying the RWIS, this control measure is considered grossly

	could be marginal or single relief well pumping requirements cannot be met by a MODU alone. Modelling has been performed to demonstrate that a single relief well dynamic well kill is feasible if using any of the semi-submersible MODU's available within Australia/region (without use of RWIS). Therefore, it has been assessed that there is no benefit for this application.	disproportionate to the level of environmental benefit gained and it has not been adopted.
Reduce capping timeframe by staging a capping stack in Australia to reduce mobilisation time (22 days)	The current time frame for mobilising a capping stack to site from Singapore is estimated to be 22 days. Having a capping stack available in Perth and a capping stack installation vessel committed to or available in the market, may decrease the total well-capping time if the lower BOP were readily accessible and debris removal was not necessary. However, based on industry experience and advice from source control agencies, deploying a capping stack earlier than proposed is unlikely to be feasible, as various surveys/assessments (of the well, BOP, and immediate area) would be required. As certain activities will run in parallel with capping stack mobilisation and procuring an appropriate installation vessel, it is not expected that any significant time savings could be achieved, and thus reduction in consequence (in terms of hydrocarbon volumes prevented from being released) is expected to be incidental.	The OSRL capping stack in Singapore is maintained in a constant state of readiness, extensive logistics planning and tabletop exercises have been performed for its deployment. It is supported by an international collaboration of industry operators. CAPL cannot move this equipment from Singapore for preparedness purposes, as this equipment is used by the whole industry and is strategically located to ensure quick deployment anywhere in the world. Therefore, the only available options are to purchase or lease a capping stack. The cost of leasing a new capping stack was considered and would be ~$17,150,000. Construction and acceptance testing time is estimated to be eight to twelve months. Technical specialists and a facility to store, maintain, and regularly function and pressure test the equipment would also be required to keep it in an ongoing state of readiness if needed. This control measure poses significant costs, and significant challenges for an incidental reduction in consequence (no change in risk consequence). As such, the cost is considered grossly disproportionate to the level of environmental benefit achieved and the control has not been adopted.
Likelihood and risk level summary		
Likelihood	The blowout frequencies data from the IOGP (Ref. 196) was used to evaluate the likelihood of a LOWC scenario (blowout of an appraisal well), which was determined to be equivalent to 1.5×10^{-4} per drilled well. Due to the low probability of a LOWC event, and the control measures in place, the likelihood of the worst-case environmental consequence occurring as described above was assessed as Remote (5).	
Risk level	Low (8)	

<table>
<tr><th colspan="3">Determination of acceptability</th></tr>
<tr><td>Principles of ESD</td><td colspan="2">The potential risks associated with this aspect would be short term, apply to some individuals, and consequently is not expected to affect biological diversity and ecological integrity.
The consequence associated with this aspect is Minor (5).
Therefore, no further evaluation against the Principles of ESD is required.</td></tr>
<tr><td>Relevant environmental legislation and other requirements</td><td colspan="2">Legislation and other requirements considered relevant for this aspect include:
Conservation Management Plan for the Blue Whale 2015–2025 (Ref. 59)
Conservation Advice Balaenoptera borealis Sei Whale (Ref. 58)
Conservation Advice Balaenoptera physalus Fin Whale (Ref. 57)
Recovery Plan for Marine Turtles in Australia (Ref. 159)
Approved Conservation Advice for Aipysurus apraefrontalis (Short-nosed Sea Snake) (Ref. 226)
Approved Conservation Advice for Aipysurus foliosquama (Leaf-scaled Sea Snake) (Ref. 227)
National Recovery Plan for the Southern Right Whale ((Eubalaena australis) (Ref. 240)
Conservation Advice Rhincodon typus Whale Shark (Ref. 161)
North-west Marine Parks Network Management Plan (Ref. 189).</td></tr>
<tr><td></td><td>Requirement</td><td>Demonstration</td></tr>
<tr><td></td><td>Conservation Management Plan for the Blue Whale 2015–2025
No specific management action identified.</td><td>N/A.</td></tr>
<tr><td></td><td>Conservation Advice Balaenoptera borealis Sei Whale
No specific conservation action identified.</td><td>N/A.</td></tr>
<tr><td></td><td>Conservation Advice Balaenoptera physalus Fin Whale
No specific conservation action identified.</td><td>N/A.</td></tr>
<tr><td></td><td>Recovery Plan for Marine Turtles in Australia
<u>Management action A4.2:</u> Ensure spill risk strategies and response programs adequately include management for marine turtles and their habitats, particularly in reference to ‘slow to recover habitats’, e.g. nesting habitat, seagrass meadows or coral reefs.</td><td>Assessment of spill risk strategies is within scope of the OPEP (Ref. 2).
Response and recovery of habitats and marine fauna is within the scope of the OSMP (Ref. 3).
Therefore, the DS-1 exploration drilling is not considered to be inconsistent with the Recovery Plan for Marine Turtles in Australia.</td></tr>
<tr><td></td><td>Approved Conservation Advice for Aipysurus apraefrontalis (Short-nosed Sea Snake)
No specific conservation action identified.</td><td>N/A</td></tr>
<tr><td></td><td>Approved Conservation Advice for Aipysurus foliosquama (Leaf-scaled Sea Snake)
No specific conservation action identified.</td><td>N/A</td></tr>
<tr><td></td><td>National Recovery Plan for the Southern Right Whale Eubalaena australis)
No specific management action identified.</td><td>N/A</td></tr>
</table>

<table>
<tr><td></td><td>Conservation Advice Rhincodon typus Whale Shark
No specific conservation action identified.</td><td>N/A</td></tr>
<tr><td></td><td>North-west Marine Parks Network Management Plan
The Plan requires that “[a]ctions required to respond to oil pollution incidents, including environmental monitoring and remediation, in connection with mining operations authorised under the OPGGS Act may be conducted in all zones. The Director should be notified in the event of an oil pollution incident that occurs within, or may impact upon, an Australian Marine Park and, so far as reasonably practicable, prior to a response action being taken within a marine park.”</td><td>The Gascoyne Marine Park is a multiple use zone (IUCN VI). The control measures identified for the management of an unplanned release provide for the response to, and environmental monitoring and remediation of, an oil pollution incident.
Requirements to report oil pollution incidents that occur within, or may impact upon, an AMP is included in Section 8.4.2.
Therefore, the DS-1 exploration drilling is not considered to be inconsistent with the North-west Marine Parks Network Management Plan.</td></tr>
<tr><td>Internal context</td><td colspan="2">The following CAPL management processes or procedures were deemed relevant for this aspect:
WOMP (Ref. 4)
Wellsafe Standard Operational Procedure (Ref. 194)
OPEP (Ref. 2)
OSMP (Ref. 3)
SCERP (Ref. 195)
Relief Well Plan (Ref. 280).
Control measures related to each of the above management processes or procedures have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.</td></tr>
<tr><td>External context</td><td colspan="2">During relevant persons consultation, no objections or claims were raised regarding well control events arising from the activity.</td></tr>
<tr><td>Defined acceptable level</td><td colspan="2">These risks are inherently acceptable as they are considered lower-order risks in accordance with Table 5-3. In addition, the potential impacts and risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.
However, in alignment with Section 5.6.2, where the aspect is listed as threat to a protected matter, or identified as a concern to a listed conservation value, CAPL will define an acceptable level of impact that aligns with the objectives of these documents. Objectives of the relevant documents are shown below:
<table>
<tr><th>Plan</th><th>Objective</th></tr>
<tr><td>Conservation Management Plan for the Blue Whale 2015–2025</td><td><u>Recovery objective:</u> Minimise anthropogenic threats to allow for their conservation status to improve so that they can be removed from the EPBC Act threatened species list.
<u>Interim objective 4</u> Anthropogenic threats are demonstrably minimised.</td></tr>
<tr><td>National Recovery Plan for the Southern Right Whale (Eubalaena australis)</td><td><u>Recovery objective</u>: Minimise anthropogenic threats to allow the conservation status of the southern right whale to improve so that it can be removed from the threatened species list under the EPBC Act.
<u>Interim objective 5</u> Anthropogenic threats are demonstrably minimised.</td></tr>
</table></td></tr>
</table>

	Recovery Plan for Marine Turtles in Australia	Recovery objective: The long-term recovery objective for marine turtles is to minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so that they can be removed from the EPBC Act threatened species list. Interim objective 3: Anthropogenic threats are demonstrably minimised.
	North-west Marine Parks Network Management Plan 2018	As per Section 4.5.1.
	Therefore, CAPL has defined the following acceptable level of impact such that it is not inconsistent with these documents: • impacts from the petroleum activity are managed such that it would not prevent the long-term recovery of protected species • no adverse change to the values of the Australian Marine Park. CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level. In particular that by managing the unplanned release, that the risk to marine fauna and/or values of the AMP are also subsequently managed.	

Environmental performance outcome	Environmental performance standard	Measurement criteria
(EPO 13) No unplanned release of hydrocarbons or hazardous materials to the environment during the petroleum activity. (EPO 2b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 13.4) WOMP** A NOPSEMA-accepted WOMP will be in place before activities commence.	(MC 13.4.1) Records confirm that a WOMP has been developed and accepted before activities commence.
	(EPS 13.5) WOMP Risk controls are in place to mitigate well control events during well construction activities.	(MC 13.5.1) Records confirm that risk controls are implemented in accordance with the WOMP during well construction.
	(EPS 13.6) WOMP Primary and secondary barriers are in place to mitigate well integrity impacts during well suspension and abandonment activities.	(MC 13.6.1) Records confirm that primary and secondary barriers are in place in accordance with the WOMP during well suspension and abandonment.
	(EPS 13.7) BOP A blowout preventer will be installed, and tested during the drilling activities in accordance with the NOPSEMA-accepted WOMP.	(MC 13.7.1) Records confirm that a BOP was installed, and has been tested during the drilling activities in accordance with the NOPSEMA-accepted WOMP.
	(EPS 13.8) Wellsafe SOP—Exploration well The following certifications shall be in place before exploration drilling activities commence in accordance with CAPL's *Wellsafe Standard Operational Procedure:* • MODU/rig certification • Exploration well design and plan certification • well execution certification • Business Unit WellSafe certification.	(MC 13.8.1) Records confirm that MODU certification, well design and plan certification were verified before activities commenced.

	(EPS 11.1) Equipment maintenance Critical equipment will be maintained in accordance with manufacturers specifications.	(MC 11.1.1) Records confirm the BOP is maintained in accordance with manufacturer specifications.
	(EPS 2.2) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) Ongoing consultation with First Nations people and/or representative bodies is undertaken as per the respective engagement plan and/or consultation protocol**.**	(MC 2.2.1) Relevant persons consultation records.
	(EPS 2.3) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) If new information on cultural values or features within the OA or EMBA is identified during ongoing consultation or relationship building, then any subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation**.**	(MC 2.3.1) As required, records show that the MoC process was undertaken in response to any new information on cultural values or features within the OA or EMBA.
(EPO 14) Reduce the risk of impacts to the environment from the unplanned release of hydrocarbons or hazardous materials during the petroleum activity.	**(EPS 14.3) OPEP** In the event of a Level 2 (or above) oil spill occurring to marine or coastal waters, response activities are implemented in accordance with the *ABU Consolidated OPEP*.	(MC 14.3.1) Records confirm the OPEP has been activated and response activities implemented.
	(EPS 14.4) OPEP CAPL will maintain the following minimum preparedness capability for the duration of the petroleum activity: • number and type of response packages as identified in Table 7-16 (LOWC event).	(MC 14.4.1) Records confirm that CAPL has arrangements in place to access the minimum number and type of responses packages before the petroleum activity commences.
	(EPS 14.5) OPEP—OSRO Capability Arrangements CAPL shall maintain service agreements with oil spill response organisations (as per Section 8.3.9.7.3) that have capabilities to support a response to an oil spill event for the duration of the petroleum activity.	(MC 14.5.1) Records confirm that service agreements are in place before, and for the duration of, the petroleum activity.
	(EPS 14.6) OPEP—Mutual Aid Capability Arrangements CAPL shall maintain membership to mutual aid frameworks (as per Section 8.3.9.7.4) that have capabilities to support a response to an oil spill event for the duration of the petroleum activity.	(MC 14.6.1) Records confirm that memberships to mutual aid frameworks agreements are in place before, and for the duration of, the petroleum activity.
	OPEP Refer to the *ABU Consolidated OPEP* for environmental performance outcomes, standards and measurement criteria related to emergency management, emergency preparedness, and each response tactic.	
	(EPS 14.9) SCERP CAPL will develop an activity-specific SCERP to manage source control for exploration drilling prior to the petroleum activity commencing.	(MC 14.9.1) Records confirm that an activity-specific SCERP was developed and in place prior to the petroleum activity commencing

	(EPS 14.10) SCERP In the event of a loss of well control, source control response tactics are implemented in accordance with the exploration drilling SCERP.	(MC 14.10.1) Records confirm the SCERP has been activated and source control activities implemented.
	(EPS 14.11) SCERP—Relief Well A relief well will be drilled and the exploration well intersected and dynamically killed within 90 days of the LOWC event commencing.	(MC 14.11.1) Incident Log (or equivalent records).
	(EPS 14.12) SCERP—Subsea Dispersant Subsea dispersant injection (SSDI) occurs within 20 days following the authorisation from the EMT to implement use of SSDI and commence mobilisation.	(MC 14.12.1) Incident Log (or equivalent records).
	(EPS 14.13) SCERP—Capping Stack Well capping stack is deployed and well secured within 35 days following the the authorisation from the EMT to implement use of a capping stack and to commence mobilisation.	(MC 14.13.1) Incident Log (or equivalent records).
	(EPS 14.14) SCERP—Relief Well Capability Arrangements CAPL shall maintain service agreements or memberships with third-party well control specialists (as per Section 8.3.9.7.5) that have capabilities to support a response to a LOWC event for the duration of the petroleum activity.	(MC 14.14.1) Records confirm that service agreements or memberships are in place prior to, and for the duration of, the petroleum activity.
	(EPO 14.15) Wellsafe SOP—Relief well The following certifications shall be in place prior to relief well drilling activities commencing in accordance with CAPL's *Wellsafe Standard Operational Procedure:* • MODU/rig certification • relief well design and plan certification • well execution certification • Business Unit WellSafe certification.	(MC 14.15.1) Records confirm that MODU certification, relief well design and plan certifications were verified prior the commencement of the activity.
	(EPS 14.16) Relief Well Plan CAPL will develop an activity-specific Relief Well Plan prior to the petroleum activity commencing.	(MC 14.16.1) Records confirm that an activity-specific Relief Well Plan was developed and in place prior to the petroleum activity commencing.
	(EPS 14.17) Relief Well Equipment List CAPL will maintain a Relief Well Equipment List for the duration of the petroleum activity.	(MC 14.17.1) Records confirm that a Relief Well Equipment List is in place prior to, and for the duration of, the petroleum activity.
	(EPS 14.18) Relief Well Equipment List Availability of suitable equipment required for a relief well will be confirmed prior to the petroleum activity commencing.	(MC 14.18.1) Inventory management system confirms availability of relief well equipment.
	(EPS 14.19) Relief Well Rig Availability Availability of suitable relief well drilling rigs on or within the vicinity of the North West Shelf	(MC 14.19.1) Vessel tracking (or other equivalent) records confirm presence of relief well drilling rigs prior to the

	will be confirmed prior to the petroleum activity commencing.	petroleum activity commencing.
	(EPS 14.7) OSMP In the event of a Level 2 (or above) oil spill to marine or coastal waters occurring, the OSMP will be activated, and: • operational and scientific monitoring program are initiated[42] once the specific initiation criteria are met • operational and scientific monitoring program are implemented within the timeframes outlined in the OSMP • operational and scientific monitoring components are continued until respective termination criteria are met. .	(MC 14.7.1) Records confirm the OSMP has been activated.
		(MC 14.7.2) Records confirm that once initial criteria have been met, operational and scientific monitoring programs were initiated.
		(MC 14.7.3) Records confirm that operational and scientific monitoring programs were implemented within the timeframes outlined in the OSMP.
		(MC 14.7.4) Records confirm that once termination criteria have been met, operational and scientific monitoring programs were ceased.
		(MC 14.7.5) If any OSMP programs requiring vessels are activated, records demonstrate that CAPL EMT identified vessel availability through existing contracts within 12 hours of OMSP component initiation activation.
		(MC 14.7.6) If any OSMP programs requiring aircraft are activated, records demonstrate that CAPL EMT identified aircraft availability through existing contracts within 12 hours of OMSP component initiation activation.
		(MC 14.7.7) Records show CAPL EMT mobilised a minimum of one identified, contracted vessel within 24 hours to Onslow, Dampier or Barrow Island (subject to Barrow Island quarantine requirements).
	(EPS 14.8) OSMP Capability required to implement all operational and scientific monitoring programs are in place	(MC 14.8.1) Internal personnel capability is documented every six months in the *ABU OSMP Capability Register*.

[42] As per Section 2.1 of the OSMP, for this plan initiation means starting preparation for implementation.

	to meet the requirements outlined in the OSMP.	(MC 14.8.2) External contractors self-assess their capability against the requirements and provide a Statement of Personnel Capability and Readiness every six months.
		(MC 14.8.3) Hydrocarbon characterisation sample kits are maintained at Barrow Island and Karratha.
	(EPS 14.20) OPEP, SCERP, EMT and OSMP ABU EMT exercises, including exercises to test source control response arrangements, will be conducted in accordance with Section 8.3.9.8.	(MC 14.20.1) Exercise Records
	(EPS 2.4) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) In the event of a spill occurring, CAPL will engage with relevant First Nations people and/or representative bodies.	(MC 2.4.1) Relevant persons consultation records
(EPO 15) CAPL will be prepared and ready to manage a major oil spill event	**(EPS 15.1) EMT** CAPL core and support EMT members will complete all hazards and oil spill training in accordance with the ABU Training and Exercise Program Procedure (Ref. 249) and Section 8.3.9.6.	(MC 15.1.1) Records confirm EMT members are provided training in accordance with the ABU Training and Exercise Program Procedure (Ref. 249) and Section 8.3.9.6.
	(EPS 15.2) EMT CAPL shall maintain an EMT duty roster with a minimum of 10 qualified EMT personnel to fulfil core CAPL EMT positions.	(MC 15.2.1) Records confirm an EMT Duty Roster is maintained with a minimum of 10 qualified EMT personnel
	(EPS 15.3) EMT CAPL shall maintain the minimum required personnel within the ABU trained to fulfil core EMT functions, including source control roles, as per Appendix F of the OPEP.	(MC 15.3.1) Records confirm the minimum required personnel are trained to fulfil core EMT functions
	(EPS 15.4) EMT During any oil spill response, ABU EMT support personnel, including mutual aid personnel, joining the CAPL EMT will be provided with training in accordance with the ABU Training and Exercise Program Procedure (Ref. 249) and Section 8.3.9.6.	(MC 15.4.1) Records confirm ABU EMT support personnel are provided training in accordance with the ABU Training and Exercise Program Procedure (Ref. 249) and Section 8.3.9.6.
	(EPS 15.5) EMT CAPL shall validate that well control specialists seconded into the CAPL EMT Source Control Branch during a well control incident hold relevant qualifications, have relevant industry experience to fill their designated role and either must hold a valid International Association of Drilling Contractors (IADC) or	(MC 15.5.1) Records confirm well control specialists hold relevant qualifications, have relevant industry experience and hold a valid IADC or IWCF Subsea Well Control Certification (Supervisor level).

	International Well Control Forum (IWCF) Subsea Well Control Certification (Supervisor level).	
	(EPS 15.6) EMT CAPL shall maintain Service Level Agreement / membership with OSROs enabling the provision of technical specialists to supplement the CAPL EMT either directly or via industry mutual aid framework agreements.	(MC 15.6.1) Records confirm a Service Level Agreement / Membership is in place.
	(EPS 15.7) EMT CAPL shall validate EMT capability and competency arrangements before undertaking a new petroleum activity in Commonwealth waters against the credible worst-case scenario and associated EMT response needed to ensure sufficient EMT resourcing and competency to fulfil all core and support EMT roles required for the identified worst-case scenario.	(MC 15.7.1) Records confirm EMT capability and competency arrangements were validated prior to commencement of the activity.

7.16 Spill response

7.16.1 Response option selection

7.16.1.1 Strategic NEBA

CAPL has developed a series of strategic Net Environmental Benefit Analysis (NEBA) (Ref. 197) using generalised scenarios that reflect the spill risks associated with all CAPL offshore WA operations. Hydrocarbons associated with spill events from all CAPL operations were grouped into oil types as defined by the International Tanker Owners Pollution Federation Ltd (ITOPF) classification system:

- group 1 – including Iago, Wheatstone, and Jansz condensate; Wheatstone trunkline fluids; and Wheatstone flowline fluids
- group 2 – including MDO, Gorgon condensate, Barrow Island crude and Gorgon/Jansz mixed trunkline fluids
- group 3 / 4 – including Heavy fuel oil and intermediate fuel oil (depending on blend).

These NEBAs were developed as a pre-spill planning tool for all CAPL EPs, to facilitate response option selection and support the development of the overall response strategies by identifying and comparing the potential effectiveness and impacts of oil spill response options (Ref. 198). After considering the benefits and drawbacks of each response option on the ecological, social, and economic receptors within the Hydrocarbon EMBAs, the response options that were determined to minimise the impacts to the environment and people were pre-selected.

7.16.1.2 Protection prioritisation process

CAPL has developed a Protection Prioritisation Process (PPP) (Ref. 199) to support decision making in the event of a significant spill event. The information within the PPP document is used to identify priorities for protection within the activity specific spill scenario(s) Hydrocarbon EMBAs, such as that described in Section 4. The identification of priorities for protection assists in the identification

of resources to be assessed within the strategic and operational NEBAs, as described above. The NEBA considers the protection priority values, the Hydrocarbon EMBAs, and the various control measures, including their feasibility, likely success, environmental benefits, level of effectiveness and performance of response tactics. The output of the NEBA and the protection priorities identified will then guide the strategic direction of the response through informing decisions made around tactical planning and response option selection.

The PPP (Ref. 199) ranks receptors (natural or anthropogenic value or resource that is potentially sensitivity to marine oil pollution) using a 5-level scale (from Very Low (1) to Very High (5)) based on a number of factors, including their sensitivity and vulnerability to oil, their conservation status and the biological and socioeconomic importance of the receptor. The CAPL PPP (Ref. 199) aligns with WA DoT PPP (Ref. 200) and utilises the same shoreline cells to illustrate broad scale identification of sensitive areas.

Areas with high value receptors and at greatest risk of contact with oil (as indicated by stochastic modelling) are assigned a high protection priority and designated as priority planning areas. The process for identifying these areas (described in the PPP document [Ref. 199]) considers all High (4) and Very High (5) ranked shoreline cells where contact above the moderate exposure threshold (from stochastic modelling across all seasons) is predicted within 4 days (96 hours). As described in the PPP (Ref. 199), the 4-day contact timeframe is based on the expected time it would take CAPL to develop and implement a Tactical Response Guide (TRG) for an area predicted to be impacted. For contact outside this timeframe, it expected that CAPL will have reasonable time to develop and implement a TRG prior to oil contacting the resource.

No high value areas (DoT shoreline cells) identified for contact within this timeframe have been identified either in Table 7-12 for vessel collision event or in Table 7-14 for LOWC.

7.16.2 Activity-specific response option selection

Hydrocarbons applicable to the worst credible scenarios specific to this activity are:

- group 2 – Gorgon condensate, MDO.

The Strategic NEBA determined that the recommended response options for spill scenarios associated with group 2 hydrocarbons are as follows:

- source control
- monitoring, evaluation, and surveillance (MES)
- shoreline protection and deflection (SPD)
- shoreline clean-up (SHC).

The response options previously identified may vary based on the magnitude and nature of the spill scenario. Section 7.16.3.2 and 7.16.3.3 outline CAPL’s planned responses for vessel collision and LOWC, respectively.

These response options are carried out alongside oiled wildlife and waste management response tactics. CAPL does not consider oiled wildlife and waste management as separate response options as they are implemented as support tactics for all spill events in a manner that is commensurate to the level of impact and risk of that event.

7.16.3 CAPL existing spill response capability assessment

Based on the spill response arrangements that CAPL has in place across the business, the capability of these arrangements was determined. This process involved:

- identifying CAPL's existing response arrangements and the equipment and personnel available to CAPL under these arrangements
- defining the response package for each response option, and identifying the critical components for each response package (i.e. equipment or personnel that are limited in number and cannot be purchased or accessed readily)
- determining the number of critical components available to CAPL under existing arrangements
- identify the number of response packages available to CAPL under existing arrangements
- defining the volume of hydrocarbons that could be recovered or treated per response package.

The outcome of this evaluation is included in the OPEP (Ref. 2).

7.16.3.1 CAPL project-specific capability requirement assessment

To understand the spill response capability required for this activity, CAPL assessed the worst-case credible spill event and used modelling to understand the number of packages per response technique that may be required to respond to that event. The steps involved in this assessment were:

1. Review the Strategic NEBA (Ref. 197) and priority planning areas to understand the planned response to an event.
2. Predict the average surface hydrocarbon volume per day; and average volume of hydrocarbon accumulated onshore per shoreline per day (if relevant) to calculate the number of response packages required per response strategy.
3. Review the number of response packages available to determine if the capability exists.

7.16.3.2 CAPL planned response vessel collision

In accordance with the Strategic NEBA (Ref. 197), the response strategies proposed to be used for this spill scenario and response package calculations are described below. Offshore Containment and Recovery (CAR) would not be effective because of the hydrocarbon properties (Group 2).

Implement MES response

A MES response will commence for a vessel collision as soon as the spill is identified. This may range from very simplistic visual observation only, through to more involved monitoring and evaluating tactics. Appendix C of the OPEP (Ref. 2) has documented the arrangements that CAPL have in place to implement all the required MES tactics; therefore, this technique is not discussed further.

Implement SPD

Deterministic analysis for the largest volume of oil ashore indicates that ~3.4 m^3 may wash ashore within ~13.6 days after release. If shoreline contact >100 g/m^2 occurs (1% probability), it will only contact the Muiron Islands. The volume of oil

ashore was used to support the planned response requirements—the volume of hydrocarbons that would need to be treated by an SPD response is directly correlated to the volume of oil that may wash ashore.

According to Appendix C of the OPEP (Ref. 2), each protection team is expected to recover 15.6 m^3 of hydrocarbon per day. Based on the assumption that 3.4 m^3 washes ashore on the 13th day, CAPL would need one SPD package available on day 13 to implement the SPD response. Confirmation that CAPL has the arrangements in place to implement the required number of packages is provided in Table 7-3.

Implement SHC response

For a spill event such as this (a non-continuous release), deterministic analysis indicates shoreline accumulation (if it occurs) occurs rapidly. CAPL will implement strategies to protect prioritised values and sensitivities.

Deterministic modelling indicated that the maximum volume of oil ashore >100 g/m^2 was ~3.4 m^3 during summer. Deterministic analysis for the largest volume of oil ashore indicates that peak oil ashore would occur ~13.6 days after release.

The volume of oil ashore was used to support the planned response requirements—the volume of hydrocarbons that would need to be treated by an SHC response is directly correlated to the volume of oil that may wash ashore.

Based on the OPEP (Ref. 2), each SHC team is expected to recover 1.6 m^3 of hydrocarbon per day. If one clean-up team was mobilised on day 13 and used each day, all hydrocarbons can be recovered within 3 days. If required, these efforts could be ramped up as directed and informed by MES activities.

Confirmation that CAPL has the arrangements in place to implement the required number of packages is provided in Table 7-15.

Table 7-15: Vessel collision response package deployment timeline

Response Technique	Days Following Event							Weeks Following Event				
	1	2	3	4	5	6	7	2	3	4	5	6
No. packages – planned MES	1	1	1	1	1	1	1	1	0	0	0	0
Does CAPL have the required capability?	Y	Y	Y	Y	Y	Y	Y	Y				
No. packages – planned SHC								1	0	0	0	0
Does CAPL have the required capability?								Y				

7.16.3.3 CAPL planned response LOWC

In accordance with the Strategic NEBA (Ref. 197), the response strategies proposed to be used for this spill scenario and response package calculations are described below.

Surface dispersant application is not considered feasible response options due to the nature of the hydrocarbon (Group 2), no spatial extent of predicted surface oil ≥50 g/m^2, and window of opportunity (~1–2 days) for application. Similarly,

offshore CAR are not considered feasible response options due to the nature of the hydrocarbon (Group 2).

Although modelling predicted shoreline contact from a LOWC may occur, no shoreline contact ≥100 g/m^{2,} (identified as the loading predicted area likely to require clean-up effort [Ref. 14]), is expected for this spill scenario. Consequently, no shoreline clean-up is proposed in response to a LOWC.

Implement source control response

Source control is the primary response option for drilling-related emergency spill scenarios. In this event, source control tactics may include installation of a capping stack (primary option), drilling a relief well (progressed concurrently with capping stack deployment), and use of SSDI (in support of capping stack deployment). The time it takes to implement source control strategies is limited by the critical path components for equipment mobilisation (e.g. the capping stack, or MODU contracting, preparations and mobilisation), as identified in the SCERP (Ref. 195).

Based on the SCERP (Ref. 195), CAPL could have one Source Control – Relief Well package commence arrangements on day one, rig identification, contracting, planning, preparation and mobilisation within ~30 days, drill well, intersect, and dynamically kill well within ~90 days (assuming a mobilisation from NWS via AEP MoU). Timing for the assessment and approval of the Safety Case revisions for the relief well rig and support vessels is based on undertaking these tasks concurrently with the relief well rig contracting, suspending operations, preparing and mobilising to site. Confirmation that CAPL has the arrangements in place to implement the required number of packages is provided in Table 7-16. Further details are contained in the SCERP (Ref. 195).

Based on the SCERP (Ref. 195), CAPL could have one Source Control – Well Capping package commence notifications and arrangements on day one, commence mobilisation on day three, and implementation within a further ~35 days (assuming a mobilisation from Singapore). The estimated 35 days to secure the well capping package includes the preparation, assessment, and approval of Safety Case revisions for vessels involved in the well capping. Confirmation that CAPL has the arrangements in place to implement the required number of packages is provided in Table 7-16.

Based on the SCERP (Ref. 195), CAPL could have one Source Control – SSDI package commence arrangements on day one, contracting, equipment deliveries, vessel preparation from day two, mobilise, and commence implementation within ~20 days (assuming a mobilisation from Singapore). Sourcing and mobilising a suitable local vessel with an approved Safety Case would be expected to further reduce this duration. Confirmation that CAPL has the arrangements in place to implement the required number of packages is provided in Table 7-16.

In the event of a LOWC and if capping stack is required, SSDI may be used to reduce the volume of volatile organic compounds reaching the surface near the release site. This technique makes it safer for personnel to access the area for further source control activities, such as deploying the capping stack during response operations. Implementing source control measures more rapidly leads to a faster reduction in the spill release, thereby minimising potential environmental impacts. Dispersant effectiveness completed under laboratory conditions indicate that dispersants may be effective on fresh Gorgon products over a 1- to 2-day window; however, dispersant application should be carried out in parallel with OSMP effectiveness monitoring. An operational NEBA, as described in the OPEP

[Ref. 2], will be conducted throughout the response to assess the feasibility and effectiveness of SSDI .The OPEP (Ref. 2) describes the initiation criteria and decision guide for the use of SSDI.

Implement MES response

A MES response will commence for a well control event as soon as the spill is identified. This may range from very simplistic visual observation only, through to more involved monitoring and evaluating tactics. Appendix C of the OPEP (Ref. 2) has documented the arrangements that CAPL have in place to implement all the required MES tactics; therefore, this technique is not discussed further.

Table 7-16: Well control event response package deployment timeline

Response Technique	Days Following Event							Weeks Following Event											
	1	2	3	4	5	6	7	2	3	4	5	6	7	8	9	10	11	12	13
No. packages – planned Source Control – Relief Well	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Planning and mobilisation										*Implementation*								
Does CAPL have the required capability?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
No. packages – planned Source Control – Well Capping	1	1	1	1	1	1	1	1	1	1	1	1							
	Planning and mobilisation									*Implementation*									
Does CAPL have the required capability?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y							
No. packages – planned Source Control – SSDI	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Planning and mobilisation							*Implementation*											
Does CAPL have the required capability?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
No. packages – planned MES	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Does CAPL have the required capability?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

7.16.4 Spill response environmental risk assessment

7.16.4.1 Planned discharges – SSDI response

Conducting SSDI involves application of chemical dispersants, which triggers the environmental aspect of planned discharged.

SSDI aims to chemically disperse the released oil and reduce oil droplet size, which removes volatiles and disperses the hydrocarbons within the water column before they reach the surface. Preliminary screening of response options relevant to this EP (Section 7.16.3.3) determined that applying chemical dispersants subsurface is a potential option for a well control event, making it safer for responders to access the area for further source control activities such as capping stack deployment.

Monitoring and evaluation of dispersant application effectiveness and ecological impacts continues throughout the response operation. The use of dispersants depends on the particular parameters of an incident resulting in an oil spill and the resources at risk of exposure.

Source			
In the event of a LOWC, chemical dispersant may be applied to support response objectives and minimise the potential environmental impacts and risks to ALARP.			
Potential Impacts and Risks			
Impacts	**C**	**Risks**	**C**
N/A	-	The application of chemical dispersants has the potential to change ambient water quality resulting in: • marine pollution resulting in sublethal or lethal effects to benthic habitat. • marine pollution resulting in sublethal or lethal effects to marine fauna. • changes to cultural heritage values	 5 5 5
Consequence Evaluation			
Marine pollution resulting in sublethal or lethal effects to benthic habitat The application of chemical dispersants (to respond to hydrocarbon release emergency event scenarios) will break up oil into smaller droplets so that they are dispersed, diluted and biodegraded more rapidly in the water column. Though it may reduce the scale and extent of hydrocarbons reaching the surface (Ref. 325), it increases dispersed/entrained hydrocarbons which can potentially have higher toxicity to marine habitats and communities in shallow water. Notwithstanding, the elevated concentrations will generally be of short duration. In shallow water the temporarily increased concentrations of dispersed hydrocarbons within the water column may result in greater exposure of benthic habitat and sediments within the immediate response area. The benthic habitat within the OA (i.e. where application of chemical dispersants may occur) is expected to predominantly be soft substrate (Section 4.3.1). No site-attached fish communities were identified within the OA. Benthic fauna species that have planktonic larval phases (e.g. corals, echinoderms, sponges etc.) and sessile filter feeders may be at greater risk of toxicity from chemically dispersed hydrocarbons when compared to untreated hydrocarbons; however, the sensitivity range of most species is such that, except in the immediate area of dispersant application, impacts are expected to be minimal. Nearshore benthic communities may also be impacted by the application of chemical dispersants on oil. Studies have shown that the effects of physical contact (smothering) on subtidal habitats by the oil/dispersant mix can cause sublethal stress and reduced growth rates in seagrass (Ref. 317, Ref. 318) and are likely to cause a decline in metabolic rates and partial mortality in		

corals (Ref. 190, Ref. 191). Photosynthesis may also be impaired in symbiotic zooxanthellae along with impaired respiration rates (Ref. 318, Ref. 319). Smothering of macroalgae can reduce or block diffusion of CO_2 across cell walls (Ref. 320) resulting in mortality or partial mortality. Studies following the DWH incident showed long-term, non-acute effects of the spill on coral colonies up to seven years following the event (Ref. 321).

A 25-year study documented by DeMicco et al. (Ref. 322) on the net environmental benefits of the use of dispersants on benthic communities including mangroves, seagrass and coral in a tropical environment observed mortality to invertebrate fauna, seagrass, and corals in the short term at both the dispersed oil and non-dispersed oil sites. In the long-term (10–25 years), as compared to the reference site, there was little to no oil detected and the ecosystem appeared to have returned to pre-dosing condition at the dispersed oil site. Although dispersant use resulted in short-term impacts, long-term disruption was not observed, and the area returned to pre-impact condition.

Consequently, injury or mortality associated with acute or chronic exposure could result in a slight alteration of the local habitat and community structure, however no long-term changes are expected. Therefore, lethal or sublethal effects to marine habitat was ranked as Minor (5) and Incidental (6), respectively.

Marine pollution resulting in sublethal or lethal effects to marine fauna

The application of chemical dispersants (to respond to hydrocarbon release emergency event scenarios) may reduce the scale and extent of hydrocarbons reaching the surface (Ref. 325), however, it increases dispersed/entrained hydrocarbons which can be acutely toxic to marine biota (Ref. 310).

Dispersant combined with dispersed oil in the water column can be acutely toxic to marine biota (Ref. 310). The source of impact from dispersants is primarily from the transfer of toxic oil from the water's surface to the water column, and a review of literature indicates that toxicity from exposure to chemically dispersed hydrocarbons relates more to the toxicity of the oil product and its increased bioavailability in the water column than to the toxicity of the dispersant itself (Ref. 311, Ref. 312).

Research on the toxic effects of oil/dispersant mixture on fish and crustacean larvae found that the median lethal concentration for total petroleum hydrocarbons was ~4.0 mg/L (4000 ppb), compared to hydrocarbons treated with chemical dispersants where it ranged from ~22 mg/L to 62 mg/L (Ref. 310). For dispersant exposures alone, the median lethal concentration ranged from 17 mg/L to 50 mg/L (Ref. 310). The differences in the relative toxicity among the tests indicated that most petroleum hydrocarbons in the chemically enhanced test are in less acutely toxic forms than the components that dominate the untreated tests (Ref. 310).

As a result of the dispersant action, the increased toxicity of chemically dispersed oil can be attributed to the increase in PAH in the water column, large increase in droplets, and increasing the volumes of toxic oil components in the water column (due to being entrained from floating surface oil). Dispersant toxicity is less than the toxicity of dispersed oil (Ref. 310, Ref. 311, Ref. 312).

Dispersant application at the well, has the potential to increase in-water concentrations of hydrocarbons including soluble aromatic compounds. Although these elevated concentrations will generally be of short duration, impacts may occur on values and sensitivities in the water column.

Given the characteristics of dispersants (i.e. reduce the scale and extent of hydrocarbons reaching the surface) the impact assessment in Section 7.15.3 is considered applicable to values and sensitivities that may be affected by surface hydrocarbons.

Values and sensitivities that may be affected by the dispersant chemical in the water column include:

Marine mammals

Marine mammals may be exposed to dispersed oil within the water column. Marine mammals can be exposed to dispersed oil externally (e.g. swimming through surface slick) or internally (e.g. swallowing the oil, consuming oil-affected prey, or inhaling of volatile oil related compounds) (Ref. 162; Ref. 178). It has been observed that existing skin lesions, cuts, or abrasions could allow oil to be absorbed more readily into the bloodstream (Ref. 258).

The physical impacts from ingested hydrocarbons with subsequent lethal or sublethal impacts are possible; however, the susceptibility of cetaceans varies with feeding habits. Baleen whales are not particularly susceptible to ingestion of oil in the water column as they feed by skimming the surface (i.e. they are more susceptible to surface slicks). Toothed whales and dolphins may be susceptible to ingestion of dissolved and entrained oil as they gulp feed at depth. however, as highly mobile species, in general it is not expected that these animals will be constantly exposed to concentrations of hydrocarbons in the water column for continuous durations (e.g. >48–96 hours) that would lead to chronic effects. Studies have shown little impact on Bottlenose

Dolphins after hydraulic and mineral oil immersion and ingestion, although there was evidence of temporary skin damage in dolphins and a Sperm Whale from contact with various oil products including crude oil (Ref. 169; Ref. 167).

During the DWH spill, Bottlenose Dolphins were observed with oil adhered to the skin, resulting in skin lesions from prolonged exposure (Ref. 259). After the DWH spill, adverse health effects, including lung and adrenal disease, reproductive failure, mortality, and poor body condition were also identified in Bottlenose Dolphins (Ref. 258). However, given the nature of crude oil from the DWH spill, adherence to the skin by dispersed condensate may be considered less likely.

Marine mammals are vulnerable if they inhale volatiles when they surface within a hydrocarbon slick. For the short period that they persist, vapours from the spill are a significant risk to mammal health, with the potential to damage mucous membranes of the airways and the eyes, which will reduce the health and potential survivability of an animal. Inhaled volatile hydrocarbons are transferred rapidly to the bloodstream and may also accumulate in tissues (Ref. 169). However, given dispersants are used to reduce the scale and extent of hydrocarbons reaching the surface, potential impacts are expected to be limited to close proximity of the dispersed area.

If SSDI is used, it is expected that only individuals would be exposed above the impact exposure thresholds. Therefore, the potential of dispersed oil to cause sublethal or lethal effects was ranked as Incidental (6) and Minor (5), respectively.

Reptiles

Marine reptiles may be exposed to hydrocarbons from an oil spill at the water surface or on the shoreline. Therefore, no further assessment is required.

Fishes, including sharks and rays

Fish, including sharks and rays, may be exposed to dispersed oil within the water column.

Potential effects include damage to the liver and lining of the stomach and intestine, and toxic effects on embryos (Ref. 181). Fish are most vulnerable to oil during embryonic, larval and juvenile life stages. However, very few studies have demonstrated increased mortality of fish as a result of oil spills (Ref. 182; Ref. 183; Ref. 184) and therefore dispersed oil.

Demersal fish are not expected to be impacted given the presence of dissolved and entrained oil and therefore dispersed oil is predicted in the surface layers (<10 m water depth) only.

Pelagic free-swimming fish and sharks are not expected to suffer long-term damage from oil spill exposure because dissolved/entrained hydrocarbons are typically insufficient to cause harm (Ref. 185). Pelagic species are also generally highly mobile and as such are not expected to suffer extended exposure (e.g. >48–96 hours) at concentrations that would lead to chronic effects due to their patterns of movement. Fish that have been exposed to dissolved hydrocarbons can eliminate the toxicants once placed in clean water; hence, individuals exposed to a spill would recover (Ref. 187). Marine fauna with gill-based respiratory systems, including Whale Sharks, are expected to have higher sensitivity to exposures of entrained oil. As previously identified the differences in the relative toxicity among the toxic effects of oil/dispersant mixture on fish indicated that most petroleum hydrocarbons in the chemically enhanced test are in less acutely toxic forms than the components that dominate the untreated tests (Ref. 310). Consequently, impacts from dispersants are expected to have less acutely toxic effects. As such, the potential impacts of dispersed oil to cause sublethal or lethal effects was ranked as Incidental (6) and Minor (5), respectively.

Changes to cultural heritage values

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. One of the specific tangible values of Sea Country identified through consultation was marine fauna (Table 4-14).

CAPL considers that indirect impacts to First Nations cultural values associated with marine fauna may occur due to SSDI As such, CAPL has ranked the consequence for changes to cultural values as Minor (5), consistent with that for SSDI.

ALARP Decision Context Justification

Chemical dispersant has been applied successfully for several large well control events including surface application during the Montara incident in 2009 and SSDI during the Macondo incident in 2010. As such, these practices are well understood by the petroleum industry and CAPL. Specifically, CAPL has worked in the region for over 10 years and has a demonstrated understanding of industry requirements and their operational implementation in these areas.

The risks associated with this response are consider lower-order risks in accordance with Table 53. As such, CAPL considers ALARP Decision Context A should be applied for this aspect.

Good practice control measure	
Control Measure	**Description**
OPEP	Under the OPGGS(E)R, NOPSEMA require that the petroleum activity have an accepted OPEP in place before commencing the activity. Should a LOWC scenario occurs, the OPEP will be implemented. CAPL has developed an OPEP (Ref. 2) to support level 2 or 3 spill response activities across all its assets. Dispersants are suitable for either subsea injection or surface spraying. The OPEP includes the use of AMSA Oil Spill Control Agents (OSCA) register. The OSCA register is considered acceptable for maritime use. Listing involves providing evidence that the OSCA is suitable for use in Australia. Once listed on the OSCA Register, the use of these products to assist in oil spill clean-up in Australian waters during a National Plan response is protected by an exemption under the EPBC Act.
OSMP	The OSMP details the arrangements and capability in place for operational and scientific monitoring. Operational monitoring collects information about the oil spill to aid planning and decision making for executing spill response or clean-up operations. Scientific monitoring focuses on the environmental impact attributable to the spill or the associated response activities and informs requirements for remediation (if required). CAPL has developed an OSMP (Ref. 3) to support all spill monitoring activities across all its assets. Specifically, Operational Study 2 – Chemical Dispersant Efficacy Assessment provides information on the efficacy of the chemical dispersant applied to the spilt oil.
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.
Likelihood and Risk Level Summary	
Likelihood	Dispersant use is subject to the controls and application criteria as outlined in the SCERP (Ref. 195) and OPEP (Ref. 2) and thus may only be applied to spills distant from coastal receptors under appropriate environmental conditions. Where these criteria are met, and with the selection of a National Plan OSCA-registered dispersant, the likelihood of the described consequences occurring is Remote (5).
Risk Level	Very low (9)
Acceptability Summary	
Principles of ESD	The potential impact associated with this aspect is considered to have the potential to result in minor, localised, incidental damage to, or alteration of, habitats and ecological communities; however, this is not expected to affect biological diversity and ecological integrity. The consequence associated with this aspect is Minor (5). Therefore, no additional evaluation against the Principles of ESD is required.

<table>
<tr><td>Relevant environmental legislation and other requirements</td><td>Legislation and other requirements considered relevant to this aspect include:
Conservation Management Plan for the Blue Whale 2015–2025 (Ref. 59)
Conservation Advice Balaenoptera borealis Sei Whale (Ref. 58)
Conservation Advice Balaenoptera physalus Fin Whale (Ref. 57)
National Recovery Plan for the Southern Right Whale ((Eubalaena australis) (Ref. 240)
Recovery Plan for Marine Turtles in Australia (Ref. 159)
Approved Conservation Advice for Aipysurus apraefrontalis (Short-nosed Sea Snake) (Ref. 226)
Approved Conservation Advice for Aipysurus foliosquama (Leaf-scaled Sea Snake) (Ref. 227)
Conservation Advice Rhincodon typus Whale Shark (Ref. 161)
North-west Marine Parks Network Management Plan (Ref. 189)
<table>
<tr><th>Requirement</th><th>Demonstration</th></tr>
<tr><td>Conservation Management Plan for the Blue Whale 2015–2025
No specific management action identified.</td><td>N/A.</td></tr>
<tr><td>Conservation Advice Balaenoptera borealis Sei Whale
No specific conservation action identified.</td><td>N/A.</td></tr>
<tr><td>Conservation Advice Balaenoptera physalus Fin Whale
No specific conservation action identified.</td><td>N/A.</td></tr>
<tr><td>National Recovery Plan for the Southern Right Whale Eubalaena australis)
No specific management action identified.</td><td>N/A</td></tr>
<tr><td>Recovery Plan for Marine Turtles in Australia
<u>Management action A4.2:</u> Ensure spill risk strategies and response programs adequately include management for marine turtles and their habitats, particularly in reference to ‘slow to recover habitats’, e.g. nesting habitat, seagrass meadows or coral reefs.</td><td>Assessment of spill risk strategies is within scope of the OPEP (Ref. 2).
Response and recovery of habitats and marine fauna is within the scope of the OSMP (Ref. 3).
Therefore, the DS-1 exploration drilling is not considered to be inconsistent with the Recovery Plan for Marine Turtles in Australia.</td></tr>
<tr><td>Approved Conservation Advice for Aipysurus apraefrontalis (Short-nosed Sea Snake)
No specific conservation action identified.</td><td>N/A</td></tr>
<tr><td>Approved Conservation Advice for Aipysurus foliosquama (Leaf-scaled Sea Snake)
No specific conservation action identified.</td><td>N/A</td></tr>
</table></td></tr>
</table>

	Wildlife Conservation Plan for Seabirds No specific action identified.	N/A
	Conservation Advice Rhincodon typus Whale Shark No specific conservation action identified.	N/A
	North-west Marine Parks Network Management Plan The Plan requires that "[a]ctions required to respond to oil pollution incidents, including environmental monitoring and remediation, in connection with mining operations authorised under the OPGGS Act may be conducted in all zones. The Director should be notified in the event of an oil pollution incident that occurs within, or may impact upon, an Australian Marine Park and, so far as reasonably practicable, prior to a response action being taken within a marine park."	The Gascoyne Marine Park is a multiple use zone (IUCN VI). The control measures identified for the management of an unplanned release provide for the response to, and environmental monitoring and remediation of, an oil pollution incident. Requirements to report oil pollution incidents that occur within, or may impact upon, an AMP is included in Section 8.4.2. Therefore, the DS-1 exploration drilling is not considered to be inconsistent with the *North-west Marine Parks Network Management Plan.*
Internal context	The following CAPL management processes or procedure were considered relevant for this aspect: • OPEP (Ref. 2) • OSMP (Ref. 3). Control measures related to each of the above management processes or procedures have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.	
External context	During relevant persons consultation, no objections or claims were raised regarding spill response activities.	
Defined acceptable level	These risks are inherently acceptable as they are considered lower-order risks in accordance with Table 5-3. In addition, the potential risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan. CAPL considers that the petroleum activity, with the control measures as described for this aspect in place, meet this acceptable level.	
	Plan	**Objective**
	Conservation Management Plan for the Blue Whale 2015–2025	Recovery objective: Minimise anthropogenic threats to allow for their conservation status to improve so that they can be removed from the EPBC Act threatened species list. Interim objective 4 Anthropogenic threats are demonstrably minimised.
	National Recovery Plan for the Southern Right Whale (Eubalaena australia)	Recovery objective: Minimise anthropogenic threats to allow the conservation status of the southern right whale to improve so that it can be removed from the threatened species list under the EPBC Act.

		Interim objective 5 Anthropogenic threats are demonstrably minimised.
	Recovery Plan for Marine Turtles in Australia	Recovery objective: The long-term recovery objective for marine turtles is to minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so that they can be removed from the EPBC Act threatened species list. Interim objective 3: Anthropogenic threats are demonstrably minimised.
	North-west Marine Parks Network Management Plan 2018	As per Section 4.5.1.
	Therefore, CAPL has defined the following acceptable level of impact such that it is not inconsistent with these documents: • impacts from the petroleum activity are managed such that it would not prevent the long-term recovery of protected species • no adverse change to the values of the Australian Marine Park. CAPL considers that the spill response, with the control measures as described for this aspect in place, meet this acceptable level.	
Environmental Performance Outcomes	**Environmental performance Standard**	**Measurement Criteria**
(EPO 16) Reduce the risk of impacts to the environment during event response. (EPO 2.b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 16.1) OPEP** If SSDI is selected for use, the subsea dispersant shall be approved for use in Australia.	(MC 16.1.1) Records confirm the SSDI is included on AMSA's Oil Spill Control Agents list.
	(EPS 14.7) OSMP In the event of a Level 2 (or above) oil spill occurring to marine or coastal waters, the OSMP will be activated, and: • operational and scientific monitoring program are initiated[43] once the specific initiation criteria are met • operational and scientific monitoring program are implemented within the timeframes outlined in the OSMP • operational and scientific monitoring components are continued until respective termination criteria are met.	(MC 14.7.1) Records confirm the OSMP has been activated.
		(MC 14.7.2) Records confirm that once initial criteria have been met, operational and scientific monitoring programs were initiated.
		(MC 14.7.3) Records confirm that operational and scientific monitoring programs were implemented within the timeframes outlined in the OSMP.
		(MC 14.7.4) Records confirm that once termination criteria have been met, operational and scientific monitoring programs were ceased.
		(MC 14.7.5) If any OSMP programs requiring vessels are activated, records demonstrate that CAPL EMT identified vessel availability through existing contracts within 12 hours of OMSP component initiation activation.
		(MC 14.7.6) If any OSMP programs requiring aircraft are activated, records demonstrate that CAPL EMT identified aircraft availability through existing contracts within

[43] As per Section 2.1 of the OSMP, for this plan initiation means starting preparation for implementation.

		12 hours of OMSP component initiation activation.
		(MC 14.7.7) Records show CAPL EMT mobilised a minimum of one identified, contracted vessel within 24 hours to Onslow, Dampier or Barrow Island (subject to Barrow Island quarantine requirements).
	(EPS 2.4) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) In the event of a spill occurring, CAPL will engage with relevant First Nations people and/or representative bodies.	(MC 2.4.1) Relevant persons consultation records.

7.16.4.2 Ground disturbance—shoreline spill response

Conducting SHC involves moving personnel and equipment, which triggers the environmental aspect of ground disturbance.

The objective of SHC is to apply techniques that are appropriate to the shoreline type to remove as much oil as possible. Various techniques may be used alone or in combination to clean oiled shorelines, including shoreline assessment, natural recovery, sorbents, sediment reworking, manual and mechanical removal, and washing, flooding, and flushing.

Source			
In the event of a worst-case spill event, implementing SHC techniques involves people and equipment, which may disturb shoreline habitat.			
Potential Impacts and Risks			
Impacts	**C**	**Risks**	**C**
N/A	-	Conducting SHC, including moving personnel and equipment, has the potential to damage terrestrial habitats (including nests), with subsequent impacts to fauna such as turtles and birds. Changes to cultural heritage values	5 5
Consequence Evaluation			
Changes to terrestrial habitats and/or fauna Modelling predicted a low (≤1%) probability of shoreline exposure above impact threshold (≥10 g/m^2) within the Pilbara islands group, specifically the northwest of the Muiron Islands, which is part of the Ningaloo Coast World Heritage area. Shoreline exposure was only predicted during summer (Ref. 163). Based on the deterministic model, shoreline accumulation ≥10 g/m^2 would occur ~14 days following the spill event, with a maximum area of coverage of ~1 km and a duration of ~2 days. The Muiron Islands are identified as important nesting areas for Green, Loggerhead, Flatback and Hawksbill Turtles (Ref. 159) and seabirds including the Wedge-tailed Shearwater (Ref. 313). Potential impacts of SHC vary, depending on the method used and the shoreline habitat. General impacts include physical disturbance from using personnel, vehicles, and equipment. Values and sensitivities in the area that may be affected by the spill include sensitive shoreline habitats (such as mangroves) and nesting/foraging habitat for fauna species such as turtles and birds. The impacts associated with undertaking SHC may be more than if the hydrocarbon product was left in place and remediated through natural processes. Leaving the product in place is a common response option if continual human and vessel/vehicle traffic has the potential to generate greater			

impacts than the product itself. This technique has been implemented internationally, including for the Montara spill (where persistent components of the product were left to naturally break down in dense coastal mangroves) and the Macondo spill (where marshes and wetlands that had been impacted by weathered product were allowed to recover naturally). If a smaller extent of shoreline is impacted, the impacts from an SHC response activity may be lessened and more localised.

Potential impacts associated with using vehicles, personnel, and equipment during SHC can include disturbing wildlife feeding or breeding (including damage to nests) and damaging dune structures, vegetation, or intertidal habitats. These shoreline activities have the potential to result in short-term and localised damage to or alteration of habitats and ecological communities and therefore the consequence is ranked as Minor (5).

Changes to cultural heritage values

As discussed in Section 4.6, there are heritage listed places or sites within the Hydrocarbon EMBAs, including World and National heritage Ningaloo Coast (within both Hydrocarbon Ecological and Social EMBA), a First Nation Heritage site around Ningaloo Station and a Native Title Determination area around the Ningaloo Coast (both within the Hydrocarbon Social EMBA only). However, if SPD or SHC were selected for implementation during a spill response these are likely to occur at sites closer to the spill location (and subject to higher shoreline oil loading) such as the offshore Pilbara islands (Sections 7.16.2 and 7.16.3); i.e. not along the Ningaloo Coast area.

Without proper planning, there is potential for SPD and SHC to result in changes to tangible and intangible cultural heritage values. As such, CAPL has ranked the consequence for changes to cultural values as Minor (5), consistent with that for SPD and SHC.

ALARP Decision Context Justification

The risks associated with shoreline oil spill response techniques are well understood, with the techniques having been applied successfully for a number of large spill events. Although there is a good understanding of these response techniques, there is uncertainty regarding the specific location at which this may be undertaken, and the level of response that may be required in these areas. Spill modelling was used to inform the extent of such a spill, and thus provide a sound basis for response planning (including shoreline response) to such an incident.

Control measures to manage the risks associated with shoreline spill response techniques are well defined with most being linked to detailed monitoring plans that feed into tactical planning requirements and NEBAs.

During relevant persons consultation, no objections or claims were raised regarding spill response activities.

The risks arising from implementing shoreline response techniques in the event of a spill are extremely low, and CAPL consider these to be lower-order risks in accordance with Table 5-3. As such, CAPL considers ALARP Decision Context A should be applied for this aspect.

Good practice control measure

Control Measure	Description
OSMP	The OSMP details the arrangements and capability in place for operational and scientific monitoring. Operational monitoring collects information about the oil spill to aid planning and decision making for executing spill response or clean-up operations. Scientific monitoring focuses on the environmental impact attributable to the spill or the associated response activities and informs requirements for remediation (if required). CAPL has developed an OSMP (Ref. 3) to support all spill monitoring activities across all its assets.
OPEP	Under the OPGGS(E)R, NOPSEMA require that the petroleum activity have an accepted OPEP in place before commencing the activity. Should a level 2 or 3 spill scenario occur, the OPEP will be implemented. CAPL has developed an OPEP (Ref. 2) to support level 2 or 3 spill response activities across all its assets.
Relevant persons consultation—Ongoing consultation (First	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4)

<table>
<tr><td>Nations people and/or representative bodies)</td><td colspan="2">CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3).
Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.</td></tr>
<tr><td colspan="3">Likelihood and Risk Level Summary</td></tr>
<tr><td>Likelihood</td><td colspan="2">Depending on the clean-up technique and habitat, potential consequences of shoreline cleaning are remote (Note: Mechanical methods are generally expected to have greater consequences than manual cleaning). With the control measures in place, CAPL assessed the likelihood of the consequence described above as Remote (5).</td></tr>
<tr><td>Risk Level</td><td colspan="2">Very low (9)</td></tr>
<tr><td colspan="3">Acceptability Summary</td></tr>
<tr><td>Principles of ESD</td><td colspan="2">The potential impact associated with this aspect is considered to have the potential to result in minor, localised, incidental damage to, or alteration of, habitats and ecological communities; however, this is not expected to affect biological diversity and ecological integrity.
The consequence associated with this aspect is Minor (5).
Therefore, no additional evaluation against the Principles of ESD is required.</td></tr>
<tr><td>Relevant environmental legislation and other requirements</td><td colspan="2">Legislation and other requirements considered relevant to this aspect include:
Recovery Plan for Marine Turtles in Australia (Ref. 159)
Wildlife Conservation Plan for Seabirds (Ref. 220).
<table>
<tr><th>Requirement</th><th>Demonstration</th></tr>
<tr><td>Recovery Plan for Marine Turtles in Australia
<u>Management action A4.2:</u> Ensure spill risk strategies and response programs adequately include management for marine turtles and their habitats, particularly in reference to ‘slow to recover habitats’, e.g. nesting habitat, seagrass meadows or coral reefs.</td><td>Assessment of spill risk strategies is within scope of the OPEP (Ref. 2).
Response and recovery of habitats and marine fauna is within the scope of the OSMP (Ref. 3).
Therefore, the DS-1 exploration drilling is not considered to be inconsistent with the Recovery Plan for Marine Turtles in Australia.</td></tr>
<tr><td>Wildlife Conservation Plan for Seabirds
No specific action identified.</td><td>N/A</td></tr>
</table></td></tr>
<tr><td>Internal context</td><td colspan="2">The following CAPL management processes or procedure were considered relevant for this aspect:
OSMP (Ref. 3)
OPEP (Ref. 2).</td></tr>
<tr><td>External context</td><td colspan="2">During relevant persons consultation, no objections or claims were raised regarding spill response activities.</td></tr>
<tr><td>Defined acceptable level</td><td colspan="2">These risks are inherently acceptable as they are considered lower-order risks in accordance with Table 5-3. In addition, the potential risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.</td></tr>
</table>

	Plan	Objective
	Recovery Plan for Marine Turtles in Australia	Recovery objective: The long-term recovery objective for marine turtles is to minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so that they can be removed from the EPBC Act threatened species list. Interim objective 3: Anthropogenic threats are demonstrably minimised.
	Wildlife Conservation Plan for Seabirds	Objective 2: Seabirds and their habitats are identified, protected and managed in Australia.
	Therefore, CAPL has defined the following acceptable level of impact such that it is not inconsistent with these documents: • impacts from the spill response associated to the petroleum activity are managed such that it would not prevent the long-term recovery of protected species. CAPL considers that the spill response, with the control measures as described for this aspect in place, meet this acceptable level.	

Environmental Performance Outcomes	Environmental performance Standard	Measurement Criteria
(EPO 16) Reduce the risk of impacts to the environment during event response. (EPO 2.b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 14.7) OSMP** In the event of a Level 2 (or above) oil spill to marine or coastal waters occurring, the OSMP will be activated, and: • operational and scientific monitoring program are initiated[44] once the specific initiation criteria are met • operational and scientific monitoring program are implemented within the timeframes outlined in the OSMP • operational and scientific monitoring components are continued until respective termination criteria are met.	(MC 14.7.1) Records confirm the OSMP has been activated.
		(MC 14.7.2) Records confirm that once initial criteria have been met, operational and scientific monitoring programs were initiated.
		(MC 14.7.3) Records confirm that operational and scientific monitoring programs were implemented within the timeframes outlined in the OSMP.
		(MC 14.7.4) Records confirm that once termination criteria have been met, operational and scientific monitoring programs were ceased.
		(MC 14.7.5) If any OSMP programs requiring vessels are activated, records demonstrate that CAPL EMT identified vessel availability through existing contracts within 12 hours of OMSP component initiation activation.
		(MC 14.7.6) If any OSMP programs requiring aircraft are activated, records demonstrate that CAPL EMT identified aircraft availability through existing contracts within 12 hours of OMSP component initiation activation.
		(MC 14.7.7) Records show CAPL EMT mobilised a minimum of one identified, contracted vessel within

[44] As per Section 2.1 of the OSMP, for this plan initiation means starting preparation for implementation.

		24 hours to Onslow, Dampier or Barrow Island (subject to Barrow Island quarantine requirements).
	(EPS 14.3) OPEP In the event of a Level 2 (or above) oil spill occurring to marine or coastal waters, response activities are implemented in accordance with the *ABU Consolidated OPEP*.	(MC 14.3.1) Records confirm the OPEP has been activated and response activities implemented.
	OPEP Refer to the *ABU Consolidated OPEP* for environmental performance outcomes, standards and measurement criteria related to emergency management, emergency preparedness, and each response tactic.	
	(EPS 2.4) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) In the event of a spill occurring, CAPL will engage with relevant First Nations people and/or representative bodies.	(MC 2.4.1) Relevant persons consultation records.

7.16.4.3 Physical presence—oiled wildlife response

Oiled wildlife response (OWR) activities are aimed at treating fauna that have encountered, or are likely to encounter, spilt hydrocarbons. OWR generates the environmental aspect of physical presence/interaction with fauna, through handling, treating, rehabilitating, and releasing fauna.

Source			
In the event of a worst-case spill event, the handling and treating marine fauna (through an OWR) will result in personnel interacting with marine fauna.			
Potential Impacts and Risks			
Impacts	**C**	**Risks**	**C**
N/A	-	Conducting OWR has the potential to cause further harm to oiled fauna due to hazing, barriers, deterrents, and cleaning activities, and has the potential to cause injury/death. Changes to cultural heritage values	5 5
Consequence Evaluation			
Harm to oiled fauna Environmental values that may be affected by OWR activities include marine fauna such as turtles and birds. Due to the intensive nature of OWR activities and the fragile nature of many shore and wading birds, OWR activities can have high bird mortality rates. Physical exclusion and hazing operations can result in entanglement and stress-related impacts to marine birds. Cleaning of oiled wildlife may result in skin irritations, impacts to the hydrophobic properties of bird plumage, and stress-induced physiological effects. Spill modelling indicates that areas along the coast frequented by fauna, such as northwest of Muiron Island, are areas where OWR is expected to be undertaken. If a spill coincided with turtle nesting/hatchling or bird nesting periods, a large number of animals may be treated using OWR. Impacts from hazing and deterrents are anticipated to be localised to the area of potential spill impact and limited to the spill period. Even if OWR was undertaken during nesting periods, only a small proportion of the nesting population would be involved as the species potentially involved			

nest widely elsewhere. The potential consequences associated with an OWR are localised and short term and are ranked as Minor (5).

Changes to cultural heritage values

As identified from literature and/or consultation (Section 4.3.5.2.1), Sea Country is a value for First Nations people. One of the specific tangible values of Sea Country identified through consultation was marine fauna (Table 4-14).

CAPL considers that indirect impacts to First Nations cultural values associated with marine fauna may occur due to OWR. As such, CAPL has ranked the consequence for cultural values as Minor (5), consistent with that for OWR.

ALARP Decision Context Justification

The risks associated with OWR are well understood, with the technique having been applied successfully for a number of large spill events. Although there is a good understanding of the response technique, there is uncertainty regarding the specific location at which this may be undertaken, the number of animals that may be impacted, and thus the level of response that may be required.

Spill modelling was used to inform the extent of such a spill, and thus provide a sound basis for response planning to such an incident.

Control measures to manage the risks associated with OWR are well defined with most being linked to detailed monitoring plans that feed into tactical planning requirements and NEBAs.

During relevant persons consultation, no objections or claims were raised regarding OWR activities.

The risks arising from implementing OWR in the event of a spill are extremely low, and CAPL consider these to be lower-order risks in accordance with Table 53. As such, CAPL considers ALARP Decision Context A should be applied for this aspect.

Good practice control measure

Control Measure	Definition
OSMP	The OSMP details the arrangements and capability in place for operational and scientific monitoring. Operational monitoring collects information about the oil spill to aid planning and decision making for executing spill response or clean-up operations. Scientific monitoring focuses on the environmental impact attributable to the spill or the associated response activities and informs requirements for remediation (if required). CAPL has developed an OSMP (Ref. 3) to support all spill monitoring activities across all its assets. Specifically, Operational Study 6 – Rapid Seabird and Shorebird Assessment and Operational Study 7 – Rapid Marine Megafauna Assessment provide information on the presence of wildlife with regards to predicted trajectory to understand the level of OWR required.
OPEP	Under the OPGGS(E)R, NOPSEMA require that the petroleum activity have an accepted OPEP in place before commencing the activity. Should a level 2 or 3 spill scenario occur, the OPEP will be implemented. CAPL has developed an OPEP (Ref. 2) to support level 2 or 3 spill response activities across all its assets. OWR is a support function that is implemented alongside other response options if applicable and commensurate to the scale and nature of the spill. The OPEP identifies the tactics and initiation criteria required to implement OWR.
Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies)	In addition to consultation undertaken during the preparation of this EP (as required by regulation 25 of the OPGGS(E)R, and described in Section 6), where requested, as part of ongoing consultation (as required by regulation 22(15) of the OPGGS(E)R, and described in Section 8.3.4) CAPL will continue to engage with First Nations people and/or representative bodies. This ongoing consultation relates to both the specific petroleum activity (Table 8-5) as well as broader engagement and relationship building (Section 8.3.4.3). Ongoing consultation and relationship building with First Nations people and/or representative bodies provides a continual improvement

<table>
<tr><td></td><td>opportunity to support CAPLs understanding of cultural values or features that may be present within their areas of operation, and subsequently allow potential impacts and risks to be managed to an ALARP and acceptable level.</td></tr>
<tr><td colspan="2">Likelihood and Risk Level Summary</td></tr>
<tr><td>Likelihood</td><td>Where there is the possibility for surface oil to impact wildlife, the risks associated with OWR are lower than those associated with inaction. With the control measures in place, the likelihood of the described consequences occurring from OWR activities was determined to be Remote (5).</td></tr>
<tr><td>Risk Level</td><td>Very low (9)</td></tr>
<tr><td colspan="2">Acceptability Summary</td></tr>
<tr><td>Principles of ESD</td><td>The potential impact associated with this aspect is considered as having the potential to result in a localised incidental impact and thus is not expected to affect biological diversity and ecological integrity.
The consequence associated with this aspect is Minor (5).
Therefore, no additional evaluation against the Principles of ESD is required.</td></tr>
<tr><td>Relevant environmental legislation and other requirements</td><td>Legislation and other requirements considered relevant to this aspect include:
Recovery Plan for Marine Turtles in Australia (Ref. 159)
Wildlife Conservation Plan for Seabirds (Ref. 220).
<table>
<tr><th>Requirement</th><th>Demonstration</th></tr>
<tr><td>Recovery Plan for Marine Turtles in Australia
<u>Management action A4.2:</u> Ensure spill risk strategies and response programs adequately include management for marine turtles and their habitats, particularly in reference to ‘slow to recover habitats’, e.g. nesting habitat, seagrass meadows or coral reefs.</td><td>Assessment of spill risk strategies is within scope of the OPEP (Ref. 2).
Response and recovery of habitats and marine fauna is within the scope of the OSMP (Ref. 3).
Therefore, the DS-1 exploration drilling is not considered to be inconsistent with the Recovery Plan for Marine Turtles in Australia.</td></tr>
<tr><td>Wildlife Conservation Plan for Seabirds
No specific action identified.</td><td>N/A</td></tr>
</table></td></tr>
<tr><td>Internal context</td><td>The following CAPL management processes or procedure were considered relevant for this aspect is:
OSMP (Ref. 3)
OPEP (Ref. 2).
Control measures related to each of the above management processes or procedures have been described for this aspect. As such, CAPL considers that impact and risk management is consistent with company policy, culture, and standards.</td></tr>
<tr><td>External context</td><td>During relevant persons consultation, no objections or claims were raised regarding spill response activities.</td></tr>
<tr><td>Defined acceptable level</td><td>These risks are inherently acceptable as they are considered lower-order risks in accordance with Table 5-3. In addition, the potential risks evaluated for this aspect are not inconsistent with any relevant recovery or conservation management plan, conservation advice, or bioregional plan.
<table>
<tr><th>Plan</th><th>Objective</th></tr>
</table></td></tr>
</table>

	Recovery Plan for Marine Turtles in Australia	Recovery objective: The long-term recovery objective for marine turtles is to minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so that they can be removed from the EPBC Act threatened species list. Interim objective 3: Anthropogenic threats are demonstrably minimised.
	Wildlife Conservation Plan for Seabirds	Objective 2: Seabirds and their habitats are identified, protected and managed in Australia.
	Therefore, CAPL has defined the following acceptable level of impact such that it is not inconsistent with these documents: • impacts from the spill response associated to the petroleum activity are managed such that it would not prevent the long-term recovery of protected species. CAPL considers that OWR, with the control measures as described for this aspect in place, meet this acceptable level.	
Environmental Performance Outcomes	**Environmental performance Standard**	**Measurement Criteria**
(EPO 16) Reduce the risk of impacts to the environment during event response. (EPO 2.b) No adverse change to First Nations cultural heritage values from the petroleum activity.	**(EPS 14.7) OSMP** In the event of a Level 2 (or above) oil spill to marine or coastal waters occurring, the OSMP will be activated, and: • operational and scientific monitoring program are initiated[45] once the specific initiation criteria are met • operational and scientific monitoring program are implemented within the timeframes outlined in the OSMP • operational and scientific monitoring components are continued until respective termination criteria are met. .	(MC 14.7.1) Records confirm the OSMP has been activated.
		(MC 14.7.2) Records confirm that once initial criteria have been met, operational and scientific monitoring programs were initiated.
		(MC 14.7.3) Records confirm that operational and scientific monitoring programs were implemented within the timeframes outlined in the OSMP.
		(MC 14.7.4) Records confirm that once termination criteria have been met, operational and scientific monitoring programs were ceased.
		(MC 14.7.5) If any OSMP programs requiring vessels are activated, records demonstrate that CAPL EMT identified vessel availability through existing contracts within 12 hours of OMSP component initiation activation.
		(MC 14.7.6) If any OSMP programs requiring aircraft are activated, records demonstrate that CAPL EMT identified aircraft availability through existing contracts within 12 hours of

[45] As per Section 2.1 of the OSMP, for this plan initiation means starting preparation for implementation.

		OMSP component initiation activation.
		(MC 14.7.7) Records show CAPL EMT mobilised a minimum of one identified, contracted vessel within 24 hours to Onslow, Dampier or Barrow Island (subject to Barrow Island quarantine requirements).
	(EPS 14.3) OPEP In the event of a Level 2 (or above) oil spill occurring to marine or coastal waters, response activities, including support function, are implemented in accordance with the *ABU Consolidated OPEP*.	(MC 14.3.1) Records confirm the OPEP has been activated and response activities implemented.
	OPEP Refer to the *ABU Consolidated OPEP* for environmental performance outcomes, standards and measurement criteria related to emergency management, emergency preparedness, and each response tactic.	
	(EPS 2.4) Relevant persons consultation—Ongoing consultation (First Nations people and/or representative bodies) In the event of a spill occurring, CAPL will engage with relevant First Nations people and/or representative bodies.	(MC 2.4.1) Relevant persons consultation records.

8 implementation strategy

This section provides a description of the implementation strategy as required under regulation 22 of the OPGGS(E)R. The implementation strategy identifies the systems, practices, and procedures used to ensure the environmental impacts and risks of the petroleum activities are continuously reduced to ALARP and the environmental performance outcomes and standards detailed in Section 6 are achieved.

CAPL, as titleholder, is responsible for ensuring the petroleum activity within scope of this EP is managed in accordance with this implementation strategy. The MODU and vessel contractors will be required to comply with the requirements of this EP to ensure that the environmental performance outcomes and standards are achieved. The MODU and vessel contractors HSE documentation will be reviewed for alignment with the relevant requirements described in this EP prior to the commencement of the activity.

8.1 Operational Excellence Management System

CAPL's operations are managed in accordance with Chevron Corporation's OEMS, which is a comprehensive management framework that supports the corporate commitment to protect the safety and health of people and the environment. The OEMS aligns with ISO 14001:2015 *Environmental management system - Requirements with guidance for use* (Ref. 37) and meets the requirements of the OPGGS(E)R.

OE systematically manages workforce safety and health, process safety, reliability, and integrity, environment, efficiency, security, and relevant persons to meet the OE objectives and ensure safe operations of CAPL facilities and projects. The OEMS comprises the following key components (Figure 8-1):

- **leadership and OE culture**—through the OEMS, CAPL leaders engage employees and contractors to build and sustain the OE culture and deliver OE performance
- **management system cycle** (MSC)—by applying the MSC, CAPL leaders make risk-based and data-driven decisions, prioritise activities, and direct improvements
- **focus areas and OE expectations** (including common expectations)—focus areas are categories of OE risks and include workforce safety and health, process safety reliability and integrity, environment, efficiency, security, and stakeholder engagement; OE expectations guide the design, management, and assurance of the presence and effectiveness of safeguards.

The OEMS outlines the process for identifying, establishing, and maintaining safeguards and to provide assurance that they are in place, functioning as intended, and are in accordance with legal and OE requirements. The risk management process (Figure 8-1) assesses and identifies safeguards, which are the hardware and human actions designed to directly prevent or mitigate an incident or impact associated with the project, personnel, and the environment. The assurance process (Figure 8-1) provides the verification and validation that the safeguards are in place and functioning as intended.

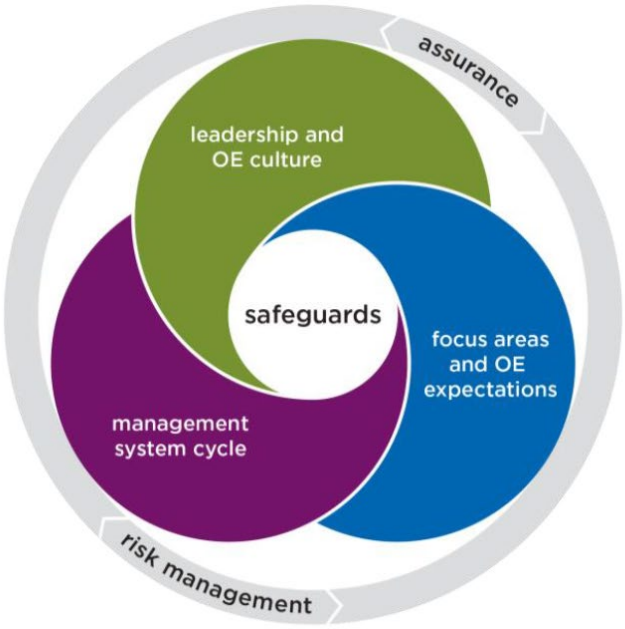


Figure 8-1: Overview of Chevron Corporation's OEMS

8.2 Leadership and OE culture

CAPL leaders demonstrate and are accountable for the consistent and rigorous application of the OEMS to drive performance and manage risks. The actions and visibility of leaders reinforce CAPL's commitment to place the highest priority on the safety and health of its workforce, and on the protection of communities, the environment, and its assets.

8.2.1 Roles and accountability

CAPL leaders have the overall accountability for the implementation of the OEMS.

8.2.1.1 Chain of command (petroleum activity)

As required under regulation 22(3) of the OPGGS(E)R, a clear chain of command for implementing the petroleum activity is outlined in Figure 8-2.

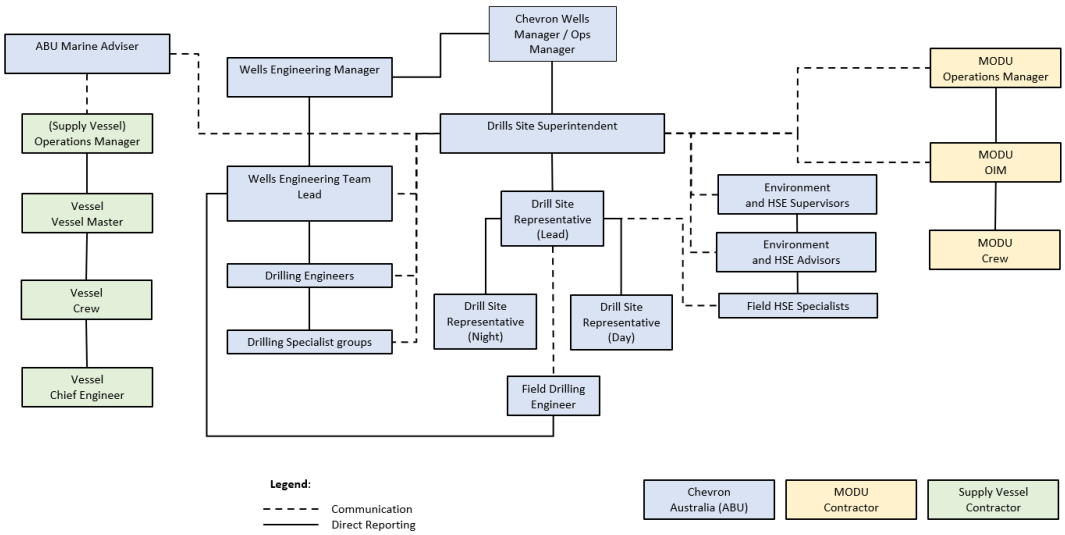


Figure 8-2: Chain of command—DS-1 exploration drilling

8.2.1.2 Roles and responsibilities (petroleum activity)

The roles and responsibilities of key CAPL and contractor personnel for implementing task-specific control measures as detailed in Section 7, are summarised in Table 8-1.

Table 8-1 Key roles and responsibilities—DS-1 exploration drilling

Role	Responsibilities
CAPL personnel	
Chevron Wells Manager / Ops Manager	• Overall responsibility for implementing, managing, and reviewing this EP. Ensure that: • all third-party vessels or contractors are aware of any requirements within this EP, including completion of relevant inductions as per Section 8.2.1.3 • ongoing consultation is conducted in accordance with Section 8.3.4.1 • any Management of Change (MoC) is conducted in accordance with Section 8.3.2.2, and notify the Drill Site Representative and HSE Adviser of any scope changes where relevant • environmental incident reporting is completed in accordance with Section 8.4.2 • routine environmental reporting is undertaken in accordance with Section 8.4.3.
Drills Site Superintendent (Chevron Wells Superintendent)	Ensure that: • all personnel are made aware of their requirements under this EP and have completed inductions • impacts and risks are continually reduced to ALARP and an acceptable level by implementing this EP in accordance with Section 7 • pre-mobilisation inspections of vessels are undertaken to confirm they comply with relevant legislative requirements, and all requirements under this EP • corrective actions identified during environmental inspections are closed out in accordance with Section 8.3.6 • all incidents, including breaches of environmental performance standards, are reported to the Chevron Wells Manager / Ops Manager.
Drill Site Representative (Offshore)	Ensure that: • all personnel are made aware of their requirements under this EP • impacts and risks are continually reduced to ALARP and an acceptable level by implementing this EP in accordance with Section 7 • compliance with this EP is verified in accordance with Section 8.3 and Section 8.3.9.8.1, including: – completion of environmental inspections – collection of evidence against environmental performance standards • assist with review, investigation, and reporting of environmental incidents (as required).
Environment and HSE Supervisors	Ensure that: • all personnel are made aware of their requirements under this EP • impacts and risks are continually reduced to ALARP and an acceptable level by implementing this EP in accordance with Section 7 • pre-start visual observations are conducted and opportunistic sightings data are maintained in accordance with Section 7.6.1.3 • all changes to this EP are subject to a MoC assessment as described in Section 8.3.2.2 • compliance with this EP is verified in accordance with Section 8.3 and Section 8.3.9.8.1, including:

Role	Responsibilities
	– completion of environmental inspections – collection of evidence against environmental performance standards – regular review of compliance with environmental performance standards – preparation of environmental performance report following completion of drilling program • assist with review, investigation, and reporting of environmental incidents (as required) • this EP is reviewed in accordance with Section 8.5.
Contractor	
Vessel Master/s	Ensure that: • impacts and risks are continually reduced to ALARP and an acceptable level by implementing this EP in accordance with Section 7 • all necessary vessel-related documentation (e.g. SOPEPs, certificates, etc.) is available in accordance with Section 7 • all marine safety information notifications are issued in accordance with Section 7 • vessel operations are being conducted in accordance with the legislative requirements and this EP, including waste management, refuelling, and emergency/oil spill response • maintenance of equipment and records meet statutory requirements • vessels implement cetacean interaction requirements in accordance with EPBC Regulations 2000, and any other additional marine fauna interaction requirements in accordance with this EP • report any potential UCH finds to the Drill Site Representative • all incidents are immediately reported to the Drill Site Representative • all emissions and discharges are monitored and recorded in accordance with Section 7 and Section 8.4.1.
MODU Offshore Installation Manager (OIM)	Ensure that: • impacts and risks are continually reduced to ALARP and an acceptable level by implementing this EP in accordance with Section 7 • all marine safety information notifications are issued in accordance with Section 7 • MODU operations are being conducted in accordance with the legislative requirements and this EP, including waste management, refuelling, and emergency/oil spill response • maintenance of equipment and records meet statutory requirements • all incidents are immediately reported to the Drill Site Representative • all emissions and discharges are monitored and recorded in accordance with Section 7 and Section 8.4.1.
MODU and vessel crew	Ensure that: • working in accordance with accepted MODU and vessel procedures • compliance with this EP's requirements as applicable to assigned role • all incidents are immediately reported to the MODU OIM or Vessel Master.
ROV operator	Ensure that: • UCH finds protocol is implemented.

8.2.1.3 Training and competency (petroleum activity)

In accordance with regulation 22(4) of the OPGGS(E)R, each employee responsible for implementing task-specific control measures during operational activities must be aware of their specific responsibilities as detailed in this EP. People who hold responsibilities relating to implementing this EP are hired by CAPL on the basis of their particular qualifications, experience, and competency.

CAPL's training and competency system is used to identify corporate and role-specific training and competency requirements for CAPL personnel. The system is also used to ensure training and competency requirements are maintained and are up-to-date. This includes applicable IADC or IWCF certifications, where required.

All external contractor personnel involved with activities within scope of this EP will hold qualifications or training certification relevant to their role, which will be confirmed through the contractor selection process, audits and review processes.

The MODU and vessel contractors will provide marine crew who are trained and competent to undertake their respective activities on board the MODU or vessel. All marine personnel will be qualified in accordance with the International Convention on Standards of Training Certification and Watch Keeping for Seafarers (STCW95).

Personnel with specific responsibilities under this EP (refer to Section 8.2.1.2) will be made aware of their role-specific responsibilities under this EP.

All personnel (including contractors) are required to attend inductions that are relevant to their role (Table 8-2). Records of attendance at inductions will be maintained as per Section 8.3.2.1.

Table 8-2: Training and competency—DS-1 exploration drilling

Training/ competency	Required personnel	Scope
Induction	All relevant personnel	Before commencing activities, all personnel, including contractors, must attend an induction that includes an overview of the requirements of this EP. This induction fosters environmental stewardship amongst all personnel and ensures that they are aware of the control measures implemented to minimise the potential impact on the environment. The induction includes: • awareness of Chevron Corporation's Operational Excellence Policy 530 (Appendix a) • an overview of environmental sensitivities, and key impacts and risks from the petroleum activity • roles and responsibilities of MODU and vessel crew members • cetacean interaction requirements under Part 8 of this EPBC Regulations 2000 and additional marine fauna interaction controls as per requirements of this EP • cetaceans and megafauna that may be present within the area (including Pygmy Blue Whales) and the sightings reporting process • overview of requirements of UCH finds protocol • waste management and hazardous materials housekeeping requirements • incident reporting requirements (including definitions and reporting pathways)

Training/ competency	Required personnel	Scope
		• incident response arrangements.
UCH	ROV operators	Before commencing the petroleum activity, ROV operators will be provided with a UCH-specific induction. This induction will include an overview of the identification of potential UCH sites or artefacts, and the specific management requirements of the UCH finds protocol.
Marine fauna observations	Bridge-watch crew HSE Representative	All bridge-watch crew and HSE Representative must completed a training session on marine fauna observations before commencing activities. This training session covers: • cetacean observation requirements under the EPBC Regulations 2000 • identification of cetaceans and megafauna that may be present within the area (including Pygmy Blue Whales) • an overview of project activities with a focus on interaction with cetaceans and megafauna • an overview of the potential impacts and risks to cetaceans and megafauna • the requirements specified within Section 7.6.1.3 of this EP, including: – pre-start visual observation and marine fauna observation requirements – precautionary approach when a whale is sighted and there is uncertainty regarding the species or observed behaviour – collection of opportunistic sightings • use of observation equipment and tools required for the activity (e.g. binoculars) • process for reporting sightings • marine fauna observation forms and record maintenance Trained personnel are expected to: • conduct observations in accordance with the requirements of this EP • follow the reporting process when cetaceans or megafauna are identified • maintain records accurately and complete sighting forms as required.

8.3 Focus areas and OE expectations

The OE expectations are organised into six focus areas (Figure 8-3). The OE expectations provide guidance to design, operate, maintain, improve, and assure the presence and effectiveness of safeguards. Common expectations also apply and support the OE expectations and focus areas Figure 8-3.

Figure 8-3: Focus areas and common expectations

The focus areas and common expectations relevant to this EP, and their key processes that demonstrate how CAPL is effective in reducing environmental impacts and risks to ALARP and an acceptable level, are listed in Table 8-3. Each of these focus areas and common expectations are described in further detail in the following subsections.

Table 8-3: Relevant focus areas and common expectations

Focus area or common expectation	Key processes
Focus area	
Workplace safety and health	• *Managing Safe Work (MSW): ABU Standardised OE Process* (Ref. 38) • *Chevron Marine Standard Non Tankers: Corporate OE Standard* (Ref. 39) • *ABU Hazardous Materials Management Procedure: ABU Standardised OE Procedure* (Ref. 40).
Process safety, reliability and integrity	• *OE Information Management: ABU Standardised OE Process* (Ref. 41) • *Management of Change for Facilities and Operations: ABU Standardised OE Process* (Ref. 42).
Environment	• *Environmental Stewardship: ABU Standardised OE Process* (Ref. 43) • *Quarantine Procedure Marine Vessels. ABU Standardised OE Process* (Ref. 44)
Stakeholders	• *Stakeholder Engagement and Issues Management: ABU Standardised OE Process* (Ref. 45)
Common expectation	
Risk management	• *ABU OE Risk Management Process* (Ref. 32)
Assurance	• *OE Assurance Corporate Process* (Ref. 46) • *OE Corporate Standard Incident Investigation* (Ref. 47) • *OE Data Reporting Standard* (Ref. 48)
Contractor OE management	• *Contractor Operational Excellence Management: ABU OE Process* (Ref. 345)
Incident investigation and reporting	• *Incident Investigation and Reporting (II&R) Execution Manual* (Ref. 49)
Emergency management	• *Emergency Management ABU Standardised OE Process* (Ref. 50) • *ABU Emergency Response Plan* (Ref. 286)

Focus area or common expectation	Key processes
	• OPEP (Ref. 2) • OSMP (Ref. 3)

8.3.1 Workforce safety and health

8.3.1.1 Managing safe work

The MSW expectation is to assess workplace safety and health hazards and manage the risks associated with the execution and control of work performed by CAPL employees, their delegates, contractors, and subcontractors. The MSW system (Ref. 38) is implemented to ensure safe work practices are made available to the workforce. Standards and procedures relating to MSW relevant to this EP include the permit to work (PTW) system. The PTW system, which includes SIMOPS and hazard analysis, is a way to identify, communicate, mitigate, and control hazards associated with work that have the potential to adversely affect HSE. As the potential consequence associated with each task increases, so does the level of controls and approval that are required.

8.3.1.2 Marine

The *Marine Standard Non Tankers: Corporate OE Standard* (Ref. 39) identifies the requirements and activities necessary to deliver safe, reliable, and efficient third-party marine operations. This process describes key roles and responsibilities for managing marine safety and establishes measurement and verification activities designed to promote a process of continual improvement.

The Marine Standard applies to all marine vessels, emergency response, and all other (non-bulk petroleum) vessels chartered, owned, or operated by CAPL. The process also applies to vessels contracted by an affiliate or contractor that provide marine support or marine services to CAPL.

The key elements of the Marine Standard that apply to the activities outlined in this EP are:

- vessel inspections—vessels used by CAPL or its affiliates must undergo a vessel audit/inspection process before deployment to ensure that the vessels and the staffing levels meet safety requirements and are fit-for-purpose; inspections also ensure emergency procedures (such as SOPEP/SMPEP) are available and that the required standards are met for navigation equipment, lighting, waste systems, and other marine safety protocols including Marine Order 30 (Prevention of Collisions)
- competency management—vessels used by CAPL must be operated by competent personnel who meet applicable international and local regulations
- cargo handling—cargo transport and handling operations on marine vessels must comply with handling procedures and align to standard marine industry practices
- complicated and/or heavy lifts—all lifting and installing of heavy equipment near offshore infrastructure must meet the detailed requirements
- hose management—operations involving the transfer of bulk liquids using loading hoses must align to standard industry practice and safety of the environment

- vessel communication—vessels must have in place communications procedures for operations close to installations, or other mobile units to ensure that safe positioning and communications are maintained at all times.

Vessels provide an activity-specific operational guideline, based on their use and specification, which must be accepted by CAPL.

8.3.1.3 Hazardous materials

CAPL's *Hazardous Materials Management Procedure* (Ref. 40) outlines the process for HSE assessment and approval of hazardous materials. Hazardous materials include those classified as 'hazardous substances' or 'dangerous goods'.

The *Hazardous Materials Management Procedure* is designed to:

- assess hazardous materials requested for procurement for their HSE risks
- ensure that appropriate controls are identified for using procured hazardous materials and that these controls are communicated to the requestors of the materials and end users at locations within CAPL's operations
- ensure no product includes CAPL-prohibited ingredients
- ensure substitutes were considered if a product contains CAPL-restricted ingredients.

As part of the hazardous materials selection process, hazardous materials that will be discharged to the environment will undergo a detailed environmental assessment. This environmental assessment is guided by the methodology and classification system used by the OCNS and Chemical Hazard Assessment and Risk Management (CHARM). Hazardous materials not listed on OCNS or CHARM, are still subject to the environmental assessment described below.

The environmental assessment includes an evaluation of the potential environmental risks that could be associated with the chemical, and considers the relevant dosage, quantity and frequency of the chemical discharge, the location and nature of the receiving environment, and the assessment criteria described in Table 8-4.

The chemical selection process ensures impacts and risks associated with chemical discharge are reduced to levels that are ALARP and acceptable, while meeting operational performance requirements.

Table 8-4: Chemical risk assessment criteria

Assessment criteria	Selection rationale
Potential for acute and/or chronic toxicity to aquatic life	The toxicity of a chemical is the fundamental consideration within this assessment. This reflects the UK OCNS system which ranks chemicals based on their toxicity, and then adjusts rankings depending on biodegradation and bioaccumulation properties. The scale for toxicity is based on the toxicity rating classification system used by DEMIRS, from Hinwood et al. (Ref. 51).
Persistence or biodegradability	Biodegradation rate provides an indication of the potential persistence of the chemical within the environment, and therefore the potential duration of exposure for environmental sensitivities. The scale for biodegradation is based on adjustment criteria used by Centre for Environment, Fisheries and Aquaculture Science (CEFAS) to finalise chemical hazard assessment scores under the OCNS system.

Assessment criteria	Selection rationale
Bioaccumulation or bio-concentration	Indicates the potential for the chemical (or components of the chemical) to accumulate within biological matrices and food chains. Chemicals which may not be toxic and are introduced to the environment in low concentrations can concentrate within biological matrices to the point where they become toxic and may have either acute or chronic effects. The scale for bioaccumulation is based on adjustment criteria used by CEFAS to finalise chemical hazard assessment scores under the OCNS system.

8.3.2 Process safety, reliability and integrity

8.3.2.1 OE information management

Under the OEMS, records (including compliance records to demonstrate environmental performance and compliance with commitments in this EP) will be retained in accordance with regulation 52 of the OPGGS(E)R.

The OE information management process (Ref. 41) explains how critical information related to HSE, reliability, efficiency, and process safety is to be identified, developed, assessed, and maintained so that the workforce has access to, and is using, the most current information. This document describes key roles, responsibilities, and competencies associated with the process, and includes measurement and verification activities.

Vessel contractors will maintain records as above and are required to make these available upon request.

Records relevant to the DS-1 exploration drilling may include:

- this EP
- induction material and attendance records
- assurance register
- inspection records and supporting evidence
- incident reports, if applicable
- routine environmental reporting
- emissions and discharge data
- relevant log book records (e.g. vessel).

8.3.2.2 Management of change

MoC expectations are to manage proposed changes to design, equipment, operations and products before they are implemented. In conjunction with the *ABU OE Risk Management Process* (Section 8.3.5), the *Management of Change for Facilities and Operations* process (Ref. 42) is followed to document and assess the impact of changes to activities described in this EP. These changes will be addressed to determine if there is potential for any new or increased environmental impact or risk not already provided for in this EP. If these changes do not trigger relevant petroleum regulations as detailed below, this EP will be revised, and changes recorded in the EP without resubmission.

For the DS-1 exploration drilling, the following would trigger an MoC:

- change to the activity scope (e.g. timing, vessel, equipment, etc.)
- changes to knowledge of the receiving environment (e.g. EPBC listed species, Part 13 statutory instruments [i.e. recovery plans, threat abatement plans, conservation advice, wildlife conservation plans], requirements for AMPs, First Nations cultural heritage, etc.)
- new objections or claims received from relevant persons that are assessed to have merit
- non-conformances or opportunities for improvement which indicate that control measures may not be managing environmental impacts and risk to ALARP and acceptable levels
- incidents which identify new or increased impacts and risks arising from activities not previously identified in the accepted EP.

In accordance with regulation 38 and 39 of the OPGGS(E)R this EP must be resubmitted to NOPSEMA in the following circumstances:

- before commencing a new activity, or any significant modification or new stage of the activity, not provided for in this EP
- if a change in the titleholder results in a change in the manner in which the impacts and risks of the activity are managed
- as soon as practicable after the occurrence of any significant new environmental impact or risk, or significant increase in an existing environmental impact or risk, that is not provided for in this EP
- as soon as practicable after the occurrence of a series of new environmental impacts or risks, or a series of increases in existing environmental impacts or risks, occur which, taken together, amount to the occurrence of a significant new environmental impact or risk, or a significant increase in an existing environmental impact or risk, not provided for in this EP.

8.3.3 Environment

The Environment Focus Area provides CAPL's framework for the protection of the environment and community health using a risk-based approach that addresses potential environmental impacts.

8.3.3.1 Environmental stewardship

The environmental stewardship process (Ref. 43) is designed to identify, assess, and manage potentially significant environmental impacts in a consistent manner and continually improve environmental performance. The objectives of the process are to:

- provide a consistent approach to environmental stewardship
- reduce the potential for environmental impacts
- support continual improvement in environmental performance throughout the lifecycle of Chevron's assets.

8.3.3.2 Quarantine

The *Quarantine Procedure Marine Vessels* (Ref. 44) provides information about quarantine compliance to CAPL, contractors, and others associated with marine vessels.

The purpose of this procedure in relation to the offshore title areas is to prevent offshore facilities and activities associated with CAPL title areas becoming staging areas for the introduction of marine pests into Australian waters and ports.

This procedure also outlines the requirements for vessels operating in title areas and details the premobilisation requirements and ongoing management of vessels operating in title areas.

All vessels operating in title areas must comply with applicable Australian biofouling and ballast water requirements to prevent the introduction and spread of marine pests. Regardless of the origin of the vessel or where it will be operating, all vessels must be free from marine pests when mobilised and the contractor must demonstrate the vessel meets low risk rating for biofouling.

As per the Quarantine Procedure Marine Vessels (Ref. 44), CAPL undertakes a risk assessment before any vessel is mobilised to title areas to confirm the vessel meets the requirements for approaching and accessing these areas. For this purpose, each vessel contractor submits a completed Marine Vessel Questionnaire with supporting evidence to CAPL for assessment.

This risk assessment will consider the vessel's attributes and history, including wetsides cleaning, application of antifoul coating, and recent transit history, including time in known high-risk waters.

If the vessel's history is unknown or if there is a moderate risk of IMP presence, additional actions must be undertaken. These action items (which may include requirements such as dry-dock, hull cleaning, etc.) will be issued to the contractor to implement. The contractor must also submit the vessel details to the Vessel Check online risk assessment tool (https://www.vessel-check.com/) and provide CAPL with a copy of the resulting Risk Assessment Report demonstrating the vessel has achieved low risk rating. Only once a vessel has met the requirements of the *Quarantine Procedure Marine Vessels* (Ref. 44), CAPL will issue a Vessel Mobilisation Certificate.

8.3.4 Stakeholders

Stakeholder engagement expectations are to manage social, political, and reputational risks to CAPL (and Chevron), address potential business impacts, and generate business value by:

- identifying, assessing, and prioritising issues
- building and maintaining relationships with external stakeholders, including governments and the communities where CAPL operates
- developing and executing issue management and stakeholder engagement plans, tracking engagements and issues, and validating the effectiveness of plans.

The *Stakeholder Engagement and Issues Management Process* (Ref. 45) details an integrated approach for engaging stakeholders and managing external stakeholder issues. This process describes key roles and responsibilities for stakeholder engagement, establishes measurement and verification activities designed to monitor the effectiveness of the stakeholder engagement process and to promote continual improvement.

8.3.4.1 Ongoing consultation with relevant persons

In accordance with regulation 22(15) of the OPGGS(E)R, CAPL will undertake ongoing consultation for this petroleum activity with relevant authorities and other relevant interested persons or organisations for this petroleum activity as described in Table 8-5.

Through co-design of consultation, CAPL will agree processes for ongoing consultation with relevant persons. This may include consultation on the ongoing environmental performance of the petroleum activity and review of applicable control measures with the relevant persons. Engagement agreements and consultation plans with relevant persons are included in the sensitive information report. Records for ongoing consultation with relevant persons will be recorded and maintained in CAPL's online tracking engagements system.

Any objections or claims arising from ongoing consultation that have merit and have the potential to result in changes to the description of environment, impact or risk assessment, or control measures, will be subject to CAPL's MoC process, in accordance with Section 8.3.2.2.

If a new relevant person is identified during the in-force period of the EP, CAPL will provide sufficient information to that relevant person (as described in Section 6.2.2) and will assess the merits of the objections or claims of that relevant person in accordance with Section 6.3.7 and CAPL's MoC process (Section 8.3.2.2).

Table 8-5: Notifications and ongoing consultation

Stakeholder	Notification or ongoing consultation requirement	Timing	Frequency
Notifications			
AHO	Provide information to enable promulgation of Notice to Mariners Notify AHO via datacentre@hydro.gov.au.	At least four weeks before commencing activities, or as otherwise agreed with AHO.	Once, prior to activities commencing
AMSA	Provide information to enable promulgation of radionavigation warnings Notify AMSA's JRCC via rccaus@amsa.gov.au (phone: 1800 641 792 or +61 2 6230 6811).	At least 24 to 48 hours before commencing activities, or as otherwise agreed with AMSA.	Once, prior to activities commencing.
Relevant persons (that have requested ongoing notifications) including: • Recfishwest	CAPL will provide a pre-start notification confirming the start date of the petroleum activity.	At least two weeks before commencing activities.	Once, prior to activities commencing.
	CAPL will provide notification following completion of the petroleum activity.	Within two weeks of completion of activities.	Once post activity completion.
Potentially affected relevant persons and/or relevant persons that have requested emergency event notifications, including:	CAPL will provide an incident notification if an unplanned emergency event occurs that is likely to affect the functions, interests, or activities of	As soon as practicable within an emergency response	Once, post unplanned emergency event

Stakeholder	Notification or ongoing consultation requirement	Timing	Frequency
• Coral Futures Corporation • Maxima Pearling Company • First Nations people and/or representative bodies	the identified relevant person.		
Ongoing consultation			
Potentially affected relevant persons	CAPL to advise of any new or significant changes to activities or impacts/risks within the scope of the EP, following an evaluation as per Section 8.3.2.2, that may potentially impact marine users functions, interests, or activities.	Prior to new or significant changes to activities or impacts/risks occurring.	As required.
WAFIC	To inform of changes to activities or impacts/risks occurring that may affect fisheries Notify WAFIC via oilandgas@wafic.org.au	Prior to new or significant changes to activities or impacts/risks occurring.	As required.
First Nations people and/or representative bodies	CAPL to continue engagement with First Nations people and/or representative bodies regarding identifying and understanding the cultural values or features that may be present within the EMBA (refer to Section 8.3.4.3).	Ongoing.	Ongoing.
	Any new information on cultural values or features within the EMBA, and subsequent changes to activities or impacts/risks within the scope of the EP, will undergo an MoC evaluation as per Section 8.3.2.2.	Ongoing.	Ongoing.
	CAPL to advise of any new or significant changes to activities or impacts/risks within the scope of the EP, following an evaluation as per Section 8.3.2.2, that may potentially impact the functions, interests and activities of First Nations people and/or representative bodies.	Prior to new or significant changes to activities or impacts/risks occurring.	As required.

Stakeholder	Notification or ongoing consultation requirement	Timing	Frequency
	If an unplanned emergency event occurs that is likely to affect the functions, interests, or activities of First Nations people and/or representative bodies, CAPL will commence engagement with the relevant person and/or representative bodies.	As soon as practicable within an emergency response.	Once, post unplanned emergency event.
DCCEEW	CAPL to advise of any new or significant changes to activities or impacts/risks within the scope of the EP, following an evaluation as per Section 8.3.2.2, that may potentially impact UCH (as protected by the UCH Act).	Prior to new or significant changes to activities or impacts/risks occurring.	As required.

8.3.4.2 Consultation in the event of an emergency

In the event of an emergency hydrocarbon spill event, CAPL will commence oil spill trajectory modelling using the actual inputs associated with the spill event to predict trajectory, as described in the OPEP (Ref. 2).

Once oil spill trajectory modelling is completed, CAPL will start engaging with potentially affected relevant persons (those considered relevant from Table 6-4, and any additional relevant persons identified under Section 8.3.4.1), plus any others identified from the oil spill trajectory modelling. This engagement will include WAFIC and any potentially affected commercial fisheries as required. The process for reaching out to these relevant persons includes direct contact (phone or email) or indirect contact via the CAPL website.

In the event of other emergency events (e.g. potential reportable incident), CAPL will commence any emergency management as required (and in accordance with Section 8.3.9), and consultation with required departments or agencies will occur as per regulatory requirements (e.g. refer to Table 8-16 for incident reporting requirements).

CAPL will also notify any relevant persons (as identified in Table 6-4, and any additional relevant persons identified under Section 8.3.4.1) that requested to be notified in the event of an oil spill or in the event of any other emergency event (Table 8-5).

8.3.4.3 Ongoing engagement with First Nations representative bodies

Through the consultation process in preparation of this EP (Section 6), several potential initiatives or scopes for ongoing engagement with First Nations representative bodies were identified, including consideration of:

- ranger programs
- capacity building for emergency response support
- support to assist with identifying and articulating the cultural values and features of Country.

These initiatives/scopes are being discussed and progressed with the respective representative bodies.

Where requested, formal engagement plans and/or consultation protocols are in development and once agreed to by CAPL and the relevant representative body, these will be implemented.

Table 8-6 provides a summary of the objectives, scope, and responsibilities of the engagement plans and/or consultation protocols drafted to date. Further information on ongoing consultation and relationship building with First Nations representative bodies is presented in Table 8-7.

Table 8-6: Summary of objectives, scope, and responsibilities in engagement plans and/or consultation protocols

Objectives	Scope	Responsibilities
• provide governance and strategic oversight to guide collaboration and communications • sets out general terms for allocation of resources and recovery of reasonable costs • establish a framework for ongoing consultation • outlines the principles for building relationships: – co-design and co-decide – transparency – walking together.	• consultation meetings • consultation funding • review of information relating to CAPL proposals • confidentiality • negotiation principles • dispute resolution • general correspondence.	CAPL responsibilities: • design and plan engagements in advance • engage in person and aim to provide information in plain English • provide access to internal subject matter experts as well as support for external and independent advice • meet reasonable costs and expenses. Joint responsibilities: • share plans and strategies with each other • plan and engage early and work together on issues • use the negotiations to build trust and goodwill and to negotiate in good faith • spend time together outside of the boardroom.

Table 8-7: First Nations representative bodies ongoing consultation and relationship building

First Nations representative body	Ongoing Consultation	Relationship Building
BAC	• BAC has requested that ongoing consultation be completed through the PBC, NTGAC • CAPL will keep BAC informed on the timing and status of its activities • CAPL will notify BAC in the event that a reportable incident occurs.	• CAPL provided opportunity to participate in Chevron Community Spirit Grant program and is now providing funding support for a community cultural event in 2024 • CAPL invited BAC participants to attend the Roebuck Challenge Oil Spill Response Training in Broome (October 2023) • Invitation to participate in MFO training in September 2024 • CAPL provided opportunities for oil spill training in Perth.
BTAC	• CAPL has executed an interim cost recovery agreement with BTAC for ongoing consultation and CAPL and BTAC have finalised a longer-term funding agreement CAPL providing support to BTAC to initiate cultural mapping program • CAPL invited to present to BTAC common law holders consultation meeting in late 2024.	• CAPL has provided and are implementing an agreed engagement plan • Cost recovery mechanisms in place for informal meetings with BTAC including on country meetings and events • CAPL invited BTAC participants to attend the Roebuck Challenge Oil Spill Response Training in Broome (October 2023) • CAPL has invited BTAC to an on-country consultation on Barrow Island • CAPL has supported BTAC with an expression of interest to participate in a joint venture with the Pilbara Development Commission on the Northern Native Seed Initiative • CAPL provided opportunity to participate in Chevron Community Spirit Grant program • CAPL and BTAC have commenced scoping a cultural mapping program • Invitation to participate in MFO training in September 2024 • CAPL provided opportunities for oil spill training in Perth.
MCH	• CAPL has provided a an engagement plan and consultation protocol which includes cost recovery • CAPL working with MCH to forecast consultation requirements and schedule for 2024.	• Informal meetings with MCH including on country meetings to learn more about Country and Sea Country • CAPL has provided an on-country consultation at Barrow Island and tour (2 visits) • Invitation to participate in MFO training in September 2024 • CAPL provided opportunities for oil spill training in Perth.

First Nations representative body	Ongoing Consultation	Relationship Building
MAC	• MAC has advised CAPL to consult with the relevant PBCs • CAPL will keep MAC informed on the timing and status of its activities • CAPL will notify MAC in the event that a reportable incident occurs • CAPL working with MAC to forecast consultation requirements and schedule for 2024.	• CAPL invited MAC participants to attend the Roebuck Challenge Oil Spill Response Training in Broome (October 2023) • CAPL provided opportunity to participate in Chevron Community Spirit Grant program • Invitation to participate in MFO training in September 2024 • CAPL provided opportunities for oil spill training in Perth.
NTGAC	• CAPL has completed a workshop with the NTGAC board to design ongoing consultation • CAPL has provided an Engagement Plan to NTGAC which provides cost recovery for informal meetings with NTGAC including on country meetings and events • CAPL working with NTGAC to forecast consultation requirements and schedule for 2024.	• CAPL has offered funding support to NTGAC for a resource to assist with consultations and the development of the corporation • CAPL invited NTGAC participants to attend the Roebuck Challenge Oil Spill Response Training in Broome (October 2023) • CAPL provided opportunity to participate in Chevron Community Spirit Grant program • Invitation to participate in MFO training in September 2024 • CAPL provided opportunities for oil spill training in Perth.
NAC	• CAPL and NAC have executed a consultation meeting protocol which provides cost recovery and agreed meeting schedule • CAPL working with NAC to co-design ongoing consultation • CAPL working with NAC to forecast consultation requirements and schedule for 2024.	• CAPL invited NAC participants to attend the Roebuck Challenge Oil Spill Response Training in Broome (October 2023) • CAPL provided opportunity to participate in Chevron Community Spirit Grant program • Invitation to participate in MFO training in September 2024 • CAPL provided opportunities for oil spill training in Perth.
NYFL	• CAPL has provided an Engagement Plan to NFYL which provides cost recovery for informal meetings with NYFL including on country meetings and events • CAPL working with NYFL to co-design ongoing consultation • CAPL working with NYFL to forecast consultation requirements and schedule for 2024.	• CAPL invited NYFL participants to attend the Roebuck Challenge Oil Spill Response Training in Broome (October 2023) • CAPL provided opportunity to participate in Chevron Community Spirit Grant program and have provided financial support for a social benefits program in Roebourne • Invitation to participate in MFO training in September 2024 • CAPL provided opportunities for oil spill training in Perth.

First Nations representative body	Ongoing Consultation	Relationship Building
RRKAC	• RRKAC has requested that we inform them of activities occurring within 2 km of the mouth of the Fortescue River and to inform them of future activities for consideration by their Heritage and Culture Committee • CAPL working with RRKAC to forecast consultation requirements and schedule for 2024.	• CAPL invited WAC participants to attend the Roebuck Challenge Oil Spill Response Training in Broome (October 2023) • CAPL has provided funding support to RRKAC through its community spirit grant program to invest in its ranger program • Invitation to participate in MFO training in September 2024 • CAPL provided opportunities for oil spill training in Perth.
WAC	• CAPL and WAC have established a joint working group for ongoing consultation with cost recovery confirmed • CAPL working with WAC to forecast consultation requirements and schedule for 2024.	• CAPL invited WAC participants to attend the Roebuck Challenge Oil Spill Response Training in Broome (October 2023) • CAPL provided WAC Board and Elders opportunity to spend time on Barrow Island • CAPL has provided WAC funding support to employ a Ranger Coordinator • CAPL has supported WAC with an expression of interest to participate in a joint venture with the Pilbara Development Commission on the Northern Native Seed Initiative • CAPL provided opportunity to participate in Chevron Community Spirit Grant program • Invitation to participate in MFO training in September 2024 • CAPL provided opportunities for oil spill training in Perth.
YAC	• CAPL has provided YAC with a consultation meeting protocol which provides cost recovery and agreed meeting schedule • CAPL is working with YAC to co-design ongoing consultation and forecast consultation requirements for 2024.	• CAPL has discussed ongoing engagement plan with YAC and opportunities to assist the corporation in the achievements of its strategic plan • CAPL invited YAC participants to attend the Roebuck Challenge Oil Spill Response Training in Broome (October 2023) • CAPL provided opportunity to participate in Chevron Community Spirit Grant program • Invitation to participate in MFO training in September 2024 • CAPL provided opportunities for oil spill training in Perth.

8.3.5 Risk management

The risk management process (Ref. 32) assesses and identifies safeguards, which are the hardware and human actions designed to directly prevent or mitigate an incident or event and is designed to be consistent with the environmental risk management requirements of ISO 14001 *Environmental Management System* (Ref. 37) and ISO 31000:2018 *Risk management – Principles and guidelines* (Ref. 33).

This risk management process is summarised in Section 5 of this EP. Additional risk assessments must be undertaken if the MoC process (Section 8.3.2.2) is triggered. Risk assessments are undertaken in accordance with this process.

The *ABU OE Risk Management Process* (Ref. 32) and the *Management of Change for Facilities and Operations* process (Ref. 42) are the key systems CAPL use to ensure, that in accordance with regulation 22(2)(a) of the OPGGS(E)R, the impacts and risks of the petroleum activity continue to be identified and reduced to ALARP.

8.3.6 Assurance

Within the OEMS, assurance is a common expectation that supports the OE objective of each focus area. The *ABU OE Assurance Process* (Ref. 46) enables CAPL to deliver assurance that safeguards are established and functioning; it details:

- a framework for managing verification activities that assure that CAPL complies with applicable legal and OEMS requirements
- a process to identify, report and resolve potential noncompliance
- the minimum qualifications and organisational capability to execute this process.

The *ABU OE Assurance Plan* (Ref. 52) documents the CAPL ABU integrated assurance system and associated assurance activities (Figure 8-4). The *ABU OE Assurance Plan* is reviewed and approved annually and includes:

- a list of OE assurance priorities based on risk
- a schedule of assurance activities to evaluate safeguards and verifications (e.g. safeguard assurance workshops, audits, and assurance programs)
- reference to project and asset assurance plans that outline asset specific assurance activities and risk-based frequency (i.e. field inspection programs, audits, compliance reviews, performance reviews).

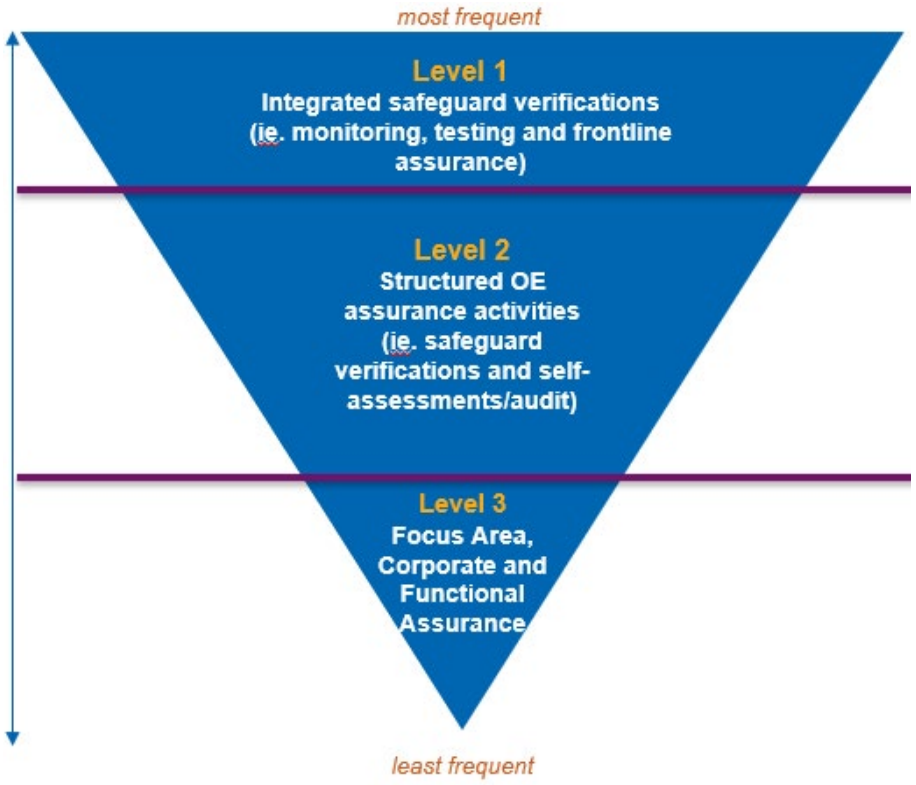


Figure 8-4: ABU integrated assurance system

To support the implementation of the *ABU OE Assurance Process* (Ref. 46), CAPL have developed an ABU integrated assurance system (Figure 8-4), which integrates and leverages assurance activities across the various levels of CAPL business through to the corporate level—to provide confidence that safeguards are in place and functioning as intended. This integrated assurance system includes:

- **Level 1 – Monitoring, testing and frontline assurance assurance**: ongoing, routine, planned verifications of safeguards specific for the asset/facility (e.g. inspections, preventive maintenance, emergency drills and exercises,)
- **Level 2 – OE assurance**: OE assurance activities (e.g. assessments, reviews, audits, inspections) that verify safeguards are in place and functioning, and validate that L1 assurance is effective. These assurance activities monitor weaknesses in the management system and compliance with regulatory requirements, and input learnings into the management system cycle.
- **Level 3 – Corporate and functional assurance:** Assurance activities undertaken by Chevron, CAPL's functional groups (e.g., HSE, Drilling and Completions, base business) or third parties. These assurance activities test effectiveness of the focus area's complete assurance system and how associated safeguards are being sustained.

Assurance activities are scheduled on a risk-based approach and conducted to verify the effectiveness of safeguards and verifications and the extent to which requirements are met by CAPL.

Assurance activities focus on in-field activities and administrative processes, depending on the activities being undertaken and assurance priorities (these priorities are based on risk) and provide sufficient demonstration that

environmental performance outcomes and environmental performance standards have been met and the activity implemented in accordance with this implementation strategy. A record of all assurance activities undertaken, and the outcomes, are maintained and actions are tracked until closure.

As outlined in Section 8.3.1.2, prior to the petroleum activity commencing, a pre-survey vessel inspection will be undertaken to confirm that vessel management systems are consistent with the requirements in this EP.

Prior to the commencement of the petroleum activity, an assurance register specific to the requirements of this EP will be developed and provided to the contractor. This register will detail the commitments established in the EP, including those related to the EPO/EPS, implementation strategy (where relevant) and stakeholder consultation. Additionally, the assurance register includes details regarding evidence verification method and timing. Assurance activities will be undertaken in accordance with the *ABU OE Assurance Process* (Ref. 52). Any potential non-conformances or opportunities for improvement will be identified, and corrective actions associated with these will be implemented as soon as practicable. Corrective actions will be delegated to the person deemed most appropriate to fulfil the action. Records of inspections will be maintained in accordance with Section 8.3.2.1.

During the petroleum activity, weekly Level 1 HSE inspections will be conducted and a Level 2 environmental compliance audit will be conducted at least once to review compliance of the commitments established in the EP. Environmental performance standards in the EP will undergo a compliance review and evidence will be gathered for each environmental performance standard to support the end of activity environmental report. Environmental performance during the petroleum activity will be reviewed to ensure that environmental performance standards and environmental performance outcomes are being met, reviewed and where necessary amended to continue to manage the environmental impacts and risks of the petroleum activity to ALARP and acceptable levels.

Assurance related to the petroleum activity described in this EP will be summarised in the end of activity report submitted to NOPSEMA (Section 8.4.3).

8.3.6.1 Managing instances of potential non-conformance

The reporting, investigation, and tracking of non-conformances are managed via Chevron's *OE Corporate Standard Incident Investigation* (Ref. 47) and *OE Data Reporting Standard* (Ref. 48). These processes apply to instances where the requirements of this EP have not been met. This process is used if audit findings identify that activities in the scope of this EP are not being implemented in accordance with the risk and impact control measures identified in Section 7.

Audit findings and corrective actions are recorded and tracked in a CAPL compliance assurance database for timely closure of actions. As per Section 8.3.6, any corrective action/s identified during environment inspections is required to be implemented as soon as practicable during the DS-1 exploration drilling program. Audit findings that identify a breach of an environmental performance outcome or environmental performance standard will be reported in accordance with Section 8.4.2.

Any suggested changes to activities or control measures arising from audit findings or instances of potential noncompliance will be subject to a MoC process in accordance with Section 8.3.2.2.

8.3.7 Contractor operational excellence management

The Contractor Operational Excellence Management (COEM) Process (Ref. 345) is designed to ensure OE/HSE risks are managed effectively during contract execution. The COEM process seeks to establish clear accountabilities, ensure active engagement of contractors, and provide a consistent COEM program to help prevent serious incidents and fatalities and high-consequence events involving contractors. When CAPL appoints the primary contractor to control work using their management system, a gap analysis between the CAPL OEMS and the contractor's management system is undertaken to ensure the contractor's management system meets applicable OEMS requirements.

8.3.8 Incident investigation and reporting

Incident investigation and reporting (IIR) expectations are to identify, report, record and investigate incidents, analyse trends, correct deficiencies, and share and adopt relevant lessons learned.

The *IIR Execution Manual* (Ref. 49) defines the requirements to report, classify, record, and investigate incidents and near misses, including but not limited to injury, occupational illness, environmental impact, reliability, business disruption, and community concern.

The IIR process includes these requirements:

- training for employees and contractors to recognise and report events
- internal and external notification of events
- investigating incidents at the probable level of consequence, with the rigor of investigation based upon learning opportunity and incident severity
- allocating an incident management sponsor for selected investigations
- sharing alerts, lessons learned, and bulletins
- tracking recommended actions to closure
- analysing event trends.

Events that meet the required criteria are recorded in the CAPL incident management system (IMS). The system holds records of the associated investigation results. The lessons learned from selected investigations are shared to reduce the likelihood of future comparable events.

Specific incident reporting requirements for this EP are detailed in Section 8.4.2.

8.3.9 Emergency management

CAPL's emergency management implementation strategy is described in the following sub-sections. EPO, EPS and MC relating to CAPL's emergency management implementation strategy are included in Section 7.15.3.

In addition to CAPL's overarching emergency management strategies, and with specific reference to vessel-based activities, an approved SOPEP will also be in place (in accordance with vessel class requirements) as required by MARPOL 73/78 Annex I and Marine Order 91 (Marine pollution prevention – oil). In the event of a vessel-based spill event the SOPEP will be implemented by the Vessel Master. Control measures and environmental performance standards relating to SOPEPs are described in Sections 7.13 and 7.14, and requirement have not been duplicated here.

8.3.9.1 Response document interfaces

In the event of an oil spill the overarching *ABU Emergency Response Plan* (Ref. 286) interfaces with the ABU OPEP (Ref. 2) and OSMP (Ref. 3), and the activity-specific SCERP (Ref. 195) and Relief Well Plan (Ref. 280) (Figure 8-5; Table 8-8).

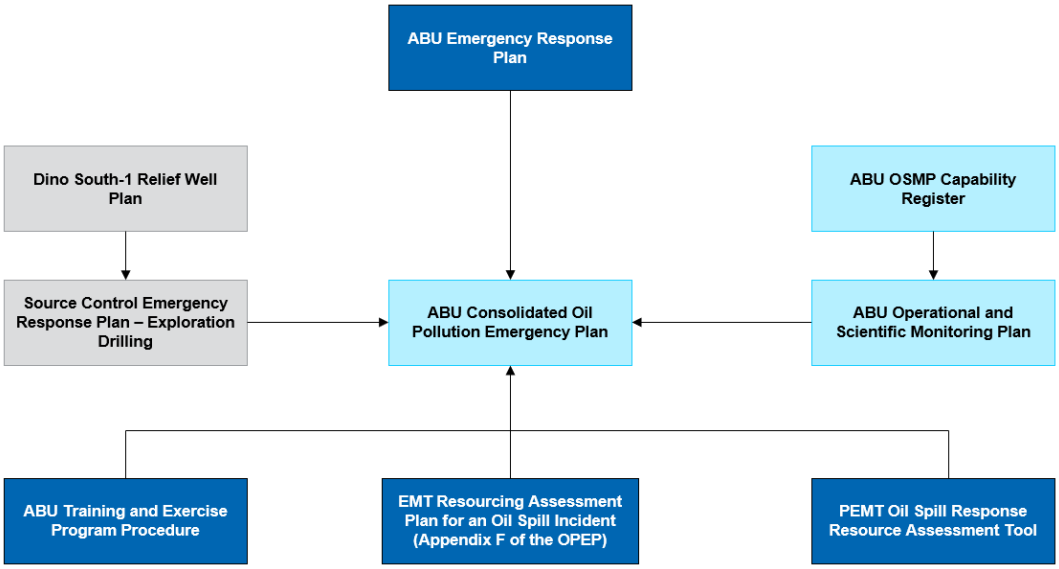


Figure 8-5: Oil spill response document interface for DS-1 exploration drilling

Table 8-8: Summary of oil spill response documentation

Document	Description
All ABU activities	
ABU Emergency Response Plan (Ref. 286)	The ABU ERP describes the emergency management, governance, and coordination arrangements for the Perth Emergency Management Team (PEMT) for emergency incidents across the ABU.
Consolidated OPEP (Ref. 2)	The Consolidated OPEP outlines specific emergency response options and tactics to respond effectively to an oil spill, should a spill occur where CAPL is the Nominated Titleholder (Commonwealth) or Operator (State).
OSMP (Ref. 3)	The OSMP describes the types of environmental monitoring that may be implemented during an emergency event that results in an oil spill to marine or coastal waters. The OSMP is the principal tool for determining the extent, severity, and persistence of environmental impacts from an oil spill. It comprises two types of monitoring: operational and scientific.
Chevron Emergency Management ABU Training and Exercise Program Procedure (Ref. 249)	This document outlines the competencies and training requirements for the EMT, On-site Response Team (ORT), and other personnel during implementation of the OPEP. It includes a summary of oil spill response management training that has been designed to align with the knowledge requirements outlined in the AEP Guidance Document: Incident Management Teams – Knowledge Requirements for Responding to Marine Oil Spills (Ref. 250), specifically the general knowledge requirements for all EMT members and the EMT function specific knowledge requirements.
PEMT Oil Spill Response Resource	This live tool provides a real time assessment of resources available to CAPL to fill the core and support positions identified in the EMT Resourcing Assessment Plan for an Oil Spill Incident (Appendix F in the OPEP [Ref. 2]). It quantifies the core and support EMT capability

Document	Description
Assessment Tool (Ref. 314)	requirements specific to the worst credible scenario described in this EP and demonstrates CAPL has access to personnel to meet the requirements of the Capability Assessment.
Activity-specific (well activities)	
SCERP – Exploration Drilling (Ref. 195)	This activity-specific SCERP outlines the source control response arrangements in place for proposed exploration drilling activities. This document provides the Source Control Branch within the EMT with guidance and checklists for implementing source control strategies in the event of a LOWC.
DS-1 Relief Well Plan (Ref. 280).	This activity-specific Relief Well Plan provides the detailed design of a relief well and proposed locations. This document supports the activity-specific SCERP.

8.3.9.1.1 Source Control Emergency Response Plan

The SCERP (Ref. 195) contains all steps necessary to affect the direct intervention on a well that has experienced LOWC, with the intent to halt or control the release of hydrocarbons to the environment. This may include:

- BOP intervention
- subsea dispersant injection
- relief well drilling
- capping stack installation.

The SCERP (Ref. 195) structure was specifically developed to align with relevant industry guidance and standards, including the AEP *Australian Offshore Titleholders Source Control Guideline* (Ref. 268), IOGP's *Source Control Emergency Response Planning Guide for Subsea Wells* (Ref. 276) and NOPSEMA's *Source control planning and procedures Information Paper* (Ref. 277). The SCERP also aligns with source control response expectations within CAPL.

The SCERP (Ref. 195) aligns with the content requirements of the industry guidance and standards documents, and includes:

- source control IMT arrangements and notifications
- source control training and emergency exercises
- response time modelling for source control strategies
- WCD calculation
- relief well planning
  - locations and designs
  - relief well dynamic well kill plan
  - relief well long lead inventory management
- plume and dispersion study
- source control resources
  - mutual aid arrangements via AEP (previously APPEA) MoU
  - response vessels and tracking

- capping stack landing analysis and capping stack selection
- BOP intervention
  - well or BOP to capping stack interface analysis
- debris clearance
- subsea dispersant operations and supply planning
- capping stack
  - capping stack and ROV interfaces
  - capping stack mobilisation and deployment planning
  - wellhead structural integrity analysis
- SIMOPS planning.

8.3.9.1.2 Relief Well Plan

As per the SCERP and associated DS-1 RTMs, deployment of a capping stack is the primary source control option for the DS-1 exploration well given that the well is in water depths greater than 800 m. However, in the event of LOWC, the drilling of a relief well may commence in parallel to capping operations. Detailed information on relief well planning is contained in the *Dino South-1 Relief Well Plan* (Ref. 280).

CAPL relief well planning is based on internal company standards—the *ABU Wells WCD Calculation and Relief Well Planning SOP* (Ref. 278) and the Chevron Corporate *CTC Business Unit Source Control Response Plan* (Ref. 279). These internal standards are aligned with the content and strategy outlined in the OGUK's *Guidelines on Relief Well Planning for Offshore Wells* (Ref. 281).

8.3.9.2 Emergency management arrangements

The emergency management arrangements outline a systematic approach for planning, responding to, and recovering from emergency events and are intended to provide a standardised management and response structure that details emergency management documentation, Emergency Response Organisation (ERO), facilities and equipment, and training and exercises.

The ERO provides a standardised management and response structure for all emergency scenarios. Personnel filling roles within this structure may include full and parttime CAPL employees from across the workforce with event-specific or subject matter expertise.

The system used to organise CAPL's EMTs is based on the Incident Command System (ICS) and provides a standardised approach to the coordination of an emergency response across all hazards, including oil spill response. This program is compatible with the Australasian Inter-service Incident Management System, and the *National Plan for Maritime Environmental Emergencies* (National Plan; Ref. 53) and is consistent with the core aspects presented in the IMO equivalent courses.

The ERO comprises the groups listed in Table 8-9; this table also describes the major functions of teams during an emergency.

Figure 8-6 to Figure 8-8 outline the organisational chart of the ORTs and EMTs. The Crisis Management Team (CMT), which focus on the business implications of

incidents and events, are further described in the *ABU Crisis Management Plan* (Ref. 54).

As the incident escalates and the workload of each function increases, it may be necessary to delegate specific roles to additional people within each section. These roles may lead a team of people to fulfil the tasks under their control.

To establish emergency response arrangements that can be scaled up or down depending on the nature of the incident by integrating with other local, regional, national, global, and industry plans and resources, CAPL has adopted a tiered approach in its response system. This tiered-response model scales the number of resources mobilised for a response, and the emergency team activated, according to the severity of the incident. This approach is consistent with the *International Convention on Oil Pollution Preparedness, Response and Cooperation 1990*. The response tiers and resources that may be mobilised for an oil spill incident within CAPL are further described within the OPEP (Ref. 2).

Table 8-9: CAPL emergency management teams

Team	Description
Tier 1 (CAPL)	
ORTs	Trained responders at the installation who are responsible for on-scene tactical response operations during an incident. ORTs are led by an On-scene Commander (OC) who has incident control during smaller Level 1A incidents, which do not require further escalation to an incident management team. If the IEMT is activated, the OC will come under the direction of the IEMT's Incident Commander (IC).
Installation Emergency Management Team (IEMT)	The IEMT is led by an IC and operates out of an on-site emergency command centre. The IEMT may be activated to take control of Level 1B incidents and coordinate local resources and ORTs. Upon activation of the IEMT, the PEMT IC will be informed and maintain a standby position.
PEMT	The PEMT is led by the PEMT IC and operates out of a Perth-based emergency command centre. The PEMT is activated in situations where the IEMT do not have adequate resources and personnel to bring the emergency under control. For complex and prolonged responses, the IEMT will be absorbed and form into the PEMT Operations Section, which is led by the Operations Section Chief (OSC). This change happens as the PEMT enters the proactive phase of the Incident Command System. The PEMT stands up at the direction of the PEMT IC for all Level 2 and 3 incidents. Upon activation of the PEMT, the CMT will be informed and maintain a standby position.
CAPL CMT	The CMT comprises of senior CAPL executives and ensures thatall emergency and crisis management operations are carried out in congruence with The Chevron Way, Chevron Corporation policies, and the tenets of OE. The CMT stands up at the direction of the CAPL Crisis Manager for Level 3 incidents.
Tier 2 (Regional Response)	
Chevron Corporation's Asia–Pacific Regional Response Team	An enterprise-level team able to support CAPL during the initial response (reactive phase) to a significant incident and help manage the transition to the ongoing response (proactive phase).

Team	Description
Tier 3 (Global Response)	
Chevron Corporation's Functional Response Teams	Enterprise-level teams with specific technical expertise in selected command staff positions and unit positions in the Planning, Logistics, and Finance sections. Team members are trained to support the management of global- and regional-level (Tier 2 and 3) incidents but are available to support any response.
Chevron Corporation's Worldwide Emergency Response Team	An enterprise-level team of Chevron Corporation's most highly trained and experienced personnel capable of filling ICS command and general staff roles of a response organisation, including Deputy IC. Team members are trained to support the management of global-level (Tier 3) incidents but are available to support any response.
Chevron Corporation's Advisory and Resource Team	An enterprise-level initial assessment and support team available to advise during the initial stages of a significant event, assess incident potential, and help the local response team marshal additional resources.

8.3.9.3 Emergency management process

The *Emergency Management OE Process* (Ref. 50) is CAPL's system for emergency management. The process ensures CAPL is prepared to respond immediately and effectively to all emergencies involving contractor- or CAPL-owned or -operated assets as defined in their scope of work.

The emergency management process (Ref. 50) comprises these key elements.

- emergency scenarios, including worst case, have been identified; these scenarios are based on the findings from risk assessments of significant safety, health and environmental hazards and other sources (e.g. historical incidents)
- emergency response plans are developed and maintained to address emergency scenarios
- a reliability program is in place for inspection, testing and preventative maintenance of critical emergency response equipment and systems supporting emergency response plans
- an IMS is in place capable of immediately and effectively managing all emergencies
- a training and exercise program, including minimum training and exercise requirements, has been developed to establish and maintain emergency response capability
- crisis management plans have been developed to address a potential crisis or significant event
- business continuity plans have been developed in conformance with the *Business Continuity Planning Corporate OE Process* (Ref. 55).

The OPEP (Ref. 2) acts as an operational document to ensure an appropriate response to the emergency events described in this EP. Smaller spills will be monitored, evaluated, and cleaned up as part of routine duties, where relevant and appropriate to the nature and scale of the spill, and will not require activation of the ORT or OPEP. Several emergency management subprocesses are outlined below that are integral to emergency preparedness and management.

8.3.9.4 Chain of command (emergency response)

A well-delineated EMT chain of command has been established for emergency response (Figure 8-6 to Figure 8-8). As incidents grow or reduce in size or complexity, command may transfer several times. Within the response structure, command may transfer between OC at the tactical level. For a major incident, incident command may transfer to a designated Control Agency or to the Perth EMT, if required.

Although the identity of those filling command positions may change over the course of the incident, the continuity of responsibility and accountability will be maintained. Typically, specialists for particular response options will fulfil Task Leader positions in the IEMT and PEMT where they will be expected to oversee a team or particular response operation.

Throughout an incident, a formal handover will be conducted whenever any command or control position is transferred from one person to another.

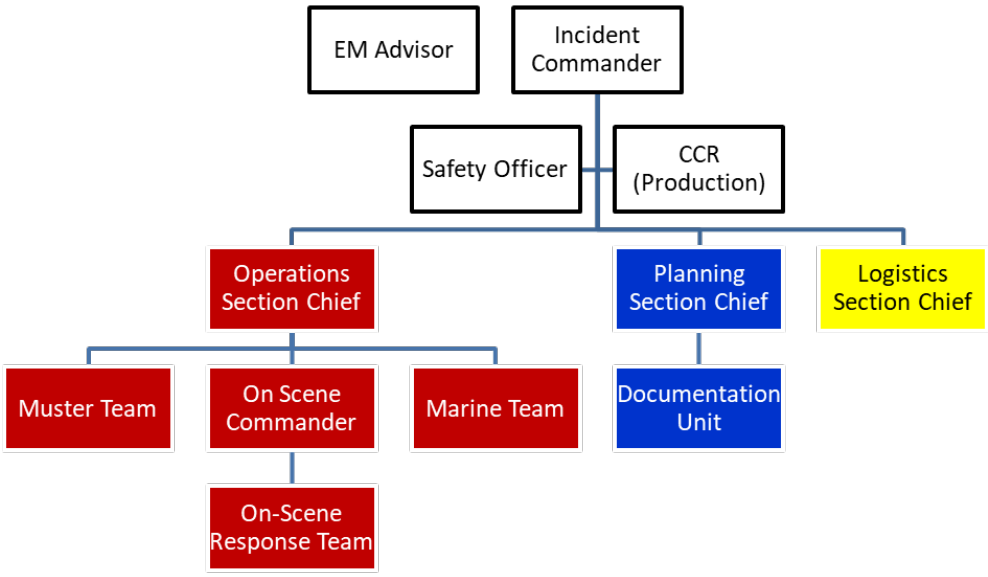


Figure 8-6: Basic installation EMT organisation chart

Figure 8-7: Example expanded EMT organisation chart

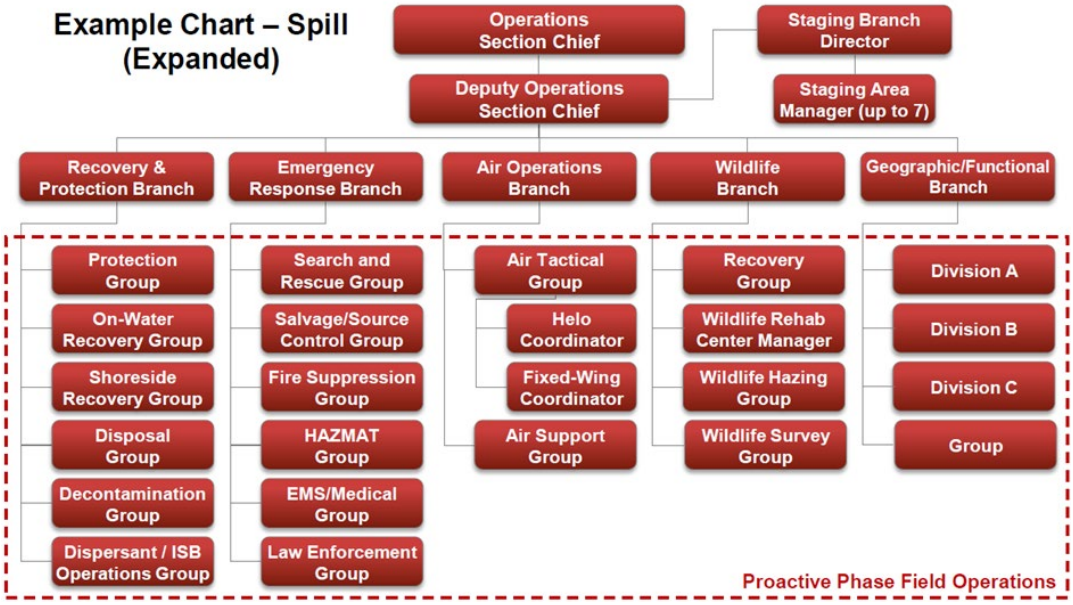


Figure 8-8: Example expanded operations section organisation chart

8.3.9.5 Roles and responsibilities (emergency response)

Table 8-10 provides additional information about the structure of these teams and the key individual roles and responsibilities during emergency response. Not all roles presented in Figure 8-6 to Figure 8-8 are described; these are presented as examples only and the final structure of the EMT would be shaped by the specific requirements of the incident. Further information on all Chevron EMT roles are provided in the *ABU Emergency Response Plan* (Ref. 286).

Table 8-10: Key roles and responsibilities—emergency response

Role	Responsibilities
ORT	
On-Scene Commander (OC) *(Vessel Master)*	• Safely and effectively organises and manages the ORT response operations.
CAPL Drill Site Representative (DSR)	• Keeps the EMT informed regarding the nature and status of the incident and on-site tactical response operations.
Site Safety Officer	• Ensures that appropriate actions are taken to protect the safety and health of ORT response personnel.
Task Leader	• Safely carries out their assignment consistent with directions received from the OC, branch director, division, or group supervisor.
IEMT	
IEMT IC	• Manages the overall emergency response operations and ensures that they are carried out safely, effectively and efficiently. • Ensure direct line of communications is maintained with the OC/DSR. • Mobilises the IEMT and assigns additional support from other response teams (as appropriate to the incident) for Level 1B incidents that require support beyond the ORT.
OSC	• Provides strategic direction and support to the OC with muster and evacuation procedures. • Receives information regarding the nature and status of the ORT and provides support for mustering and/or shelter-in-place operations • Disseminates information to the IC and other members of the IEMT.
Planning Section Chief	• Focuses on the incident's potential using the compilation and display of information regarding the nature and status of an incident and emergency response operations • Assists the IEMT IC in defining strategic objectives • Assists the IEMT IC in providing information to the PEMT • Compiles and retains documentation.
Logistics Section Chief	• Obtains personnel, equipment, materials, and supplies needed to mount and sustain emergency response operations • Provides services necessary to ensure that emergency response operations are carried out safely and efficiently.
PEMT	
PEMT IC	• Establish immediate priorities and incident objectives to manage all aspects of the emergency response. • Stand up the PEMT and establish the ICS structure with key personnel.
Safety Officer	• Develop and recommend measures for assuring personnel safety during emergency response operations. • Assess and anticipate hazardous and unsafe situations. • Assist the PEMT IC by keeping them informed of all anticipated risks.
Liaison Officer	• Liaise with agencies, business partners and regulators on current emergency status. • Responsible focal point between state emergency services and CAPL.
Public Information Officer	• Develop statements and communications to be distributed with internal and external stakeholders. • Responsible focal point for all external media and third party enquiries.

Role	Responsibilities
CMT	
ABU Crisis Manager	• Provides strategic direction to the organisation's emergency and crisis management activities. • Ensures all necessary resources are available to the PEMT, IEMT and ORT to return the organisation to business as usual. • Responsible for communications to all key stakeholders both internal and external to CAPL.

8.3.9.6 Training and competency (emergency response)

Competencies and training requirements for the IEMT, PEMT and other response personnel during implementation of the OPEP (Ref. 2) are detailed in the *Emergency Management ABU Training and Exercise Program Procedure* (Ref. 249) and summarised in Table 8-12. Training is delivered via a mix of computer-based training (CBT) and face-to-face. Competency and training records for personnel, including contractors and subcontractors, are maintained and available via live Oil Spill Response and Emergency Management readiness dashboards.

Oil spill response training is delivered via three modules, which have been designed to align with the knowledge requirements outlined in AEP's *Guidance Document: Incident Management Teams – Knowledge Requirements for Responding to Marine Oil Spills* (Ref. 250). CAPL's Oil Spill Management Modules 1 and 2 are CBT training packages that align with the general knowledge requirements for all IEMT members, as per Table 2 of the AEP's Guidance Note. Module 3 is a two-day face-to-face training that aligns with the PEMT function specific knowledge requirements outlined in Table 3 of the AEP's Guidance Note. This training is delivered to key EMT positions across four functions (control, operations, planning, logistics) and covers four general topics—oil spill preparedness and response (OSPR) strategies, regulatory and stakeholder engagement, safety in response, and CAPL-specific OSPR arrangements. Further detail on this training is provided in Table 8-11. Note: The AEP Guidance Note includes an additional topic (Dynamic Incident Action Plan [IAP] Planning), and these aspects are covered through the delivery of ICS courses that are required to be completed by all EMT members, as per Table 8-12.

Table 8-11: Oil spill training package details

CAPL Oil Spill Management – Training Packages	
CAPL Oil Spill Management Module 1	
Delivery method	• CBT.
Guidance	• general knowledge requirements for all IEMT and PEMT members, as per Table 2 of AEP's Guidance Note (Ref. 249).
Oil spill topics	• this awareness level module covers: – oil spills overview – fates, impacts, and response strategies for oil spill – fates and environmental effects of spills – oil properties – weathering properties/processes – environmental and socio-economic impacts of oil spills – oil spill response strategies.

CAPL Oil Spill Management – Training Packages	
CAPL Oil Spill Management Module 2	
Delivery method	• CBT.
Guidance	• general knowledge requirements for all IEMT and PEMT members, as per Table 2 of AEP's Guidance Note (Ref. 249).
Oil spill topics	• this awareness level module covers: – oil spills regulatory context and spill arrangements – oil spill response regulatory context for CAPL activities – interfaces and responsibilities of response and coordination agencies involved in CAPL OSPR response – external oil spill support agencies and the broad types of support they can offer – CAPL activities and associated spill risks, environmental values and sensitivities for CAPL's area of operation – CAPL OPEP activation/trigger and notification requirements, first strike actions, response options – CAPL response capability and arrangements.
CAPL Oil Spill Management Module 3	
Delivery method	• face-to-Face, typically ~2 days.
Guidance	• PEMT function specific knowledge requirements outlined in Table 3 of AEP's Guidance Note (Ref. 249).
Oil spill topics	• this detailed level module covers: – CAPL OSPR overview – OSPR strategies – regulatory context and stakeholder engagement – safety in response – Titleholder-specific OSPR arrangement – dynamic IAP planning (this training is managed via the Incident Command System training required for EMT members).

Table 8-12: Competency and training requirements—emergency response

Role	Minimum all hazards training or competency	Minimum oil spill training or competency
Note: Personnel with no specialist emergency response duties should undergo training in line with their responsibilities as indicated below for 'All personnel'.		
All personnel	• Provide basic first response to an incident, including, but not limited to: conducting a quick assessment; making safe; notifying anyone else in danger; and raising the alarm • Complete basic procedures in response to an alarm and evacuate to a muster point (as necessary) • Competency maintenance through response, training, exercise, or drills at least once every three years	
In addition to the above, personnel responsible for roles with specialist oil spill response duties should undergo further training and practice in line with the responsibilities set out below. Training is provided to maintain the capability to respond to all hazards in line with the Incident Command System implemented by CAPL.		
EMTs		
Core PEMT members assigned positions of: • IC / Deputy IC	• ICS-100 Introduction to the Incident Command System or equivalent	• CAPL Oil Spill Management Module 1

Role	Minimum all hazards training or competency	Minimum oil spill training or competency
• Section Chiefs / Deputy Section Chiefs • Safety Officers • Environment Unit Leads (EUL)	• ICS-200 Basic Incident Command System training or equivalent • ICS-300/320 Blended Intermediate Incident Command System or equivalent	• CAPL Oil Spill Management Module 2 • CAPL Oil Spill Management Module 3 • EUL requires 10 years experience in environmental work.
IEMT members assigned positions of: • Incident Commander • Section Chiefs • Safety Officers	• ICS-100 Introduction to the Incident Command System or equivalent • ICS-200 Basic Incident Command System training or equivalent • ICS-220 Initial Incident Command System or equivalent	• CAPL Oil Spill Management Module 1 • CAPL Oil Spill Management Module 2
ABU Oil Spill Coordinator	• ICS-100 Introduction to the Incident Command System or equivalent • ICS-200 Basic Incident Command System training or equivalent • ICS-300/320 blended or equivalent.	• CAPL Oil Spill Response Operations (IMO1) or equivalent Chevron focused Response Operations course • CAPL Oil Spill Response Management (IMO2) or equivalent Chevron focused Response Operations course.
Source Control Branch Director / Deputy Branch Director	• ICS-100 Introduction to the Incident Command System or equivalent • ICS-200 Basic Incident Command System training or equivalent.	• CAPL Oil Spill Management Module 1 • CAPL Oil Spill Management Module 2 • CAPL Oil Spill Management Module 3. • 15+ years in roles such as a Wells Engineer • 10 years in subsea/offshore related well work • Must hold a valid IADC Subsea Well Control Certification (Supervisor level) or valid IWCF Subsea Well Control Certification (Supervisor level).
Oiled Wildlife Branch Director	• ICS-100 Introduction to the Incident Command System or equivalent • ICS-200 Basic Incident Command System training or equivalent • ICS-300/320 Blended intermediate Incident Command System or equivalent.	• CAPL Oil Spill Management Module 1 • CAPL Oil Spill Management Module 2 • CAPL Oil Spill Management Module 3 • AMOSC/DBCA (or equivalent): Course in oiled wildlife response - management

Role	Minimum all hazards training or competency	Minimum oil spill training or competency
Support PEMT: General support positions, including: • Branch Directors • Unit Leaders • Source Control Branch Support External agencies/OSROs Chevron Global response	• ICS-100 Introduction to the Incident Command System or equivalent • ICS-200 Basic Incident Command System training or equivalent. (Just in time training, delivered prior to mobilisation into the PEMT unless specified above e.g. for Deputy IC and Deputy Section Chief roles).	• CAPL Oil Spill Management Module 2 or equivalent training. (Just in time training, delivered prior to mobilisation into the PEMT).
ORTs		
Oil Spill Responders	• N/A.	• CAPL Oil Spill Response Operations (IMO1) or equivalent Chevron focused Response Operations course.
Aerial Surveillance Coordinator	• N/A.	• AMOSC Aerial Surveillance or equivalent.
Oiled Wildlife Responders**	• N/A.	• AMOSC/DBCA (or equivalent): Course in Introduction to Oiled Wildlife Response • fauna handling training.
AMOSC Core Group	• N/A.	• IMO1 – Operations Stream • IMO1 and IMO2 – for Management Stream • attend AMOSC Core Group Workshop as required.

8.3.9.7 Oil spill response resourcing and capability

CAPL has multiple EMT resourcing arrangements in place to respond to a potential oil spill event, including internal CAPL EMT capacity (inclusive of Source Control), regional and global Chevron support teams and functional groups, OSROs and industry mutual aid agreements.

Appendix F of the OPEP (Ref. 2) outlines CAPL's EMT Resourcing Assessment Plan for an Oil Spill Incident and evaluates EMT capability requirements. It quantifies and justifies the core and support EMT capability requirements required for a generalised LOWC oil spill scenario (based on 13 weeks) and summarises the assumptions used to develop the EMT capability needs assessment (such as allowances for redundancy, rostering, shift coverage and rotation).

The *PEMT Oil Spill Response Resource Assessment Tool* (Ref. 314) provides a real time assessment of resources available to CAPL to fill the core and support positions identified in the EMT Resourcing Assessment Plan for an Oil Spill Incident (Appendix F in the OPEP [Ref. 2]). Using activity- specific worst- case spill scenarios (such as the LOWC scenario described in this EP), the tool can be used to demonstrate that sufficient capability is in place.

The *PEMT Oil Spill Response Resource Assessment Tool* (Ref. 314) quantifies the core and support EMT capability requirements specific to the worst credible

scenario described in this EP and demonstrates that at the time of writing, CAPL maintains access to personnel to fill these roles (based on information contained within the *PEMT Oil Spill Response Resource Assessment Tool* (Ref. 314).

8.3.9.7.1 CAPL resources

CAPL maintains a PEMT with a 24/7 call out roster available to be stood up at any time if required. This includes 13 on-call positions sourced from a pool of trained personnel. Each on-call PEMT member is required to be within 1 hour of the Perth office at all times, and the PEMT duty roster enables the formation of the PEMT within 2 hours of notification. Further information on the PEMT is contained in the *ABU Emergency Response Plan* (Ref. 50).

Current numbers of qualified EMT personnel, including those trained in accordance with the training requirements outlined in the *Chevron Emergency Management ABU Training and Exercise Program Procedure* (Ref. 249), are reflected in the *PEMT Oil Spill Response Resource Assessment* Tool (Ref. 314). In addition, CAPL currently has 'all hazards' personnel, and this capability would be able to be inducted/trained in the oil spill response functions before entering the EMT (as outlined in *Chevron Emergency Management ABU Training and Exercise Program Procedure* [Ref. 249]), as the response transitions from a rapidly evolving reactive response phase to a more proactive, steady-state, project phase response.

8.3.9.7.2 Chevron regional and global teams

As per the *Chevron Corporate Emergency ABU Response Teams and Resources Procedure* (Ref. 267) the Chevron Centre for Emergency Preparedness and Response (CEPR) maintains a global mutual-aid capability, available on a 24/7 basis to quickly and effectively provide enterprise-wide support for major incidents and events. This capability shall include pre-identified, trained, and fit-for-duty response teams capable of filling IMS positions, access to industry owned response cooperatives, and access to internal experts and key external vendors. It includes the following services:

The Advisory and Resource Team (ART)

The ART is an initial assessment and support team available to provide advice during the initial stages of an event, to assess incident potential, assist the local response team in marshalling additional resources, and to keep corporate management briefed on the situation or incident. The ART is comprised of a management representative from the impacted operating company, a representative of CEPR, plus a subject matter expert in each of the following areas: public affairs, environmental, safety, and law. The ART team is available via conference call within 2 hours (or less) of notification, and may also mobilise to the incident site to continue with the assessment and provide assistance to the incident management team.

World-Wide Emergency Response Team (WWERT)

The WWERT is a team of Chevron's most highly trained and experienced personnel capable of filling ICS Command and General Staff roles of a response organisation, including Deputy Incident Commander. WWERT members are trained to support the management of global-level (Tier 3) incidents but are available to support any response. Team members are subject matter experts in emergency management and in developing incident action plans.

Functional Teams (FT)

There are 13 functional response teams with specific technical expertise in selected Command Staff positions (safety officer, legal officer) and unit positions in the planning, logistics and finance sections. FT members are trained to support management of global and regional level (Tier 2 and 3) incidents but are available to support any response.

Regional Response Teams (RRT)

There are two corporate RRTs: Europe/Africa/Middle East and Asia Pacific. The RRTs are regional level (Tier 2) response teams trained to support the initial response (reactive phase) of a significant incident within their respective regions and assist in managing the transition to the ongoing response (proactive phase). The RRTs include personnel capable of filling positions including the Deputy Incident Commander, and Section Chiefs for the Operations, Planning, and Logistics Sections, and specialist to fill the Safety, Documentation, and Public Affairs/Liaison positions.

8.3.9.7.3 Oil spill response organisations

CAPL maintains contractual arrangements with OSROs which include providing technical specialists to supplement the CAPL EMT, as detailed in the OPEP (Ref. 2). Arrangements are maintained with:

AMOSC

CAPL is a participating company in AMOSC. This arrangement provides CAPL with access to the AMOSC personnel and the AMOSC Core-Group under the AMOSC Plan.

The AMOSC Core-Group is an Australian industry initiative that was initially crafted in 1992. It is unique within the international context and is noted for being innovative and effective to rapidly expand and surge well trained personnel into a spill response. The AMOSC Core-Group has attended most Australian-based spills and also several offshore spills.

The AMOSC Core-Group averages around 100 personnel at any one time (subject to fluctuations), with expertise split between IMT and field operators.

AMOSC Core Group policy requires all Core-Group personnel to undertake initial training, followed by competency re-validation/training every 2 years. Typically, AMOSC manage the Core-Group re-validation/training by conducting 3 one week Core-Group training/workshops per year. AMOSC coordinates the routine testing, monitoring and monthly reporting of Core-Group personnel availability.

Oil Spill Response Limited (OSRL)

CAPL is a participant member with OSRL which guarantees access to Tier 3 technical advice, resources and expertise 365 days per year on a 24-hours a day basis. OSRL have capacity to mobilise additional equipment and personnel to CAPL EMT from their global bases. Anyone within the CAPL PEMT can notify OSRL of an incident, however, only the nominated CAPL personnel may request the assistance of OSRL using the Mobilisation Form, as per the Service Level Agreement.

The OSRL Service Level Agreement provide for:

- 24/7 call-out arrangements
- guaranteed initial response from OSRL of five technical support personnel (EMT or field personnel) for five days

- surge to guaranteed 18 OSRL personnel, upon request from the CAPL EMT
- depending on size/complexity, OSRL maintain 80 response team personnel globally, who are potentially able to be provided to support an ongoing Level 3 event, on a best-endeavours basis.

OSRL service level statement defines the types of services provided by the 18-persons surge capability as:

- technical advice and incident management coaching within the command centre
- developing an Incident Management Plan
- tier 1/2 equipment readiness and contractor training
- in-country logistics planning and support for inbound equipment
- impact assessment and advice on response strategy selection
- shoreline cleanup and assessment technique and aerial surveillance / quantification surveys
- tactical response planning.

8.3.9.7.4 Industrial Mutual Aid Arrangements

AEP MoU framework

As a member company, CAPL would seek to engage the services of Perth-based specialist personnel (as required) from other Petroleum Titleholders under the AEP MoU (Ref. 268). The MOU agreement documents the commitment to share rigs, equipment, and service personnel in the event of a major loss of containment incident, significantly increasing the resources available to a titleholder company.

OSRL Mutual Aid Framework Agreement—SWIS

As a member company, CAPL has access to and can request support from other SWIS members under the OSRL Mutual Aid provisions for source control specialist support. This includes support from any of the SWIS member companies around the world that are signed on to the mutual aid agreement with OSRL SWIS.

8.3.9.7.5 Well Control Specialists

CAPL Global Source Control

The Global Source Control roster provides CAPL names, locations and positions to allow the CAPL PEMT to mobilise individuals into the PEMT to sit in the Source Control branch.

Third Party Technical Specialists

As per the exploration drilling SCERP (Ref. 195), CAPL has service agreements or memberships in place with several specialist contractors/organisations that are available to support a response to a LOWC incident, including:

- Wild Well Control
- Add Energy
- Trendsetter
- Oceaneering.

Activation of these resources will occur upon authorisation from the CAPL PEMT IC or delegate.

8.3.9.8 Oil spill exercise schedule

The CAPL *Emergency Management 5 Year Training and Exercise Schedule* (Ref. 56) describes the schedule of training and exercise required for all emergency events. The training and exercise program incorporates CAPL's oil spill exercise schedule for oil spill training, drills, and exercises, including oiled wildlife response and OSMP implementation. As CAPL'S response arrangements are common among its assets, and resource capabilities are shared, the testing and exercise schedule has been developed to test the various response options. The focus changes for each exercise to ensure any unique aspects of that location (e.g. resources at risk, first-strike equipment) are tested.

The objective is to test and maintain the capability to respond to emergency events. The exercises aim to test:

- notification, activation, and mobilisation of the ORT and EMT
- efficiency and effectiveness of equipment deployment
- efficiency and effectiveness of communication systems.

The testing schedule is a live document that is subject to change. The 5 year training and exercise schedule (Ref. 56) outlines the proposed testing arrangements to be completed, including the exercise types (Table 8-13) and proposed level of response to be tested (Table 8-14) that may be used to meet the defined objectives. A minimum of one test for each level will be conducted each year.

Table 8-13: Exercise types

Type	Details
Notification exercise	• Tests the procedures to notify and activate the EMTs, support organisations, and regulators
Tabletop exercise	• Normally involves interactive discussions of a simulated scenario amongst members of an EMT; personnel or equipment are not mobilised
Drill	• Conducts field activities such as equipment deployment, shoreline assessment, monitoring etc.
Functional exercise	• Activates at least one EMT to establish command, control, and coordination of a serious emergency event • Often more complex as it simulates several different aspects of an oil spill incident and may involve third parties.

Table 8-14: Exercise levels

Level	Details
Level 1 – ORT	• May be held in conjunction with a Level 2 EMT exercise • Designed to evaluate the ability of ORTs to implement CAPL's Emergency Management System as it applies to ORTs • ORTs are encouraged to conduct as many exercises as they want each year that do not include the Emergency Response Team or a Level 2 EMT.
Level 2 – EMT	• Exercises may include the participation of an ORT and may be held in conjunction with a Level 3 EMT exercise • Usual duration – one to two hours

Level	Details
	• Designed to evaluate a Level 2 EMT's ability to notify and activate team members, set up a Level 2 EMT emergency command centre, and implement CAPL's Emergency Management System as it applies to Level 2 EMTs.
Level 3 – EMT	• Each exercise may include the participation of a Level 2 EMT and/or ORT • Usual duration – three to six hours • Designed to evaluate the EMT's ability to notify and activate team members, transfer command to a Level 3 EMT Emergency Command Centre and implement the CAPL's Emergency Management System as it applies to incident escalation.
Oiled Wildlife	• Exercises may include the participation of an ORT and may be held in conjunction with a Level 3 EMT exercise • Usual duration – three to six hours • Designed to evaluate the Oiled Wildlife Branch's ability to notify and activate oiled wildlife response teams and implement a response in line with CAPL and DBCA oiled wildlife plans and manuals.
OSMP	• Exercises may be held in conjunction with a Level 3 EMT exercise, or conducted as a standalone exercise • Usual duration – three to six hours • Designed to evaluate the EMT's ability to notify and activate OSMP team members and external service providers and test the arrangements and capability in place for OSMP.

The training and exercise program outlines the process for evaluating training, drills, and exercises against defined objectives, and incorporating lessons learned. An after-action report is generated for all Level 2 (and above) exercises, which is used during spill exercises to assess the effectiveness of the exercise against its objectives and to record recommendations. Relevant actions are then assigned to the responsible party where they are tracked to completion using internal processes. Exercise planners will be required to refer to previous recommendations for continual review and improvement.

Response arrangements as detailed in the OPEP (Ref. 2) must be tested:

- when they are introduced
- when they are significantly amended
- not later than 12 months after the most recent test
- if a new location for the activity is added to this EP after the response arrangements have been tested, and before the next test is conducted: test the response arrangements in relation to the new location as soon as practicable after it is added to this EP.

8.3.9.8.1 Source control training and exercises

In addition to the training and exercise schedule outlined in the *Emergency Management 5 Year Training and Exercise Schedule* (Ref. 56), source control exercises specific to the credible worst-case event described in this EP are also carried out in accordance with the SCERP (Ref. 195). There are two exercise styles (Table 8-15) that will be utilised to exercise and test components outlined in the SCERP.

A minimum of one test of each type will be completed for each SCERP. Source control exercises are conducted at a minimum three months prior to the planned exploration drilling campaign.

Table 8-15: Source control exercise types

Type	Details
Discussion exercise	• discussion exercise (DISCEX) in the form of a workshop or seminar • a DISCEX will be conducted prior to commencement of exploration drilling campaign, during which the CAPL PEMT and source control branch can provide an overview of the SCERP components and source control tactics that may be employed in the unlikely event of a LOWC. • Chevron's Houston resources that would likely be involved in the PEMT Source Control Branch may also receive the familiarisation/information session.
Functional exercise	• functional exercise in the form of a scenario-based simulation (no actual deployment of equipment • a functional exercise will be conducted prior to the commencement of the exploration drilling campaign incorporating elements of the CAPL PEMT Command and General Staff, Source Control Branch Perth resources, Source Control Branch Houston resources (as may be required) and selected support specialist contractors. • This exercise may be incorporated into an oil spill response exercise

The source control exercises are designed to:

- practice activation and mobilisation of Source Control Branch Perth and Houston functions
- validate successful interface of Houston based Source Control Branch resources with Perth EMT Source Control Branch
- practice developing Source Control Branch strategies and tactics to meet objectives
- validate vessel tracking software utilised to identify vessels with ROV support for site survey, debris clearance, BOP intervention and SSDI
- validate capping stack transport and deployment vessel utilising vessel tracking software
- validate AMOSC subsea first-response toolkit, OSRL subsea incident response tool kit or OSRL dispersant delivery system transport timings from AMOSC and OSRL to facilitate SSDI operations
- validate OSRL water column monitoring equipment transport timings into Australia
- validation of OSRL capping stack and ancillary equipment activation process.

Exercise evaluation will be undertaken by selected exercise evaluators drawn both internally within Chevron and externally by specialist incident management /source control training providers. Any actions from exercises are tracked and closed out via the CAPL action tracker and lessons learnt incorporated into subsequent tests. Where required, response documentation shall be updated to incorporate learnings derived during response testing.

8.4 Environmental monitoring and reporting

8.4.1 Environmental monitoring

Regulation 22(6) of OPGGS(E)R requires that the implementation strategy provides for sufficient monitoring of, and maintaining a quantitative record of,

emissions and discharges such that this record can be used to assess whether the environmental performance outcomes and standards in the EP are being met.

CAPL and vessel contractors will monitor and record emissions and discharges as detailed in Section 7 to ensure that this record can be used to assess whether the environmental performance outcomes and standards in this EP are being met.

If an emergency condition resulting in a Level 2 or 3 spill event occurs, CAPL will implement the OSMP (Ref. 3), which is identified as a control measure in Sections 7.14, 7.15, 7.16.4.1, 7.16.4.2 and 7.16.4.3. The OSMP describes a program of monitoring, and is the principal tool for determining the extent, severity, and persistence of environmental impacts from an emergency condition and the emergency response activities to be undertaken by CAPL.

8.4.2 Incident reporting

Environmental incidents will be reported by CAPL in accordance with Table 8-16.

Table 8-16: Incident reporting

Recordable Incident reporting – regulation 50	
Legislative definition of 'recordable incident': *'Recordable incident, for an activity, means a breach of an environmental performance outcome or environmental performance standard, in the environment plan that applies to the activity, that is not a reportable incident'* Recordable incidents are breaches of the environmental performance outcomes and standards described in Section 5.7.	
Reporting requirements	**Report to / Timing**
Written notification to NOPSEMA by the 15th of each month As a minimum, the written incident report must describe: • the incidents and all material facts and circumstances concerning the incidents • any actions taken to avoid or mitigate any adverse environmental impacts • any corrective actions already taken, or that may be taken, to prevent a repeat of similar incidents. If no recordable incidents occur during the reporting month, a 'nil report' will be submitted.	Submit written report to NOPSEMA by the 15th of each month
Reportable Incident reporting – Regulations 47, 48, 49	
Legislative definition of 'reportable incident': *'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.'* Therefore, in alignment with Chevron Corporation's Integrated Risk Priorization Matrix (Table 5-1) 'reportable incidents' under this EP include those events (not planned activities) that have been risk assessed within Section 7 as having a consequence level between Moderate (4) and Catastrophic (1). In accordance with this definition, the reportable incidents with the potential to cause moderate to significant environmental damage identified under this EP are: • introduction of an IMP (Section 7.6.2) • unplanned release from a vessel collision event (Section 7.14) • unplanned release from a loss of well control event (Section 7.15). Incident reporting is assessed on a case-by-case basis to determine if they trigger a reportable incident as defined by the OPGGS(E)R and this EP. Other incidents that may be considered reportable incidents include:	

• death or injury to individual(s) from an EPBC Act listed species • an unplanned event within a Commonwealth Marine Park.	
Reporting requirements	**Report to**
Verbal or written notification must be undertaken within two hours of the incident or as soon as practicable. This information is required: • the incident and all material facts and circumstances known at the time • any actions taken to avoid or mitigate any adverse environmental impacts.	Report verbally to NOPSEMA within two hours or as soon as practicable and provide written record of notification by email. Phone:1300-674-472 Email: submissions@nopsema.gov.au
Verbal notifications must be followed by a written report as soon as practicable, and not later than three days following the incident. At a minimum, the written incident report will include: • the incident and all material facts and circumstances • actions taken to avoid or mitigate any adverse environmental impacts • any corrective actions already taken, or that may be taken, to prevent a recurrence. If the initial notification of the reportable incident was verbal, this information must be included in the written report.	Written report to be provided to: • NOPSEMA: submissions@nopsema.gov.au • National Offshore Petroleum Titles Authority: info@nopta.gov.au
Additional Reporting Requirements	
Reporting requirements	**Report to**
An oil/gas pollution incident that occurs within a marine park or is likely to impact on a marine park. 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 (e.g. dispersant, containment, etc.) • confirmation of providing access to relevant monitoring and evaluation reports when available • contact details for the response coordinator.	Report verbally to the DNP (24-hour) Marine Compliance Duty Officer as soon as practicable, and also provide a follow-up email. Phone: 0419 293 465 Email: marine.compliance@environment.gov.au
Death or injury to individual(s) from an EPBC Act Listed Species as a result of the petroleum activity	Report injury to or mortality of EPBC Act Listed Threatened or Migratory species within seven business days of observation to DCCEEW or equivalent: • Phone: +61 2 6274 1111 • Email: EPBC.Permits@environment.gov.au

Vessel collision with marine mammals (whales)	Reported as soon as practicable. https://data.marinemammals.gov.au/report/shipstrike
Presence of any suspected IMP or disease within 24 hours	DPIRD: • Email: biosecurity@fish.wa.gov.au • Phone: FishWatch 24-hour hotline: 1800 815 507
Unplanned release that is likely to impact land or water within Western Australian State jurisdiction	Reported as soon as practicable. petroleum.environment@dmirs.wa.gov.au
	Report verbally to the DoT MEER Duty Officer within two hours, and also provide a follow-up email with a POLREP attached. Phone: 08 948 9924 Email: Report verbally to the DNP (24-hour) Marine Compliance Duty Officer as soon as practicable, and also provide a follow-up email. Phone: 0419 293 465 Email: marine.compliance@environment.gov.au

8.4.3 Routine environmental reporting

Regulation 51 of the OPGGS(E)R requires environmental performance reporting for the activity described in this EP, as summarised in Table 8-17. Routine notifications required by regulation 54 of the OPGGS(E)R, and additional notifications as required by other legislation or guidelines, are also included in Table 8-17.

Table 8-17: Routine external reporting or notification requirements

Reporting requirement	Description	Reporting to	Timing
Environmental performance reporting – Regulation 51			
Environmental performance reporting	A report detailing environmental performance of the activity detailed in this EP.	NOPSEMA submissions@nopsema.gov.au Phone: +1300-674-472 .	Within three months of completion of activities.
Notification of start and end of activity – Regulation 54			
Notification of start of activity	CAPL must complete Form FM1405 and submit to NOPSEMA at least 10 days before activity commencement.	NOPSEMA submissions@nopsema.gov.au or: https://securefile.nopsema.gov.au/filedrop/submissions.	Once prior to activity commencement.
Notification of conclusion of activity	CAPL must complete Form FM1405 and submit to NOPSEMA within 10 days of activity completion.	NOPSEMA submissions@nopsema.gov.au or: https://securefile.nopsema.gov.au/filedrop/submissions.	Once following completion of activity.
Additional notification requirements			

Reporting requirement	Description	Reporting to	Timing
Environmental performance reporting – Regulation 51			
Notification of start of activity	CAPL will provide DEMIRS a pre-start notification confirming the start date of the proposed activity.	DEMIRS: Petroleum.environment@dmirs.wa.gov.au.	Once prior to activity commencement.
Notification of conclusion of activity	CAPL must notify DEMIRS following completion of the activity.	DEMIRS: Petroleum.environment@dmirs.wa.gov.au.	Once following completion of activity.
Discovery of certain UCH	In accordance with section 40 of the UCH Act, CAPL must provide written notification setting out: • a description of the article • a description of the place where the article is situated that is sufficient to enable the article to be located.	Electronic form available via the Australasian Underwater Cultural Heritage Database: http://www.environment.gov.au/shipwreck/public/forms/notification.do;jsessionid=08546DC0F8BB76EEA72FCE054D9139F1?mode=add.	Within 21 days of the discovery.

8.5 Environment Plan review

If required, any revisions and/or resubmission of this EP to NOPSEMA, in accordance with regulation 39 of the OPGGS(E)R, will be undertaken in accordance with the OEMS, and particularly the MoC process (Section 8.3.2.2).

9 acronyms and abbreviations

Table 9-1 defines the acronyms and abbreviations used in this document

Table 9-1 Abbreviations and Definitions

Acronym or abbreviation	Definition
ABU	Australian Business Unit
ACMA	Australian Communications and Media Authority
AEP	Australian Energy Producers
AFMA	Australian Fisheries Management Authority
AHO	Australian Hydrographic Office
AIMS	Australian institute of marine science
ALARP	As low as reasonably practicable
AMOSC	Australian Marine Oil Spill Centre
AMSA	Australian Maritime Safety Authority
AMP	Australian Marine Park
ANZG	Australian and New Zealand guidelines for fresh and marine water quality
API	American Petroleum Institute
ART	Advisory and Resource Team
AR6	Sixth Assessment Report (AR6) of the United Nations Intergovernmental Panel on Climate Change (IPCC)
BAC	Baiyungu Aboriginal Corporation
BIAs	Biologically important areas
BIAWA	Boating Industry Association Western Australia
BOP	Blowout preventor
BRS	Bureau of resource sciences
BSR	Blind Shear Ram
BTAC	Buurabalayji Thalanyji Aboriginal Corporation
CALM Act	Conservation and Land Management Act 1984
CAPL	Chevron Australia Pty Ltd
CAR	Containment and recovery
CBT	Computer-based training
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CEPR	Centre for Emergency Preparedness and Response
CHARM	Chemical Hazard Assessment and Risk Management
cm	Centimetre
CMT	Crisis Management Team
CO	Carbon monoxide
COLREGS	International Regulations for Preventing Collisions at Sea 1972

Acronym or abbreviation	Definition
CO_2	Carbon dioxide
cP	Centipoise
CPA	Closest point of approach
CSR	Casing shear ram
Cth	Commonwealth
DAFF	Department of Agriculture, Fisheries and Forestry
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Commonwealth Department of Agriculture, Climate Change, Energy, the Environment and Water
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DISCEX	Discussion exercise
DNP	Director of National Parks
DoD	Department of Defence
DoT	Western Australian Department of Transport
DP	Dynamic positioning
DPIRD	Western Australian Department of Primary Industries and Regional Development
DSR	Drill Site Representative
DS-1	Dino South-1
DWER	Department of Water and Environment
DWH	Deep Water Horizon
EEZ	Exclusive economic zone
EMBA	Environment that may be affected
EMT	Emergency Management Team
ENGO	Environmental non-governmental organisation
EP	Environment Plan
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
EPO	Environment Performance Outcome
EPS	Environment Performance Standard
ER	Exposure range
ERO	Emergency response organisation
ESD	Ecologically sustainable development
EUL	Environment Unit Leads
FT	Functional Teams
g/m^2	Grams per square metre
GHG	Greenhouse gas
GT	Gross Tonnage

Acronym or abbreviation	Definition
HB	Handbook
HSE	Health, safety, and environment
HWM	High water mark
H_2S	Hydrogen sulfide
IADC	International Association of Drilling Contractors
IAP	Incident Action Plan
IAPP	International Air Pollution Prevention
IBRA	Interim Biogeographic Regionalisation for Australia
IC	Incident Commander
ICS	Incident commander system
IEE	International energy efficiency
IEMT	Installation Emergency Management Team
IIR	Incident investigation and reporting
IMCRA	Integrated Marine and Coastal Regionalisation of Australia
IMO	International Maritime Organisation
IMP	Invasive marine pests
IMS	Incident management system
IOGP	International Association of Oil & Gas Producers
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardisation
ISQG	Interim Sediment Quality Guideline
ITOPF	International Tanker Owners Pollution Federation Limited
IUCN	International Union for Conservation of Nature
IWCF	International Well Control Forum
JRCC	Joint Resource Coordination Centre
JSA	Job Safety Analysis
KEF	Key ecological feature
kg	Kilogramo
Kg/m^3	kilograms per cubic meter
km	Kilometre
LBL	Long baseline
LGM	Last glacial maximum
LOC	Loss of containment
LoR	Limit of reporting
LOWC	Loss of well control
LP	Low pressure

Acronym or abbreviation	Definition
m	Metre
m^2	Square metre
m^3	Cubic metre
MAC	Murujuga Aboriginal Corporation
MARPOL	International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978 (also known as MARPOL 73/78)
MARS	Maritime Arrivals Reporting System
MCH	Mardathoonera Cultural Heritage Pty Ltd
MD	Measured depth
MDO	Marine Diesel Oil
MEER	Maritime Environmental Emergency Response
MES	Monitoring, evaluation, and surveillance
MFO	Marine fauna observers
MNES	Matters of national environmental significance
MoC	Management of change
MODU	Mobile offshore drilling unit
MoU	Memorandum of Understanding
MSC	Management System Cycle
MSW	Managing Safe Work
N/A	Not Applicable
NAC	Ngarluma Aboriginal Corporation
NADF	Non-aqueous drill fluid
NCWHAC	Ningaloo Coast World Heritage Advisory Committee
NEBA	Net Environmental Benefit Analysis
NEPM	National Environmental Protection Measure
NO_2	Nitrogen dioxide
No_x	Nitrous oxides
NOAA	National oceanic and atmospheric administration
NOPSEMA	National Offshore Petroleum Safety and Environment Management Authority
NOPTA	National Offshore Petroleum Titles Administrator
NTA	*Native Title Act 1993* (Cth)
NTGAC	Nganhurra Thanardi Garrbu Aboriginal Corporation
NWMR	North-west Marine Region
NWS	North West Shelf
NWSTF	North West Slope Trawl Fishery
NYFL	Ngarluma Yindjibarndi Foundation Ltd

Acronym or abbreviation	Definition
O_3	Ozone
OA	Operational area
OC	On-Scene Commander
OCNS	Offshore Chemical Notification Scheme
OE	Operational Excellence
OEMS	Operational Excellence Management System
OGUK	Oil and Gas UK
OIM	Offshore installation manager
OPEP	Oil Pollution Emergency Plan
OPGGS Act	*Commonwealth Offshore Petroleum and Greenhouse Gas Storage Act 2006*
OPGGS(E)R	Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
ORT	On-site Response Team
OSC	Operations Section Chief
OSCA	Oils spill control agents
OSMP	Operational and Scientific Monitoring Plan
OSPR	Oil spill preparedness and response
OSRL	Oil Spill Response Limited
OSRO	Oil spill response organisation
OSV	Offshore support vessel
OWR	Oiled wildlife response
PAH	Polycylic aromatic hydrocarbon
PAR	Pre-arrival reporting
PEMT	Perth Emergency Management Team
PLONOR	Pose little or no risk to the environment
PMST	Protected Matters Search Tool
POB	Persons on board
ppb	Parts per billion
ppm	Parts per million
PPP	Protection Prioritisation Process
PTS	Permanent threshold shift
PTW	Permit to Work
RMR	Riserless mud recovery
RNTBC	Registered native title bodies corporate
ROV	Remotely operated vehicle
RRK	Robe River Kuruma

Acronym or abbreviation	Definition
RRKAC	Robe River Kuruma Aboriginal Corporation
RRT	Regional Response Teams
RTM	Response Time Models
RWIS	Relief Well Injection Spool
SCERP	Source Control Emergency Response Plan
SEEMP	Ship Energy Efficiency Management Plan
SEL	Sound exposure level
SHC	Shoreline clean-up
SIMAP	Spill Impact Mapping and Analysis Program
SIMOPS	Simultaneous operations
SMPEP	Shipboard marine pollution emergency plan
SOLAS	International Convention for the Safety of Life at Sea 1974
SOP	Standard operational procedure
SOPEP	Ship Oil Pollution Emergency Plan
SO_x	Sulfur oxides
SO_2	Sulfur dioxide
SPE	Society of Petroleum Engineers
SPD	Shoreline protection and deflection
SPL	Sound pressure level
SSDI	Subsea dispersant injection
SWIS	subsea well intervention services
TEC	Threatened ecological community
TRG	Tactical response guide
TSS	Total suspended solids
TTS	Temporary threshold shift
UCH	Underwater cultural heritage
UCH Act	*Underwater Cultural Heritage Act 2018*
UK	United Kingdom
USBL	Ultra-short baseline
WA	Western Australia
WAC	Wirrawandi Aboriginal Corporation
WAFIC	Western Australian Fisheries Industry Council
WBF	Water based fluid
WCD	Worst Case Discharge
Wm^{-2}	Watt Per Square Metre
WOMP	Well operations management plan

Acronym or abbreviation	Definition
WRL	Western Rock Lobster
WWERT	World-Wide Emergency Response Team
YAC	Yinggarda Aboriginal Corporation
µg/m^3	Micrograms per cubic meter

10 references

The following documentation is either directly referenced in this document or is a recommended source of background information.

Table 10-1: References

Ref. No.	Description	Document ID
1.	NOPSEMA. 2024. *Form: Environment Plan Summary Statement*. National Offshore Petroleum Safety and Environmental Management Authority, Perth, Western Australia. Available from: https://www.nopsema.gov.au/document-hub/forms-and-templates [Accessed: February 2024].	N-04750-FM1848 A662605
2.	Chevron Australia. 2023. *Chevron ABU: Consolidated Oil Pollution Emergency Plan (OPEP)*. Chevron Australia, Perth, Western Australia.	ABU-COP-02788
3.	Chevron Australia. 2023. *Operational and Scientific Monitoring Plan: Environmental Monitoring in the Event of an Oil Spill to Marine or Coastal Waters*. Chevron Australia, Perth, Western Australia.	ABU130700448
4.	Chevron Australia. DRAFT. *Well Operations Management Plan – Dino South-1*. Chevron Australia, Perth, Western Australia.	ABU230600247
5.	DAWE. 2020. *Australian Ballast Water Management Requirements*. Version 8. Department of Agriculture, Water and the Environment, Canberra, Australian Capital Territory. Available from: https://www.agriculture.gov.au/sites/default/files/documents/australian-ballast-water-management-requirements.pdf [Accessed: March 2024]	
6.	DAFF. 2023. *Australian biofouling management requirements*. Version 2. Department of Agriculture, Fisheries and Forestry, Canberra, Australian Capital Territory. Available from: https://www.agriculture.gov.au/sites/default/files/documents/Australian-biofouling-management-requirements.pdf [Accessed: March 2024]	
7.	IMO. 2012. *Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species*. 2012 Edition. International Maritime Organization, London, United Kingdom.	
8.	Marine Pest Sectoral Committee. 2009. *National biofouling management guidelines for the petroleum production and exploration industry*. Version 1.0. Department of Agriculture and Water Resources, Australian Government, Canberra, Australian Capital Territory. Available from: https://www.marinepests.gov.au/sites/default/files/Documents/petroleum-exploration-biofouling-guidelines.pdf [Accessed March 2024].	
9.	DCCEEW. 2023. *National Light Pollution Guidelines for Wildlife*. Version 2.0. Department of Climate Change, Energy, the Environment and Water, Canberra, Australian Capital Territory. Available from: https://www.dcceew.gov.au/sites/default/files/documents/national-light-pollution-guidelines-wildlife.pdf [Accessed: March 2024]	
10.	RPS. 2022. *Wheatstone Deep and Dino South Exploration Wells – Oil Spill Modelling*. Report prepared by PRS for Chevron Australia Pty Ltd, Brisbane, Queensland.	MAQ1137J
11.	NERA. 2018. *Environment Plan Reference Case: Anchoring of Vessels and Floating Facilities*. National Energy Resources Australia, Kensington Western Australia. Available from: https://referencecases.nera.org.au/Attachment?Action=Download&Attachment_id=223 [Accessed: June 2022]	
12.	NERA. 2017. *Environment Plan Reference Case: Planned discharge of sewage, putrescible waste and grey water*. National Energy Resources	

Ref. No.	Description	Document ID
	Australia, Kensington Western Australia. Available from: https://referencecases.nera.org.au/Attachment?Action=Download&Attachment_id=230 [Accessed: June 2022]	
13.	Chevron Australia. 2021. *Chevron Global Technical Standard – Well Barriers Design*. Chevron Australia, Perth, Western Australia.	ABU-DCM-ST102006
14.	NOPSEMA. 2019. *Environment Bulletin: Oil spill modelling*. National Offshore Petroleum Safety and Environmental Management Authority, Perth, Western Australia. Available from: https://www.nopsema.gov.au/sites/default/files/documents/2021-04/A652993.pdf [Accessed: March 2024].	A652993
15.	DCCEEW. 2024. *Protected Matters Search Tool*. Department of Climate Change, Energy, the Environment and Water, Canberra, Australian Capital Territory. Available from: https://www.dcceew.gov.au/environment/epbc/protected-matters-search-tool [Accessed: January 2024].	
16.	NOPSEMA. 2024. *Guideline: Environment plan decision making*. National Offshore Petroleum Safety and Environmental Management Authority, Perth, Western Australia. Available from: https://www.nopsema.gov.au/sites/default/files/documents/Environment%20plan%20decision%20making%20guideline.pdf [Accessed: March 2024]	N-04750-GL1721
17.	NOPSEMA. 2024 Guideline: *Consultation with Commonwealth agencies with responsibilities in the marine area.* National Offshore Petroleum Safety and Environmental Management Authority, Perth, Western Australia. Available from: https://www.nopsema.gov.au/sites/default/files/documents/Consultation%20with%20agencies%20with%20responsibilities%20in%20the%20Commonwealth%20marine%20area.pdf [Accessed: March 2024]	N-06800-GL1887
18.	EPA. 2016. *Technical Guidance: Protection of Benthic Communities and Habitats. Environmental Protection Authority, Government of Western Australia*. Available from: https://www.epa.wa.gov.au/policies-guidance/technical-guidance-protection-benthic-communities-and-habitats [Accessed April 2023].	
19.	Harris, P., Heap, A., Passlow, V., Sbaffi, L., Fellows, M., Porter-Smith, R., Buchanan, C. and Daniell, J. 2005. *Geomorphic Features of the Continental Margin of Australia*, Geoscience Australia: Record 2003/30. 142pp.	
20.	Baker, Christina; Potter, Anna; Tran, Maggie; Heap, Andrew. 2008. *Sedimentology and Geomorphology of the North West Marine Region of Australia.* Geoscience Australia. Canberra.	
21.	Brewer, D.; Vincent, L; Skewes, T; Rothlisberg, P. 2007. *Trophic systems of the North-west Marine Region.* CSIRO Marine and Atmospheric Research. Cleveland	
22.	CSIRO. 2015. *Marine Benthic Substrate Database – CAMRIS* – Marsed – V.1. CSIRO. Data Collection. Available from: https://doi.org/10.4225/08/551485612CDEE [Accessed April 2023].	
23.	DEH. 2006. *A Guide to the Integrated Marine and Coastal Regionalisation of Australia – (IMCRA) Version 4.0.* Department of the Environment and Energy and Heritage, Australian Government.	
24.	Sharplies, C., Mount, R., Pedersen, R., Lacey, M., Newton, J., Jaskierniak, D., and Wallace, L. 2009. *The Australian Coastal Smartline Geomorphic and Stability Map Version 1.* Prepared by University of Tasmania, for Geoscience Australia and Department of Climate Change, Australian Government	

Ref. No.	Description	Document ID
25.	Claire Butler, Vanessa Lucieer, Peter Walsh, Emma Flukes, Craig Johnson. 2017. *Seamap Australia [Version 1.0] the development of a national benthic marine classification scheme for the Australian continental shelf.* ISBN: 978-1-925646-61-0	
26.	DEWHA. 2008. *The North-west Marine Bioregional Plan – Bioregional Profile*. Department of the Environment, Water, Heritage and the Arts, Canberra, Australian Capital Territory. Available from: The North-West Marine Bioregional Plan: Bioregional profile (parksaustralia.gov.au) [Accessed: June 2022]	
27.	DPIRD. 2022. *Fish Cube WA Data Extract for 2012–2021*. Available by request from DPIRD.	
28.	WAFIC. 2022.North Coast Bioregion North Coast demersal scalefish fisheries. Available from: https://www.wafic.org.au/fishery/north-coast-demersal-scalefish-fisheries/ [Accessed: April 2022]	
29.	Newman, S.J., Wise, B.S., Santoro, K.G. and Gaughan, D.J. (eds). 2021. *Status Reports of the Fisheries and Aquatic Resources of Western Australia 2020/21*: The State of the Fisheries. Department of Primary Industries and Regional Development, Western Australia.	
30.	ABARES. 2021. *Fishery status reports map data*. Australian Bureau of Agricultural and Resource Economics and Sciences from data collected by the Australian Fisheries Management Authority. Available from: https://www.awe.gov.au/abares/research-topics/fisheries/fishery-status/fsr-map-data [Accessed: April 2022]	
31.	Patterson, H, Bromhead, D, Galeano, D, Larcombe, J, Woodhams, J and Curtotti, R 2021, *Fishery status reports 2021*. Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra. Available from: https://www.awe.gov.au/abares/research-topics/fisheries/fishery-status#full-report [Accessed: April 2022]	
32.	Chevron Australia. 2020. *ABU OE Risk Management Process*. Chevron Australia, Perth, Western Australia.	OE-03.01.01
33.	Standards Australia / Standards New Zealand. 2018. *ISO 31000:2018 Risk management – Principles and guidelines*. Sydney, Australia / Wellington, New Zealand	
34.	Standards Australia / Standards New Zealand. 2012. *HB 203:2012. Managing environment-related risk*. Sydney, Australia / Wellington, New Zealand.	
35.	NOPSEMA. 2022. *Guidance Note: ALARP*. National Offshore Petroleum Safety and Environmental Management Authority, Perth, Western Australia. Available from: https://www.nopsema.gov.au/sites/default/files/documents/N-04300-GN0166%20-%20ALARP%20%28A138249%29.pdf [Accessed: March 2024]	N-04300-GN0166601 66
36.	OGUK. 2014. *Guidance on Risk Related Decision Making*. Issue 2, July 2014. Oil and Gas United Kingdom, London, England.	
37.	Standards Australia / Standards New Zealand. 2015. AS/NZS ISO 14001:2015 *Environmental management systems—Requirements with guidance for use*. Sydney, Australia / Wellington, New Zealand.	
38.	Chevron Australia. 2020. *ABU Managing Safe Work (MSW) Operations Process MSW Manual*. Chevron Australia, Perth, Western Australia.	OE-03.06.1080
39.	Chevron. 2023. *Chevron Marine Standard Non Tankers: Corporate OE Standard*. Chevron Corporation, United States of America	

Ref. No.	Description	Document ID
40.	Chevron Australia. 2020. *ABU Hazardous Materials Management Procedure: ABU Standardised OE Procedure*. Chevron Australia, Perth, Western Australia.	OE-03.11.1045
41.	Chevron Australia. 2016. *OE Information Management: ABU Standardised OE Process*. Chevron Australia, Perth, Western Australia	OE-03.02.01
42.	Chevron Australia. 2015. *ABU Management of Change for Facilities and Operations: Upstream and Gas Standardised OE Process*. Chevron Australia, Perth, Western Australia.	OE-04.00.01
43.	Chevron Australia. 2015. *Environmental Stewardship: ABU Standardised OE Process*. Chevron Australia. Perth, Western Australia.	OE-07.01.02
44.	Chevron Australia. 2020. *Quarantine Procedure Marine Vessels. ABU Standardised OE Process*. Chevron Australia, Perth, Western Australia.	OE-07.08.1010
45.	Chevron Australia. 2019. *Stakeholder Engagement and Issues Management Process: ABU Standardised OE Process*. Chevron Australia, Perth, Western Australia.	OE-10.00.01
46.	Chevron Australia. 2018. *ABU – OE Assurance Corporate Process*. Chevron Australia, Perth, Western Australia.	OE-12.01.01
47.	Chevron. 2020. *OE Corporate Standard Incident Investigation*. Chevron Corporation, United States of America.	
48.	Chevron. 2021. *OE Data Reporting Standard*. Chevron Corporation, United States of America.	
49.	Chevron Australia. 2021. *Incident Investigation and Reporting (II&R) Execution Manual: ABU Incident Investigation and Reporting*. Chevron Australia, Perth, Western Australia.	OE-09.00.01
50.	Chevron Australia. 2018. *Emergency Management Chevron Corporate ABU Standarised OE Process*. Chevron Australia, Perth, Western Australia.	OE-11.01.01
51.	Hinwood, J.B., Poots, A.E., Dennis, L.R., Carey, J.M., Houridis, H., Bell, R., Thomson, J.R., Boudreau, P. and Ayling, A.M. Australian Marine and Offshore Group Pty Ltd, 1994. The Environmental Implication of Drilling activities. In: Swan, J.M., Neff, J.M. and Young, P.C. (Eds) *Environmental Implications of Offshore Oil and Gas Development in Australia – The Findings of an Independent Scientific Review*. Australian Petroleum Exploration Association, Sydney, pp 123–207	
52.	Chevron Australia. 2019. *ABU OE Assurance Plan*. Chevron Australia, Perth, Western Australia.	ABU16110 0798
53.	AMSA. 2020. *National Plan for Maritime Environmental Emergencies. 2020 Edition*. Australian Maritime Safety Authority, Australian Government, Canberra, Australian Capital Territory. Available from: https://www.amsa.gov.au/sites/default/files/national-plan-maritime-envrironmental-emergencies-2020.pdf [Accessed April 2022].	
54.	Chevron Australia. 2019. *ABU: Crisis Management Plan*. Chevron Australia, Perth, Western Australia.	OE-11.01.10
55.	Chevron Australia. 2018. *Business Continuity Planning Chevron Corporation: ABU Standardized OE Process*. Chevron Australia, Perth, Western Australia.	OE-11.01.1110
56.	Chevron Australia. 2023. *ABU Emergency Management 5 year training and exercise schedule*. Chevron Australia, Perth, Western Australia.	ABU23030 0030
57.	TSSC. 2015. *Conservation Advice Balaenoptera physalus fin whale*. Threatened Species Scientific Committee, Australian Government, Canberra, Australian Capital Territory. Available from: Conservation	

Ref. No.	Description	Document ID
	Advice Balaenoptera physalus (environment.gov.au) [Accessed May 2022].	
58.	TSSC. 2015. *Conservation Advice Balaenoptera borealis sei whale*. Threatened Species Scientific Committee, Australian Government, Canberra, Australian Capital Territory. Available from: Conservation Advice Balaenoptera borealis (environment.gov.au) [Accessed May 2022].	
59.	DoE. 2015. *Conservation Management Plan for the Blue Whale (2015-2025), A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999*. Department of the Environment, Australian Government, Canberra, Australian Capital Territory. Available from: Conservation Management Plan for the Blue Whale (environment.gov.au) [Accessed May 2022].	
60.	Richardson, W.J., Greene, C.R., Malme, C.I and Thomson, D.H. 1995. *Marine Mammals and Noise*. Academic Press, San Diego.	
61.	Whale and Dolphin Conservation Society. 2006. *Vessel Collisions and Cetaceans: What happens when they don't miss the boat*. Whale and Dolphin Society. United Kingdom. Available from: Microsoft Word - Collisions LATEST 18 Sept.doc (whales.org) [Accessed March 2022]].	
62.	Mackay, A.I., Bailluel, F., Childerhouse, S., Donnelly, D., Harcourt, R., Parra, G.J. and Goldsworthy, S.D. 2015. *Offshore migratory movement of southern right whales: addressing critical conservation and management needs*. South Australian Research and Development Institute (Aquatic Sciences), Adelaide. SARDI Publication No. F2015/000526-1. SARDI Research Report Series No. 859.	
63.	Laist, D.W., Knowlton, A.R., Mead, J.G., Collet, A.S. and Podesta, M. 2001. Collisions between ships and whales. *Marine Mammal Science*, 17(1), 35–75.	
64.	DAWE. 2020. *Biologically Important Areas of Regionally Significant Marine Species.* Spatial database available from: http://www.environment.gov.au/fed/catalog/search/resource/details.page?uuid=%7B2ed86f5a-4598-4ae9-924f-ac821c701003%7D [Accessed: January 2023]	
65.	Gavrilov A. N., McCauley R. D., Paskos G., and Alexey G. 2018. Southbound migration corridor of Pygmy Blue Whales off the northwest coast of Australia based on data from ocean bottom seismographs. The *Journal of the Acoustical Society of America*. https://doi.org/10.1121/1.5063452	
66.	Double, M.C. Jenner, K.C.S., Jenner, M-N., Ball, I., Laverick, S. and Gales, N., 2012. Satellite tracking of pygmy blue whales (*Balaenoptera musculus brevicauda*) off Western Australia. Final Report – May 2012. Australian Marine Mammal Centre.	
67.	Gales, N., Double, M. C., Robinson, S., Jenner, C., Jenner, M, King, E. & Paton, D. 2010. Satellite tracking of Australian humpback (Megaptera novaeangliae) and Pygmy Blue Whales (Balaenoptera musculus brevicauda). White paper presented to the Scientific Committee of the International Whaling Commission. http://www.marinemammals.gov.au/__data/assets/pdf_file/0017/137312/sc-62-sh21.pdf	
68.	Branch, T. A., Matsuoka, K. and Miyashita, T. 2004. *Evidence for increases in Antarctic blue whales based on Bayesian modelling.* Marine Mammal Science 20(4): 726-754.	
69.	Double, M.C., Andrews-Goff, V., Jenner, K.C.S., Jenner, M-N., Laverick, S.M., Branch, T.A. and Gales, N., 2014. *Migratory movements*	

Ref. No.	Description	Document ID
	of pygmy blue whales (Balaenoptera musculus brevicauda) between Australia and Indonesia as revealed by satellite telemetry. PLOS one, April 2014 9(4).	
70.	Kahn, B., 2007. Blue whales of the Savu Sea, *Indonesia. In: Biannual Marine Mammal Conference - Blue Whale Workshop.* Cape Town, South Africa. 28 Nov - 3 Dec 2007.	
71.	McCauley, R.D. and K.C. Jenner. 2010. *Migratory patterns and estimated population size of Pygmy Blue Whales (Balaenoptera musculus brevicauda) traversing the Western Australian coast based on passive acoustics*. Paper SC/62/SH26 presented to the International Whaling Committee Scientific Committee.	
72.	DSEWPC. 2012. *Marine bioregional plan for the North-west Marine Region, prepared under the Environment Protection and Biodiversity Conservation Act 1999*. Australian Government, Canberra, Australian Capital Territory. Available from: https://www.awe.gov.au/sites/default/files/env/pages/1670366b-988b-4201-94a1-1f29175a4d65/files/north-west-marine-plan.pdf [Accessed April 2022].	
73.	Pendleton, D.E., Holmes, E.E., Redfern, J., Zhang, J., 2020. *Using modelled prey to predict the distribution of a highly mobile marine mammal*. Divers. Distrib. 26, 1612–1626.	
74.	DBCA.2017. *Pilbara Inshore Islands Nature Reserves*. Parks and Wildlife Service, Department of Biodiversity, Conservation and Attractions. Government of Western Australia. Available at: https://parks.dpaw.wa.gov.au/park/pilbara-inshore-islands [Accessed: May 2022]	
75.	DEWHA. 2012. *Species group report card –seabirds and migratory shorebirds*. Department of Sustainability, Environment, Water, Population and Communities, Public Affairs, Canberra, ACT.	
76.	Marchant, S. and Higgins, P.J. (eds) 1990, *Handbook of Australian, New Zealand and Antarctic birds, volume 1: ratites to ducks, part A: ratites to petrels*, Oxford University Press, Melbourne.	
77.	Cannell, B., Hamilton, S. and Driessen, J. 2019. *Wedge-tailed shearwater foraging behaviour in the Exmouth region*. Report for Woodside Energy Ltd by University of Western Australia and Birdlife Australia.	
78.	Morris, K., Burbidge, A.A., Drew, M. and Kregor, G. 2002. Mammal Monitoring, Barrow Island Nature Reserve October 2002. Unpublished report for ChevronTexaco, Perth, Western Australia	
79.	Chevron Australia. 2005. *Gorgon Gas Development and Jansz Feed Gas Pipeline: Terrestrial and Subterranean Baseline State and Environmental Impact Report*. Chevron Australia, Perth, Western Australia	G1-TE-H-0000-REPX027
80.	Chevron Australia. 2005. *Draft Gorgon Environmental Impact Statement/Environmental Review and Management Programme for the Proposed Gorgon Development*. Chevron Australia, Perth, Western Australia	
81.	Surman, C. A., Nicholson, L. W., and Phillips, R. A. 2018. Distribution and patterns of migration of a tropical seabird community in the Eastern Indian Ocean. *Journal of Ornithology*. Vol 159(3), 867-877.	
82.	EPA. 2016. *Environmental Factor Guideline – Marine Environmental Quality. Environmental Protection Authority, Government of Western Australia*. Available from: https://www.epa.wa.gov.au/policies-guidance/environmental-factor-guideline-marine-environmental-	

Ref. No.	Description	Document ID
	qualityhttps://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/TechnicalGuidance_ProtectionOfBenthicCommunitiesAndHabitats-131216.pdf [Accessed March 2023].	
83.	Chevron Australia. 2010. *Draft Environmental Impact Statement/Environmental Review and Management Programme for the Proposed Wheatstone Project.* Chevron Australia, Perth, Western Australia. Available from: https://australia.chevron.com/our-businesses/wheatstone-project/environmental-approvals [Accessed: March 2023]	
84.	DPIRD. 2017. *Muiron Islands Marine Management.* Area. Available from: https://www.fish.wa.gov.au/Sustainability-and-Environment/Aquatic-Biodiversity/Marine-Protected-Areas/Pages/Recreational-fishing-in-Muiron-Islands-Marine-Management-Area.aspx#:~:text=The%20key%20species%20likely%20to,deeper%20water%20between%20the%20islands [Accessed: March 2023]	
85.	DBCA & Parks and wildlife service. 2020. *Island*s in the Pilbara. Visitor guide. Available from https://www.murujuga.org.au/wp-content/uploads/2020/06/20180116-Pilbara-Islands-Vistor-guide-FINALwb.pdf [Accessed: March 2023]	
86.	Parks and wildlife service. n.d. *Pilbara Inshore Islands Nature Reserves*. Available from https://exploreparks.dbca.wa.gov.au/park/pilbara-inshore-islands-nature-reserves [Accessed: March 2023]	
87.	DBCA. 2020 *Pilbara inshore islands nature reserves and proposed additions draft management plan*. Department of Biodiversity, Conservation and Attractions, Perth, Australia	
88.	DBCA. 2022. *Ningaloo Coast, Nyinggulu – Visitor Guide.* Parks and Wildlife Service, Department of Biodiversity, Conservation and Attractions, Western Australian Government. Available from: https://exploreparks.dbca.wa.gov.au/park/nyinggulara-national-park-ex-ningaloo#maps-brochures [Accessed March 2023]	
89.	DBCA. 2022. Ningaloo Coast, *Nyinggulu – Visitor Guide Maps and Zones*. Parks and Wildlife Service, Department of Biodiversity, Conservation and Attractions, Western Australian Government. Available from: https://exploreparks.dbca.wa.gov.au/park/nyinggulara-national-park-ex-ningaloo#maps-brochures [Accessed March 2023]	
90.	Yamatji Marlpa Aboriginal Corporation. 2019. *Gnulli native title group celebrates native title win.* Available from: https://www.ymac.org.au/wp-content/uploads/2019/12/191218-Gnulli-Native-Title-Determination-MEDIA-RELEASE-FINAL.pdf [Accessed: March 2023]	
91.	DCCEW. 2021. *About Australia's heritage.* Available at: https://www.dcceew.gov.au/parks-heritage/heritage/about [Accessed: March 2023]	
92.	Last, P, Lyne, V, Yearsley, G, Gledhill, D, Gommon, M, Rees, T & White, W, (2005). *Validation of national demersal fish datasets for the regionalisation of the Australian continental slope and outer shelf (>40 m depth).* Australian Government Department of the Environment and Heritage and CSIRO Marine Research, Australia.	
93.	DCCEEW. n.d. *Species Profile and Threats Database, Key Ecological Features.* Available at: https://www.environment.gov.au/sprat-public/action/kef/search [Accessed: January 2024]	
94.	Department of Primary Industries and Regional Development (DPIRD). 2020. *Recreational fishing.* Available at:	

Ref. No.	Description	Document ID
	https://www.fish.wa.gov.au/Fishing-and-Aquaculture/Recreational-Fishing/Pages/default.aspx [Accessed: March 2023]	
95.	Ryan KL, Lai EKM, Smallwood CB. *2022. Boat-based recreational fishing in Western Australia 2020/21.* Fisheries Research Report No. 327 Department of Primary Industries and Regional Development, Western Australia. 221pp. Available at: https://www.fish.wa.gov.au/Documents/research_reports/frr327.pdf [Accessed: March 2023]	
96.	Department of Primary Industries and Regional Development (DPIRD). 2015. *Customary fishing — frequently asked questions*. Available at: Customary fishing -– frequently asked questions [Accessed: March 2023]	
97.	Tourism Research Australia. 2022. *State Tourism Satellite Account 2020–21: Western Australia summary*. Available at: https://www.tra.gov.au/data-and-research/reports/state-tourism-satellite-account-2020-21/western-australia-summary [Accessed: March 2023]	
98.	Schianetz Karin, Jones Tod, Kavanagh Lydia, Walker Paul, Lockington David, Wood David. 2009. *The practicalities of a Learning Tourism Destination: a case study of the Ningaloo Coast. International Journal of Tourism Research.*	
99.	AHO. 2020. *Fact Sheet: Navigation – Maritime Military Firing Practice and Exercise Areas.* Australian Hydrographic Office, Department of Defence, Australian Government. Available from: https://www.hydro.gov.au/factsheets/FS_Navigation-Firing_Practice_and_Exercise_Areas.pdf [Accessed March 2023]	
100.	Department of Defence. 2022. *Defence UXO Mapping Application* Version 1.0.2.21. Available from: https://www.whereisuxo.org.au/ [Accessed March 2023]	
101.	Australian Marine Parks. n.d. Australian Marine Parks. Available from: https://parksaustralia.gov.au/marine/ [Accessed March 2023]	
102.	DPLH. 2023. *Aboriginal Heritage Places Database*. Available at: https://catalogue.data.wa.gov.au/dataset/aboriginal-heritage-places. [Accessed: January 2023]	
103.	UNESCO. n.d. Ningaloo Coast. Available from: https://whc.unesco.org/en/list/1369/ [Accessed: March 2023]	
104.	DCCEEW. 2023. National Heritage Places - The Ningaloo Coast. Available from: https://www.dcceew.gov.au/parks-heritage/heritage/places/national/ningaloo [Accessed: March 2023]	
105.	API. 2015. *API Recommended Practice 2SK, Design and Analysis of Station keeping Systems for Floating Structures*, Third Edition, October 2005	
106.	International Organization for Standardization (ISO) 19901-7:2013 *Petroleum and natural gas industries — Specific requirements for offshore structures — Part 7: Station keeping systems for floating offshore structures and mobile offshore units*.	
107.	Woodside Energy Ltd. 2014. *Browse FLNG Development, Draft Environmental Impact Statement*. EPBC 2013/7079. November 2014. Woodside Energy, Perth, Western Australia. Available from: https://www.woodside.com.au/docs/default-source/our-business---documents-and-files/burrup-hub---documents-and-files/browse---documents-and-files/index-of-previous-browse-studies/f16---erm-2010---browse-upstream-lng-development-light-impact-assessment_.pdf [Accessed April 2022].	

Ref. No.	Description	Document ID
108.	DoE. 2015. *Wildlife Conservation Plan for Migratory Shorebirds*. Department of the Environment, Australian Government, Canberra, Australian Capital Territory. Available from: https://www.awe.gov.au/sites/default/files/documents/widlife-conservation-plan-migratory-shorebirds.pdf [Accessed April 2022].	
109.	Rodríguez, A., Burgan, G., Dann, P., Jessop, R., Negro, J.J. and Chiaradia, A. 2014. Fatal attraction of short-tailed shearwaters to artificial lights. *PLoS ONE* 9(10):e110114	
110.	Marquenie, J., Donners, M., Poot, H., Steckel, W. and de Wit, B. 2008. Adapting the spectral composition of artificial lighting to safeguard the environment. *Petroleum and Chemical Industry Conference Europe – Electrical and Instrumentation Applications*, pp 1–6.	
111.	Wiese, F.K., Montevecci, W.A., Davoren, G.K., Huettmann, F., Diamond, A.W. and Linke, J. 2001. Seabirds at risk around off shore oil platforms in the northwest Atlantic. *Marine Pollution Bulletin.* 42:1285–1290.	
112.	Shell. 2010. *Prelude Floating LNG Project EIS Supplement—Response to Submissions*. Shell Developments (Australia) Pty Ltd, Perth, Western Australia.	
113.	Imber M. 1975. Behaviour of petrels in relation to the moon and artificial lights. *Notornis* 22: 302- 306.	
114.	Marquenie J., Donners M., Poot H., Steckel W de Wit B. 2013. *Bird-Friendly Light Sources: Adapting the Spectral Composition of Artificial Lighting*. Industry Applications Magazine, IEEE. 19. 56–62. 10.1109/MIAS.2012.2215991.	
115.	Gauthreaux, S.A. and Belser, C.G. 2006. Effects of artificial night lighting on migrating birds. In: Ec*ological Consequences of Artificial Night Lighting*, Rich C and Longcore T, Editors. Island Press: Washington, D.C., USA, p:67–93	
116.	BP. 2013. *Shah Deniz 2 Project: Environmental & Socio-Economic Impact Assessment*. BP Development Pty Ltd, Azerbaijan. Available from: https://www.bp.com/en_az/azerbaijan/home/news/environmental-and-social-documentation/shah-deniz-.html [Accessed April 2022].	
117.	DCCEEW. 2024. *National Greenhouse Gas Inventory Quarterly Update: March 2024.* Available from: https://www.dcceew.gov.au/climate-change/publications/national-greenhouse-gas-inventory-quarterly-update-march-2024 [Accessed September 2024].	
118.	DISER. 2021. *National Greenhouse Accounts Factors, Australian National Greenhouse Accounts, August 2021*. Australian Government Department of Industry, Science, Energy and Resources, Canberra, Australia.	
119.	Arias, P. A., N. Bellouin, E. Coppola, R. G. Jones, G. Krinner, J. Marotzke, V. Naik, M. D. Palmer, G-K. Plattner, J. Rogelj, M. Rojas, J. Sillmann, T. Storelvmo, P. W. Thorne, B. Trewin, K. Achuta Rao, B. Adhikary, R. P. Allan, K. Armour, G. Bala, R. Barimalala, S. Berger, J. G. Canadell, C. Cassou, A. Cherchi, W. Collins, W. D. Collins, S. L. Connors, S. Corti, F. Cruz, F. J. Dentener, C. Dereczynski, A. Di Luca, A. Diongue Niang, F. J. Doblas-Reyes, A. Dosio, H. Douville, F. Engelbrecht, V. Eyring, E. Fischer, P. Forster, B. Fox-Kemper, J. S. Fuglestvedt, J. C. Fyfe, N. P. Gillett, L. Goldfarb, I. Gorodetskaya, J. M. Gutierrez, R. Hamdi, E. Hawkins, H. T. Hewitt, P. Hope, A. S. Islam, C. Jones, D. S. Kaufman, R. E. Kopp, Y. Kosaka, J. Kossin, S. Krakovska, J-Y. Lee, J. Li, T. Mauritsen, T. K. Maycock, M. Meinshausen, S-K. Min, P. M. S. Monteiro, T. Ngo-Duc, F. Otto, I. Pinto, A. Pirani, K. Raghavan,	

Ref. No.	Description	Document ID
	R. Ranasinghe, A. C. Ruane, L. Ruiz, J-B. Sallée, B. H. Samset, S. Sathyendranath, S. I. Seneviratne, A. A. Sörensson, S. Szopa, I. Takayabu, A-M. Treguier, B. van den Hurk, R. Vautard, K. von Schuckmann, S. Zaehle, X. Zhang, K. Zickfeld, 2021, Technical Summary. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J. B. R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press, page 26	
120.	IPCC, 2021: *Summary for Policymakers*. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [MassonDelmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)].Cambridge University Press. In Press.	
121.	Koessler M. W., M.J. Weirathmueller, and C.R. McPherson. 2022. *Wheatstone Deep and Dino South Drilling Campaign: Acoustic and Animal Movement Modelling for Assessing Marine Fauna Sound Exposures*. Document 02716, Version 2.0. Technical report by JASCO Applied Sciences for Chevron Australia Pty Ltd.	ABU220600166
122.	Southall, B.L., J.J. Finneran, C.J. Reichmuth, P.E. Nachtigall, D.R. Ketten, A.E. Bowles, W.T. Ellison, D.P. Nowacek, and P.L. Tyack. 2019. Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. *Aquatic Mammals* 45(2): 125-232. https://doi.org/10.1578/AM.45.2.2019.125.	
123.	NOAA. 2019. ESA Section 7 Consultation Tools for Marine Mammals on the West Coast (web page), 27 Sep 2019. National Oceanic and Atmospheric Administration (US)https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/esa-section-7-consultation-tools-marine-mammals-west. [Accessed April 2022]	
124.	Popper, A.N., Hawkins, A.D., Fay, R.R., Mann, D.A., Bartol, S., Carlson, T.J., Coombs, S., Ellison, W.T. and Gentry, R.L. 2014. Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI. Springer Briefs in Oceanography, Volume ASA S443/SC1.4 TR-2014. ASA Press. 87 pp	
125.	Finneran, J.J., E. Henderson, D.S. Houser, K. Jenkins, S. Kotecki, and J. Mulsow. 2017. Criteria and Thresholds for U.S. Navy Acoustic and Explosive Effects Analysis (Phase III). Technical report by Space and Naval Warfare Systems Center Pacific (SSC Pacific). 183 p. Available from: https://apps.dtic.mil/dtic/tr/fulltext/u2/a561707.pd [Accessed April 2022]	
126.	DAWE. 2021. Guidance on key terms within the Blue Whale Conservation Management Plan. Department of Agriculture, Water and the Environment, Australian Government, Canberra, Australia. Available from: https://www.awe.gov.au/sites/default/files/documents/guidance-key-terms-blue-Whale-conservation-management-plan-2021.pdf [Accessed April 2022]	
127.	INPEX 2009. *Ichthys Gas Filed Development Project: Appendix 15, Review of Literature on Sound in the Ocean and Effects of Noise on Marine Fauna*. INPEX Browse Ltd.	
128.	Richardson W.J., Fraker, M.A., Wursig, B. and Wills, R.S. 1985. Behaviour of bowhead whales (Balaena mysticetus), summering in the	

Ref. No.	Description	Document ID
	Beaufort Sea: Reactions to industrial activities. *Biological Conservation*. 32. 195–230.	
129.	Richardson, W.J., Greene, C.R., Malme, C.I and Thomson, D.H. 1995. *Marine Mammals and Noise*. Academic Press, San Diego.	
130.	WDCS. 2004. *Oceans of Noise: A WDCS Science report*. Editors: Mark Simmonds, Sarah Dolman and Lindy Weilgart. The Whale and Dolphin Conservation Society, Wiltshire P168.	
131.	Wardle, C.S., Carter, T.J., Urquhart, G.G., Johnstone, A.D.F., Ziolkowski, A.M., Hampson, G. and Mackie, D. 2001. Effects of seismic air guns on marine fish, *Continental Shelf Research* 21 (2001) 1005–1027	
132.	McCauley, R.D. 1994. *Seismic Survey. In: Environmental Implications of Offshore Oil and Gas Developments in Australia – the Findings of an Independent Scientific Review*. Edited by Swan J.M., Neff J.M. and Young P.C. Australian Petroleum Production and Exploration Association. Sydney	
133.	DAWE. 2021. *The Introduction of Marine Pests to the Australian Environment via Shipping*. Department of Agriculture, Water and the Environment, Canberra, Australian Capital Territory. Available from: https://www.awe.gov.au/environment/biodiversity/threatened/nominations/ineligible-ktp/introduction-marine-pests-via-shipping [Accessed April 2022].	
134.	Emma Knight, Simon Barry, Rupert Summerson, Scott Cameron and Rebecca Darbyshire. 2007. *Designated Exchange Areas Project – Providing informed decisions on the discharge of Ballast Water in Australia (Phase 2)*. Available from: https://www.lib.washington.edu/msd/norestriction/b67512513.pdf [Accessed April 2022].	
135.	DAWE. 2018. *Marine Pest Plan 2018–2023: the National Strategic Plan for Marine Pest Biosecurity*. Department of Agriculture and Water Resources, Canberra, May. CC BY 4.0. Available from: https://www.marinepests.gov.au/sites/default/files/Documents/marine-pest-plan-2018-2023.pdf [Accessed April 2022].	
136.	Glasby, T.M., Connell, S.D., Holloway, M.G.*et al* Nonindigenous biota on artificial structures: could habitat creation facilitate biological invasions?. *Mar Biol* 151, 887–895 (2007). Available from: https://doi.org/10.1007/s00227-006-0552-5 [Accessed April 2022].	
137.	Gustav Paulay, Lisa Kirkendale, Gretchen Lambert and Chris Meyer.2002. *Anthropogenic Biotic Interchange in a Coral Reef Ecosystem: A Case Study from Guam*. Pacific Science, vol. 56, no. 4:403-422. Available from: https://scholarspace.manoa.hawaii.edu/bitstream/10125/2625/1/v56n4-403-422.pdf [Accessed April 2022].	
138.	Katherine A. Dafforn,Tim and Glasby,Emma L. J. 2009. *Links between estuarine condition and spatial distributions of marine invaders*. Diversity and distributions p 807-821. Available from: https://onlinelibrary.wiley.com/doi/10.1111/j.1472-4642.2009.00587.x [Accessed April 2022].	
139.	Dafforn, Katherine & Johnston, Emma & Glasby, Tim. 2009. Shallow moving structures promote marine invader dominance. Biofouling. 25. 277-87 Available from: https://www.researchgate.net/publication/23960397_Shallow_moving_structures_promote_marine_invader_dominance [Accessed April 2022].	
140.	Woodside Energy Ltd. 2014. *Browse FLNG Development, Draft Environmental Impact Statement*. EPBC 2013/7079. November 2014. Woodside Energy, Perth WA.	
141.	McIntyre, A.D. and Johnson, R. 1975. Effects of nutrient enrichment from sewage in the sea. In: ALH Gameson, ed. *Discharge of sewage from sea outfalls*. New York, Pergamon Press. pp. 131–141	

Ref. No.	Description	Document ID
142.	Abdellatif, E.M., Ali, O.M., Khalil, I.F., and Nyonje, B.M. 1993. Effects of Sewage Disposal into the White Nile on the Plankton Community. *Hydrobiologia*, Vol 259, pp 195-201.	
143.	Axelrad, D.M., Poore, G.C.B., Arnott, G.H., Bault, J., Brown, V., Edwards, R.R.C, and Hickman, N. 1981. T*he Effects of Treated Sewage Discharge on the Biota of Port Phillip Bay, Victoria, Australia*. Estuaries and Nutrients, Contemporary Issues in Science and Society. The Human Press Inc.	
144.	Parnell, P.E. 2003. The effects of sewage discharge on water quality and phytoplankton of Hawai'ian Coastal Waters. *Marine Environmental Research*, Vol. 44, pp 293-311.	
145.	Hinwood JB, Poots AE, Dennis LR, Carey JM, Houridis H, Bell R, Thomson JR, Boudreau P and Ayling, AM "Australian Marine and Offshore Group Pty Ltd, 1994. *The Environmental Implication of Drilling activities." In: Swan JM, Neff JM and Young PC (Eds), Environmental Implications of Offshore Oil and Gas Development in Australia - The Findings of an Independent Scientific Review*, Australian Petroleum Exploration Association, Sydney, pp 123-207	
146.	Neff, J.M. 2005. *Composition, Environmental Fates, and Biological Effect of Water Based Drilling Muds and Cuttings Discharged to the Marine Environment: A Synthesis and Annotated Bibliography*. Prepared for Petroleum Environmental Research Forum (PERF) and American Petroleum Institute. Battelle, Duxbury, MA. Available from: https://www.scribd.com/document/279122627/Composition-Environment-Fates-And-Biological-Effect-of-Water-Based-Drilling-Fluids-and-Cuttings [Accessed March 2022]	
147.	Neff J. 2010. *Fates and Effects of Water Based Drilling Muds and Cuttings in Cold-Water Environments*. Neff & Associates LLC for Shell Exploration and Production Company	
148.	Bakke, T; Klungsøyr, J; Sanni, S.2013. *Environmental impacts of produced water and drilling waste discharges from the Norwegian offshore petroleum industry*. Marine Environmental Research. 154-169	
149.	OSPAR. 2009. *Assessment of impacts of offshore oil and gas activities in the North-East Atlantic*. OSPAR Commission	
150.	Currie, D R; Isaacs, L R. 2004. Impact of exploratory offshore drilling on benthic communities in the Minerva gas field. *Australian Mar. Environ*. Res. 217 - 233	
151.	Hyland, J; Hardin, D; Steinhauer, M; Coats, D; Green, R; Neff, J. 1994. Environmental impact of offshore oil development on the outer continental shelf and slope off Point Arguello, California. *Marine Environmental Research*. 195-229	
152.	Jones, D.O.B., Hudson, I.R., and Bitt, B.J. 2006. Effects of physical disturbance on the cold-water megafaunal communities of the Faroe-Shetland Channel. *Mar. Ecol. Prog. Ser*. 319:43-54.	
153.	Jones, D.O.B., Gates, A.R., and Lausen, B. 2012. Recovery of deep-water megafaunal assemblages from hydrocarbon drilling disturbance in the FaroeShetland Channel. *Mar. Ecol. Prog. Ser*. 461:71-82	
154.	IOGP. 2016. *Environmental fates and effects of ocean discharge of drill cuttings and associated drilling fluids from offshore oil and gas operations*. International Association of Oil & Gas Producers	
155.	Chevron Australia. 2020. *Wells Fluid Field Guidelines Offshore*. Chevron Australia, Perth, Western Australia.	ABU14060 0044

Ref. No.	Description	Document ID
156.	Holloway, P.E., Leeuwin current observations on the Australian North West Shelf, May-June 1993. *Deep-Sea Research* I 42, 285–305.	
157.	Holloway, P.E. and Nye, H.C., 1985. Leeuwin Current and wind distributions on the southern part of the Australian North West Shelf between January 1982 and July 1983. *Australian Journal of Marine and Freshwater Research* 36, 123–137.	
158.	DotEE. 2018. *Threat Abatement Plan for the impacts of Marine Debris on Vertebrate Wildlife of Australia's Coasts and Ocean*, Commonwealth of Australia 2018. Available from: https://www.awe.gov.au/sites/default/files/documents/tap-marine-debris-2018.pdf [Accessed April 2022]	
159.	Commonwealth of Australia. 2017. *Recovery Plan for Marine Turtles in Australia, 2017-2027*. Department of the Environment and Energy, Australian Government, Canberra, Australian Capital Territory. Available from: Recovery Plan for Marine Turtles in Australia 2017–2027 (environment.gov.au) [Accessed March 2022].	
160.	AMSA. 2015. *Technical guidelines for preparing contingency plans for Marine and coastal facilities*. Australian Maritime Safety Authority, January 2015. Available from: https://www.amsa.gov.au/sites/default/files/2015-04-np-gui012-contingency-planning.pdf [Accessed May 2022]	
161.	TSSC. 2015 Conservation Advice *Rhincodon typus* Whale shark. Commonwealth of Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/66680-conservation-advice-01102015.pdf [Accessed: April 2022]	
162.	Shell. 2010. *Prelude Floating LNG Project EIS Supplement—Response to Submissions*. Shell Developments (Australia) Pty Ltd, Perth, Western Australia.	
163.	RPS. 2021. *Gorgon Stage 2 Development Project: Oil Spill Modelling*. Rev 0. Unpublished report prepared for Chevron Australia Pty Ltd.	
164.	Bonn Agreement. 2016. *Bonn Agreement Aerial Operations Handbook*. Bonn Agreement, London, United Kingdom. Available from: https://www.bonnagreement.org/site/assets/files/1081/aerial_operations_handbook.pdf [Accessed April 2022]	
165.	French, D., Reed, M., Jayko, K., Feng, S., Rines, H., Pavignano, S.1996. *The CERCLA Type A Natural Resource Damage Assessment Model for Coastal and Marine Environments (NRDAM/CME)*, Technical Documentation, Vol. I - Model Description, Final Report. Office of Environmental Policy and Compliance, United States Department of the Interior. Washington, United States of America.	
166.	French, D.P. 2009. State-of-the-art and research needs for oil spill impact assessment modelling. In: *Proceedings of 32nd Arctic and Marine Oil Spill Program (AMOP) Technical Seminar*. pp. 601–653. Ottawa, Ontario, Canada.	
167.	Engelhardt, F. 1983. Petroleum effects on marine mammals. *Aquatic Toxicology*, 4: 199–217.	
168.	Clark R. 1984. Impacts of oil pollution on seabirds. *Environmental Pollution Series: Ecology and Biology*. 33: 1–22.	
169.	Geraci, J.R. and St. Aubin, D.J. 1988. *Synthesis of Effects of Oil on Marine Mammals*. Report to U.S. Department of the Interior, Minerals Management Service, Atlantic OCS Region, OCS Study. Ventura, California.	
170.	Jenssen, B.M. 1994. Effects of Oil Pollution, Chemically Treated Oil, and Cleaning on the Thermal Balance of Birds. *Environmental Pollution*, 86	

Ref. No.	Description	Document ID
171.	Carls, M.G., Holland, L., Larsen, M., Collier, T.K., Scholz, N.L. and Incardona, J.P. 2008. Fish embryos are damaged by dissolved PAHs, not oil particles. *Aquatic Toxicology*, 88(2): 121-127.	
172.	Nordtug, T., Olsen, A.J., Altin, D., Overrein, I., Storøy, W., Hansen, B.H. and De Laender, F. 2011. Oil droplets do not affect assimilation and survival probability of first feeding larvae of North-East Arctic cod. *Science of the Total Environment*, 412, pp.148-153.	
173.	Redman, A.D. 2015. Role of entrained droplet oil on the bioavailability of petroleum substances in aqueous exposures. *Marine Pollution Bulletin*, 97(1-2): 342–348.	
174.	French-McCay D. 2018. *Aquatic Toxicity Thresholds for Oil Spill Risk Assessments*. RPS Ocean Science, Rhode Island.	
175.	Lin, Q. and Mendelssohn, I.A. 1996. A comparative investigation of the effect of South Louisiana crude oil on the vegetation of freshwater, brackish, and salt marshes. *Marine Pollution Bulletin*, 32: 202–209.	
176.	Grant, D.L., Clarke, P.J. and Allaway, W.G. 1993. The response of grey mangrove (Avicennia marina (Forsk.) Vierh) seedlings to spills of crude oil. *The Journal of Experimental Marine Biological Ecology*, 171(2): 273–295.	
177.	Suprayogi, B. and Murray, F. 1999. A field experiment of the physical and chemical effects of two oils on mangroves. *Environmental and Experimental Botany*, 42(3): 221–229.	
178.	IPIECA. 1995. *Biological Impacts of Oil Pollution: Rocky Shores*, International Petroleum Industry Environmental Conservation Association, No. 7. 209–215 Blackfriars Road, London, SE1 8NL, United Kingdom	
179.	National Oceanic and Atmospheric Administration. 2010. *Oil and sea turtles: biology planning and response*. US Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Office of Response and Restoration.	
180.	Australian Maritime Safety Authority. 2015. *The Effects of Maritime Oil Spills on Wildlife including Non-avian Marine Life*. Available from: http://www.amsa.gov.au/environment/maritime-environmental-emergencies/national-plan/general-information/oiled-wildlife/marine-life/index.asp [Accessed April 2022].	
181.	Lee, K., King, T.L., Robinson, B., Li, Z., Burridge, L., Lyons, M., Wong, D., MacKeigan, K., Courtenay, S., Johnson, S., Boudreau, M., Hodson, P., Greer, C. and Venosa, A.D. 2011. Toxicity Effects of Chemically Dispersed Crude Oil on Fish. In: *International Oil Spill Conference Proceedings: March 2011*, 2011(1): 163.	
182.	Fodrie F.J., Able K.W., Galvez F., Heck K.L., Jensen O.P., López-Duarte P.C., Martin C.W., Turner R.E., Whitehead A. 2014. Integrating Organismal and Population Responses of Estuarine Fishes in Macondo Spill Research. BioScience, Volume 64, Issue 9, September 2014, Pages 778–788.	
183.	Hjermann D.Ø., Melsom A., Dingsør G.E., Durant J.M., Eikeset A.M., Roed L.P., Ottersen G., Storvik G., Stenseth N. 2007. Fish and oil in the Lofoten-Barents Sea system: synoptic review of the effect of oil spills on fish populations. Mar. Ecol. Prog. Ser., 339 (2007), pp. 283–299	
184.	IPIECA 1999. IPIECA Report Series. Volume Nine. Biological impacts of oil pollution: Sedimentary shores. International Petroleum Industry Environmental Conservation Association. London	
185.	ITOPF 2014c. Effects of oil pollution on fisheries and mariculture. Technical Information Paper No. 11. The International Tanker Owners Pollution Federation Limited. London, United Kingdom.	
186.	Volkman J.K., Miller, G.J., Revill, A.T. and Connell, D.W. 2004. 'Oil spills.' In Environmental Implications of offshore oil and gas development in Australia – the findings of an independent scientific review. Edited by Swan, J.M., Neff, J.M. and Young, P.C. Australian Petroleum Exploration Association. Sydney.	

Ref. No.	Description	Document ID
187.	King D.J., Lyne R.L., Girling A., Peterson D.R., Stephenson R., Short D. 1996. Environmental risk assessment of petroleum substances: the hydrocarbon block method. Prepared by members of CONCAWE's Petroleum Products Ecology Group. Report 95/62	
188.	Peakall, D.B., Wells, P.G. and Mackay, D. 1987. A hazard assessment of chemically dispersed oil spills and seabirds. *Marine Environmental Research* 22(2):91–106.	
189.	Director of National Parks. 2018. *North-west Marine Parks Network Management Plan 2018*. Director of National Parks, Canberra, Australia.	
190.	Shigenaka, G. 2001. *Toxicity of oil to reef building corals: a spill response perspective*. National Oceanic and Atmospheric Administration (NOAA) Technical Memorandum, National Ocean Service, Office of Research and Restoration 8, Seattle, USA.	
191.	Negri, A.P. and Heyward, A.J. 2000. Inhibition of fertilization and larval metamorphosis of the coral Acropora millepora (Ehrenberg, 1834) by petroleum products. *Marine Pollution Bulletin* 41(7-12): 420–427.	
192.	A. D. McIntyre, J. M. Baker, A. J. Southward, W. R. P. Bourne, S. J. Hawkins and J. S. Gray Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences Vol. 297, No. 1087, The Long-Term Effects of Oil Pollution on Marine Populations, Communities and Ecosystems (Jun. 1, 1982), pp. 401-411	
193.	RPS. 2022. *Wheatstone Deep and Dino South Exploration Wells Oil Spill Modelling*. Unpublished report for Chevron Australia. RPS Group, Brisbane, Queensland.	MAQ1137J
194.	Chevron.2021. Chevron *Global Process Standard. Wellsafe*. Chevron Australia, Perth, Western Australia.	ABU-DCM-SP102121
195.	Chevron Australia. 2023 *ABU Source Control Emergency Response Plan –Exploration Drilling Campaign*. Chevron Australia, Perth, Western Australia.	ABU22080 0006
196.	IOGP. 2019. *Risk Assessment Data Directory Blowout Frequencies*. Report 434-02.	
197.	Chevron Australia. 2020. *Strategic Net Environmental Benefit Analysis*. Chevron Australia, Perth, Western Australia.	ABU 1908 01382
198.	IPIECA. 2017. *Guidelines on implementing spill impact mitigation assessment (SIMA)*. International Petroleum Industry Environmental Conservation Association, London, United Kingdom.	
199.	Chevron Australia. 2020. *Oil Spill Protection Prioritisation Process – North West Shelf.* Chevron Australia, Perth, Western Australia.	ABU18050 0232
200.	DoT. 2017. *DOT307215 Provision of Western Australian Marine Oil Pollution Risk Assessment – Protection Priorities: Protection Priority Assessment for Zone 2: Pilbara – Final Report*. Department of Transport, Western Australian Government, Perth, Western Australia. Available from: DOT307215 Provision of Western Australian Marine Oil Pollution Risk Assessment - Protection Priorities (transport.wa.gov.au) [Accessed March 2022].	
201.	Thums, M., Ferreira, L.C., Jenner, C., Jenner, M., Harris, D., Davenport, A., Andrews-Goff, V., Double, M., Moller, L., Attard, C.R.M., Bilgmann, K., Thomson, P.G., and McCauley, R. 2022, Pygmy blue whale movement, distribution and important areas in the Eastern Indian Ocean. *Global Ecology and Conservation*, 35 (2022). doi: https://doi.org/10.1016/j.gecco.2022.e02054 [Accessed July 2022]	
202.	American Petroleum Institute. 2013. *Industry Recommended Subsea Dispersant Monitoring Plan: API Technical Report 1152*. Version 1.0. American Petroleum Institute, Washington DC. Available from: 49Thttp://www.oilspillprevention.org/~/media/oil-spill-	

Ref. No.	Description	Document ID
	prevention/spillprevention/r-and-d/dispersants/api-1152-industry-recommended-subsea-dis.pdf49T	
203.	Add Energy. 2023, Blowout and Kill Simulation Study Exploration Well Dino South-1. Revision 4. April 14th 2023.	
204.	Gates, A.R., and Jones, D.O.B. 2012. R*ecovery of Benthic Megafauna from Anthropogenic Disturbance at a Hydrocarbon Drilling Well (380 m Depth in the Norwegian Sea). PLoS* ONE 7(10): e44114. https://doi.org/10.1371/journal.pone.0044114	
205.	Dorn, P. B., Rhodes, I. A., Wong, D. C. L., Van Compernolle, R., Hinojosa, E. M., Farmayan, W. F., Ray, J. P., James, B., Hii, K. K., and S. Hj-Kip. "*Assessment of the Fate and Ecological Risk of Synthetic-Paraffin-Based Drilling-Mud Discharges Offshore Sarawak and Sabah (Malaysia)*." Paper presented at the SPE Asia Pacific Health, Safety, and Security Environment Conference and Exhibition, Bangkok, Thailand, September 2007. doi: https://doi.org/10.2118/108653-MS	
206.	Neff, J.M. 2008. Estimation of Bioavailability of Metals from Drilling Mud Barite. *Integrated Environmental Assessment and Management* 4(2): 184-193	
207.	IFC. 2015. Environmental, Health, and Safety Guidelines for Offshore Oil and Gas Development. International Finance Corporation, World Bank Group. Available: https://www.ifc.org/wps/wcm/connect/e2a72e1b-4427-4155-aa8f-c660ce3f2cd5/FINAL_Jun+2015_Offshore+Oil+and+Gas_EHS+Guideline.pdf?MOD=AJPERES&CVID=kU7RMJ6 [Accessed September 2022]	
208.	NOPSEMA. 2023. *Guideline: Consultation in the course of preparing an environment plan*. National Offshore Petroleum Safety and Environmental Management Authority, Perth, Western Australia. Available from: https://www.nopsema.gov.au/sites/default/files/documents/Consultation%20in%20the%20course%20of%20preparing%20an%20Environment%20Plan%20guideline.pdf [Accessed: March 2024]	N-04750-GL2086 A900179
209.	NOPSEMA. 2024. *Guidance note: Environment plan content requirement*. National Offshore Petroleum Safety and Environmental Management Authority, Perth, Western Australia. Available from: https://www.nopsema.gov.au/sites/default/files/documents/Environment%20Plan%20Content%20Requirements%20Guidance%20Note.pdf [Accessed: March 2024]	N-04750-GN1344 A339814
210.	Federal Court of Australia. 2022. *Santos NA Barossa Pty Ltd vs Tipakalippa [2022] FCAFC 193.* Australia. Available from: https://www.judgments.fedcourt.gov.au/judgments/Judgments/fca/full/2022/2022fcafc0193 [Accessed: March 2023]	VID555/2022
211.	NOPSEMA. 2024. *Guidance Note: Petroleum activities and Australian Marine Parks A guidance note to support environmental protection and effective consultation*. National Offshore Petroleum Safety and Environmental Management Authority, Perth, Western Australia. Available from: https://www.nopsema.gov.au/sites/default/files/documents/Guidance%20note%20-%20Petroleum%20Activities%20and%20Australian%20Marine%20Parks.pdf [Accessed: March 2024]	N-04750 - GN1785 A620236
212.	Parks Australia. 2023 (draft). Petroleum Activities – Director of National Parks consultation guide. Parks Australia, Australian Government, Cabrera, ACT.	
213.	DCCEEW. 2023. *Interim Engaging with First Nations People and Communities on Assessments and Approvals Under the Environment*	

Ref. No.	Description	Document ID
	Protection and Biodiversity Conservation Act 1999. Department of Climate Change, Energy, the Environment and Water, Canberra, ACT. Available from: https://www.dcceew.gov.au/sites/default/files/documents/interim-engaging-with-first-nations-people-and-communities-assessments-and-approvals-under-epbc-act.pdf [Accessed: August 2023]	
214.	Government of Western Australia. 2021. Aboriginal Cultural Heritage Act 2021: Consultation Guidelines. Perth, Western Australia. Available from: https://www.wa.gov.au/system/files/2022-11/ACH-Act-2021-Consultation-Guideline.pdf [Accessed: March 2023]	
215.	DMIRS. 2022. Guideline for the Development of Petroleum, Geothermal and Pipeline Environment Plans in Western Australia. Department of Mines, Industry Regulation and Safety, Perth, Western Australia. Available from: https://www.dmp.wa.gov.au/Documents/Geological-Survey/Guideline-for-Development-Petroleum-Geotherman-Pipeline-Environment-Plans.pdf [Accessed March 2023]	
216.	AFMA. 2023. *Petroleum industry consultation with the commercial fishing industry*. Australian Fisheries Management Authority, Australian Government. Available from: https://www.afma.gov.au/afmas-research/petroleum-industry-consultation-commercial-fishing-industry [Accessed: March 2023]	
217.	WAFIC. 2023. *Oil & Gas Consultation Approach for Unplanned Events*. Western Australian Fishing Industry Council Inc. Fremantle, Western Australia. Available from: https://www.wafic.org.au/what-we-do/access-sustainability/oil-gas/consultation-approach-for-unplanned-events/ [Accessed: March 2023]	
218.	DoF. 2013. *Guidance statement for oil and gas industry consultation with the Department of Fisheries*. Department of Fisheries, Western Australian Government. Available from: https://www.fish.wa.gov.au/Documents/occasional_publications/fop113.pdf [Accessed: March 2023]	
219.	DoT. 2020. *Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements*. Department of Transport, Western Australian Government. Available from: https://www.transport.wa.gov.au/mediaFiles/marine/MAC_P_Westplan_MOP_OffshorePetroleumIndGuidance.pdf [Accessed: March 2023]	
220.	DAWE. 2020. *Wildlife Conservation Plan for Seabirds.* 'Wildlife Conservation Plan for Seabirds, Commonwealth of Australia 2020. Australian Government, Cabrera. Available from: https://www.dcceew.gov.au/sites/default/files/documents/wildlife-conservation-plan-for-seabirds.pdf	
221.	CAPL. 2018. *Gorgon Gas Development: Marine Environmental Quality Management Plan*. Chevron Australia, Perth, Western Australia.	GOR-COP-01110
222.	RPS. 2009. *Baseline Study of the Composition and Quality of Near-shore Waters – Barrow Island*. Unpublished report for Chevron Australia, Perth, Western Australia.	N09503
223.	CAPL. 2022. *Gorgon Gas Development and Jansz Feed Gas Pipeline: Environmental Performance Report 2022*. Chevron Australia, Perth, Western Australia.	ABU220700410
224.	DCCEEW. 2024. Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Water. Department of Climate Change, Energy, the Environment and Water, Australian Government. Available from:https://www.dcceew.gov.au/sites/default/files/documents/guideline	

Ref. No.	Description	Document ID
	s-assessing-managing-impacts-underwater-cultural-heritage.pdf [Accessed November 2024]	
225.	DCCEEW. [n.d.] *Australasian Underwater Cultural Heritage Database*. Department of Climate Change, Energy, the Environment and Water, Canberra, Australian Capital Territory. Available from: https://www.dcceew.gov.au/parks-heritage/heritage/underwater-heritage/auchd [Accessed: March 2023]	
226.	DSEWPaC. 2011. *Approved Conservation Advice for Aipysurus apraefrontalis (Short-nosed Sea Snake).* Department of Sustainability, Environment, Water, Population and Communities, Australian Government, Canberra, ACT. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/1115-conservation-advice.pdf [Accessed August 2023].	
227.	DSEWPaC. 2011. *Approved Conservation Advice for Aipysurus foliosquama (Leaf-scaled Sea Snake).* Department of Sustainability, Environment, Water, Population and Communities, Australian Government, Canberra, ACT. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/1118-conservation-advice.pdf [Accessed August 2023].	
228.	Surman, C.A. and Nicholson, L.W. 2008. A survey of the breeding seabirds and migratory shorebirds of the Houtman Abrolhos, Western Australia. *Corella* 33(4): 81-98.	
229.	Surman, C. 1998. Seabird breeding schedules at the Pelsaert Group of islands, Houtman Abrolhos, Western Australia between 1993 and 1998. *Records of the Western Australian Museum* 19: 209-215.	
230.	DBCA. 2017. Shorebirds and seabirds of the Pilbara coast and islands. Department of Biodiversity, Conservation and Attractions, Government of Western Australia. Available from: https://exploreparks.dbca.wa.gov.au/sites/default/files/2023-03/shorebirds-and-seabirds-of-the-pilbara-coast-and-islands.pdf [Accessed August 2023].	
231.	Benjamin, J., O'Leary, M., McDonald, J, Wiseman, C., McCarthy, J., Beckett, E., Morrison, P., Stankiewicz, F., Leach, J., Hacker, J., Baggaley, P., Jerbic, K., Fowler, M., Fairweather, J., Jeffries, P., Ulm, S., and Bailey, G. 2020. Aboriginal artefacts on the continental shelf reveal ancient drowned cultural landscapes in northwest Australia. *PLoS ONE* 15(7): e0233912. https://doi.org/10.1371/journal.pone.0233912	
232.	Veth, P., Ward, I., Manne, T., Ulm, S., Ditchfield, K., Dortch, J., Hook, F., Petchey, F., Hogg, Al., Questiaux, D., Demuro, M., Arnold, L., Spooner, N., Levchenko, V., Skippinton, J., Byrne, C., Basgall, M., Zeanah, D., Belton, D., Helmholz, P., Kendrick, P. 2017. Early human occupation of a maritime desert, Barrow Island, North-West Australia. *Quarternay Science Reviews* 168: 19-29. https://doi.org/10.1016/j.quascirev.2017.05.002	
233.	O'Leary, M. J., Paumard, V. and Ward, I. 2020. Exploring Sea Country through high-resolution 3D seismic imaging of Australia's NW shelf: Resolving early coastal landscapes and preservation of underwater cultural heritage. *Quaternary Science Reviews* 239: 106353. https://doi.org/10.1016/j.quascirev.2020.106353	
234.	Deckker, P., Moros, M., Perner, K., Blanz, T., Wacker, L., Schneider, R., Barrows, T., O'Loingsigh, T., and Jansen, E. 2020. Climatic evolution in the Australian region over the last 94 ka – spanning human occupancy - , and unvieling the Last Glacial Maximum. *Quaternary*	

Ref. No.	Description	Document ID
	Science Reviews 249: 106593. https://doi.org/10.1016/j.quascirev.2020.106593.	
235.	Benjamin, J., O'Leary, M., McCarthy, J., Reynen, W., Wiseman, C., Leach, J., Bobeldyk, S., Buchler, J., Kermeen, P., Langley, M., Black, A., Yoshida, H., Parnum, I., Stevens, A., Ulm, S., McDonald, J., Veth, P. and Bailey, G. 2023. Stone artefacts on the seabed at a submerged freshwater spring confirm a drowned cultural landscape in Murujuga, Western Australia. Quaternary Science Reviews 313: 108190. https://doi.org/10.1016/j.quascirev.2023.108190	
236.	AIATSIS. (n.d.). *The Marlaloo Songline*. Australian Institute of Aboriginal and Torres Strait Islander Studies. Available from: https://aiatsis.gov.au/explore/marlaloo-songline [Accessed: September 2023]	
237.	Deadly Stoary (n.d.). Songlines. Deadly Story. Available from: https://deadlystory.com/page/culture/Life_Lore/Songlines [Accessed: September 2023]	
238.	Nunn, P. and Reid, N. 2015. Aboriginal Memories of Inundation of the Australian Coast Dating from More than 7000 Years Ago. *Australian Geographer* 47(1):11-47. https://doi.org/10.1080/00049182.2015.1077539.	
239.	Kearney, A., O'Leary, M. and Platten, S. 2023. Sea Country: Plurality and knowledge of saltwater territories in Indigenous Australian contexts. *The Geographical Journal* 189(1): 104-116. https://doi.org/10.1111/geoj.12466.	
240.	DCCEEW. 2024. *National Recovery Plan for the Southern Right Whale (Eubalaena australis).* Department of Climate Change, Energy, the Environment and Water, Canberra, Australia. Available from:https://www.dcceew.gov.au/sites/default/files/documents/national-recovery-plan-southern-right-whale.pdf [Accessed August 2024].	
241.	Smyth, D. 1994. *Understanding Country: The Importance of Land and Sea in Aboriginal and Torres Strait Islander Societies*. Canberra, Council for Aboriginal Reconciliation.	
242.	Smyth Dermot. 2007. *Sea Countries of the North-West. Literature review on Indigenous connection to and uses of the North West Marine Region*. Available at: https://parksaustralia.gov.au/marine/pub/scientific-publications/archive/nw-sea-countries.pdf. [Accessed: January 2023]	
243.	ITOPF 2014. *Effects of oil pollution on the marine environment*. Technical Information Paper No. 13. The International Tanker Owners Pollution Federation Limited. London, United Kingdom.	
244.	AMSA 2018. The effects of maritime oil spills on wildlife including non-avian marine life. Australian Maritime Safety Authority, Australian Government. Available from: https://www.amsa.gov.au/audiences/teacher-or-student [Accessed August 2019].	
245.	DSEWPaC. 2012. *Species group report card – marine* reptiles: *supporting the marine bioregional plan for the North-west Marine Region.* Department of Sustainability, Environment, Water, Population and Communities, Canberra, ACT. Available from: https://www.dcceew.gov.au/sites/default/files/env/pages/1670366b-988b-4201-94a1-1f29175a4d65/files/north-west-report-card-reptiles.pdf [Accessed August 2023].	
246.	AMSA. 2010. *Response to the Pacific adventurer: operational and technical issues reports*. Australian Maritime Safety Authority, Canberra, ACT.	

Ref. No.	Description	Document ID
247.	Watson, J.E.M., Joseph, L.N., and Watson, A.W.T. 2009. *A rapid assessment of the impacts of the Montara oil leak on birds, cetaceans and marine reptiles.* Prepared on behalf of the Australian Government Department of the Environment, Water, Heritage and the Arts by the Spatial Ecology Laboratory, University of Queensland, Brisbane.	
248.	Gagnon, M.M. 2009. *Report on biopsy collections from specimens collected from the surrounds of the West Atlas oil leak – sea snake specimen*. Curtin University, Perth, Western Australia.	
249.	Chevron Australia. 2023. Chevron Emergency Management ABU Training and Exercise Program Procedure. Chevron Australia, Perth, Western Australia.	OE-11.01.1109
250.	APPEA 2021. Guidance Document: Incident Management Teams – Knowledge Requirements for Responding to Marine Oil Spills	
251.	CoA. 2017. National Strategy for Reducing Vessel Strike on Cetaceans and other Marine Megafauna 2017. Department of the Environment and Energy, Commonwealth of Australia, Canberra, ACT.	
252.	Abdul Wahab, M., Fromont, J., Gomez, O., Fisher, R., Jones, R., 2017. *Comparisons of benthic filter feeder communities before and after a large-scale capital dredging program*. Marine Pollution Bulletin, 122, 176–193.	
253.	Fisher, R., Stark, C., Ridd, P., Jones, R., 2015. *Spatial patterns in water quality changes during dredging in tropical environments*. PLoS One, 10(12), e014330.	
254.	Ellis, J.I., Fraser, G., Russell, J., 2012. *Discharged drilling waste from oil and gas platforms and its effects on benthic communities*. Mar. Ecol. Prog. Ser. 456, 285–302. https://doi.org/10.3354/meps09622	
255.	API. 1995. *Barium in produced water: Fate and effects in the marine environment*. API Publications	
256.	Smit, Mathijs & Holthaus, Karlijn & Trannum, Hilde & Neff, Jerry & Kjeilen-Eilertsen, Grethe & Jak, Robbert & Singsaas, Ivar & Huijbregts, Mark & Hendriks, Jan. 2008. *Species Sensitivity Distributions for Suspended Clays, Sediment Burial and Grain Size Change in the Marine Environment*. Environmental toxicology and chemistry / SETAC. 27. 1006-12. 10.1897/07-339.1.	
257.	Crecelius, E., J. Trefry, J. McKinley, B. Lasorsa, and R. Trocine. 2007. *Study of barite solubility and the release of trace components to the marine environment*. U.S. Department of the Interior, Minerals Management Service, Gulf of Mexico OCS Region, New Orleans, LA. OC5 Study MMS 2007-061. 176 pp.	
258.	Deepwater Horizon Natural Resource Damage Assessment Trustees. (2016). Deepwater Horizon oil spill: Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement. Available at: https://repository.library.noaa.gov/view/noaa/18084/noaa_18084_DS1.pdf Accessed 27 October 2023	
259.	Aichinger Dias, L. Litz, J., Garrison, L., Martinez, A., Barry, K., Speakman, T. 2017. Exposure of cetaceans to petroleum products following the Deepwater Horizon oil spill in the Gulf of Mexico. January 2017 Endangered Species Research 33(1):119-125. Available at:(PDF) Exposure of cetaceans to petroleum products following the Deepwater Horizon oil spill in the Gulf of Mexico (researchgate.net) Accessed 27 October 2023	
260.	Smultea, MA., Würsig, B. 1995. Behavioral reactions of bottlenose dolphins to the Mega Borg oil spill, Gulf of Mexico 1990. Aquatic	

Ref. No.	Description	Document ID
	Mammals 21(3):171-181. Available at: <https://www.researchgate.net/publication/244478062_Behavioral_reactions_of_bottlenose_dolphins_to_the_Mega_Borg_oil_spill_Gulf_of_Mexico_1990%20Accessed%20October%202023> Accessed 27 October 2023	
261.	Langangen, Ø., Olsen, E. Stige, L., Ohlberger, J. Yaragina, N., Vikebø, F., Bogstad, B., Stenseth, N., and Hjermann, D. 2017. The effects of oil spills on marine fish: Implications of spatial variation in natural mortality. *Marine Pollution Bulletin* 119(1): 102-109. https://doi.org/10.1016/j.marpolbul.2017.03.037	
262.	NOAA. 2023 Five Years After Deepwater Horizon Oil Spill, Gulf Research Reveals Oil Damages Fish Heart Development. Available from: https://response.restoration.noaa.gov/five-years-after-deepwater-horizon-oil-spill-gulf-research-reveals-oil-damages-fish-heart [Accessed: November 2023]	
263.	Ainsworth CH, Paris CB, Perlin N, Dornberger LN, Patterson WF III, et al. (2018) *Impacts of the Deepwater Horizon oil spill evaluated using an end-to-end ecosystem model.* PLOS ONE 13(1): e0190840. https://doi.org/10.1371/journal.pone.0190840	
264.	DCCEEW. n.d. *Species Profile and Threats Database: Thunnus maccoyii — Southern Bluefin Tuna*. Department of Climate Change, Energy, the Environment and Water, Canberra, Australian Capital Territory. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=69402 [Accessed: November 2023]	
265.	Butler, I., Patterson, H., Bromhead, D., Galeano, D., Timmiss, T., Woodhams, J. and Curtotti, R. 2023. *Fishery status reports 2023*. Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra, Australian Capital Territory.	
266.	Chevron, 2023. ABU EMT Capability Analysis Tool	ABU23110 0481
267.	Chevron 2018. Corporate Emergency ABU Response Teams and Resources Procedure	OE-11.01.1111
268.	APPEA. 2021. Australian Offshore Titleholders Source Control Guideline. Revision 0 (approved). Australian Petroleum Production & Exploration Association Limited. Available from: https://www.appea.com.au/wp-content/uploads/2021/09/210921-Australian-Offshore-Titleholders-Source-Control-Guideline-Rev-0-APPROVED-Web.pdf [Accessed March 2023].	
269.	Smyth, D. 1994. *Understanding Country: The Importance of Land and Sea in Aboriginal and Torres Strait Islander Societies*. Canberra, Council for Aboriginal Reconciliation.	
270.	UNESCO. 2003. Convention for the Safeguarding of the Intangible Cultural Heritage. United Nations Educational, Scientific and Cultural Organization, Paris, France. Available from: https://ich.unesco.org/en/convention [Accessed December 2023]	
271.	Janke, T., Cumpston, Z., Hill, R., Woodward, E., von Gavel, S., Harkness, P., and Morrison, J. 2021. Chapter: Indigenous. In: *Australia State of the Environment 2021*. Australian Government, Commonwealth of Australia. Available from: https://soe.dcceew.gov.au/heritage/environment/indigenous-heritage [Accessed December 2023]	
272.	Kearney, A., O'Leary, M. and Platten, S. 2023. Sea Country: Plurality and knowledge of saltwater territories in Indigenous Australian contexts.	

Ref. No.	Description	Document ID
	The Geographical Journal 189(1): 104-116. https://doi.org/10.1111/geoj.12466.	
273.	Common Ground. 2022. *Connection to Animals and Country*. Common Ground First Nations. Available from: https://www.commonground.org.au/article/connection-to-animals-and-country [Accessed December 2023]	
274.	Woodward, E., Hill, R., Harkness, P. and Archer, R. (eds). 2020. *Our Knowledge Our Way in caring for Country: Indigenous-led approaches to strengthening and sharing our knowledge for land and sea management. Best Practice Guidelines from Australian experiences*. NAILSMA and CSIRO.	
275.	SPE. 2015. *Society of Petroleum Engineers (SPE) Technical Report – Calculation of Worst-Case Discharge*.	
276.	IOGP. 2019. *Source Control Emergency Response Planning Guide for Subsea Wells.* Report 594. International Association of Oil & Gas Producers	
277.	NOPSEMA. 2024. *Source control planning and procedures, Information paper*. National Offshore Petroleum Safety and Environmental Management Authority. Available from: https://www.nopsema.gov.au/sites/default/files/documents/Source%20control%20planning%20and%20procedures%20information%20paper.pdf [Accessed: March 2024]	N-04750-IP1979 A787102
278.	Chevron Australia. 2023. *ABU Wells Worst Case Discharge Calculation and Relief Well Planning Standard Operational Procedure.* Chevron Australia, Perth, Western Australia.	ABU 131000237
279.	Chevron Technology Centre. 2021. *Business Unit Well Source Control Response Plan*. Chevron Corporation, Houston, United States.	CTC-DCM-EN6800
280.	Chevron Australia. 2023. *Dino South-1 Relief Well Plan.* Chevron Australia, Perth, Western Australia.	ABU 230400117
281.	OGUK. 2013. *Guidelines on Relief Well Planning for Offshore Wells*. Issue 2. Oil and Gas UK, United Kingdom.	
282.	WAFIC. 2023. *Commercial Fishing Consultiong Framework for the Offshore Oil and Gas Sector*. Western Australian Fishing Industry Council Inc, Perth, Western Australia. Available from: https://www.wafic.org.au/wp-content/uploads/2023/07/Oil-and-Gas-Consultation-Framework.pdf [Accessed March 2024]	
283.	Sadiq, R; Husain, T; Bose, N; Veitch, B. 2003. *Distribution of heavy metals in sediment pore water due to offshore discharges: an ecological risk assessment*. Environmental Modelling & Software. Volume 18, Issue 5, June 2003, Pages 451-461.	
284.	Zeanah, D., Veth, P., Basgall, M., Glover, D., Bradshaw, R., Ditchfield, K., Hook, F., Seah, I., Buurabalayji Thalanyji Aboriginal Corporation. 2024. Barrow Island lithic scatters: A unique record of occupation patterns on the North West Shelf before insularisation. *Quaternary Science Reviews*, 329: 108547. https://doi.org/10.1016/j.quascirev.2024.108547	
285.	Jones, R., M. Wakeford, L. Currey-Randall, K. Miller, and H. Tonin. 2021. Drill Cuttings and Drilling Fluids (Muds) Transport, Fate and Effects near a Coral Reef Mesophotic Zone. *Marine Pollution Bulletin* 172 (2021): 112717. https://doi.org/10.1016/j.marpolbul.2021.112717.	

Ref. No.	Description	Document ID
286.	Chevron Australia. 2020. *ABU Emergency Response Plan*. Chevron Australia, Perth, Western Australia.	OE-11.01.11
287.	NOPSEMA. 2022. *Guidance Note: Responding to public comment on environment plans*. National Offshore Petroleum Safety and Environmental Management Authority, Perth, Western Australia. Available from: https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fwww.nopsema.gov.au%2Fsites%2Fdefault%2Ffiles%2Fdocuments%2F2022-07%2FN-04750-GN1847%2520-%2520Responding%2520to%2520public%2520comment%2520on%2520EPs%2520%2528A662607%2529.docx&wdOrigin=BROWSELINK [Accessed: May 2023]	N-04750-GN1847 A662607
288.	Guillermo Jiménez-Arranz, Nikhil Banda, Stephen Cook and Roy Wyatt. 2020. Review on existing data on underwater sounds produced by the oil and gas industry. A report prepared by Seiche Ltd for the Joint Industry Programme (JIP) on E&P Sound and Marine Life JIP Topic - Sound source characterisation and propagation.	
289.	Zykov. M. 2013. *Underwater Sound Modeling of Low Energy Geophysical Equipment Operations*. JASCO Document 00600, Version 2.0. Technical report by JASCO Applied Sciences for CSA Ocean Sciences Inc. Available from: https://www.slc.ca.gov/wp-content/uploads/2018/09/AppG.pdf [Accessed August 2024]	
290.	National Oceanic and Atmospheric Administration, 2018 Revision to: *Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts*. Available from: https://www.fisheries.noaa.gov/resource/document/technical-guidance-assessing-effects-anthropogenic-sound-marine-mammal-hearing [Accessed August 2024]	
291.	National Science Foundation (U.S.), U.S. Geological Survey, and [NOAA] National Oceanic and Atmospheric Administration (U.S.). 2011. *Final Programmatic Environmental Impact Statement/Overseas. Environmental Impact Statement for Marine Seismic Research Funded by the National Science Foundation or Conducted by the U.S. Geological Survey. National Science Foundation*, Arlington, VA	
292.	McCauley, R.D., Fewtrell, J., Duncan, A.J., Jenner, C., Jenner, M.-N., Penrose, J.D., Prince, R.I.T., Adihyta, A., Murdoch, J. et al. 2000. *Marine seismic surveys: A study of environmental implications*. Australian Petroleum Production Exploration Association (APPEA) Journal 40: 692-708	
293.	Owen, K., Jenner, C.S., Jenner, MN.M.and Abdrews R. D. 2016. *A week in the life of a pygmy blue whale: migratory dive depth overlaps with large vessel drafts.* Anim Biotelemetry 4, 17 https://doi.org/10.1186/s40317-016-0109-4	
294.	Rennie, S.and Hanson, C.E. and McCauley, R.D. and Pattiaratchi, C. and Burton, C. and Bannister, J. and Jenner, C. and Jenner, M. 2009. *Physical properties and processes in the Perth Canyon, Western Australia: Links to water column production and seasonal pygmy blue whale abundance*. Journal of Marine Systems. 77 (1-2): pp. 21-44.	
295.	AIMS. 2019. *North West shoals to shore research program*. Australian Institute of Marine Science. Perth Office. Available from: https://www.aims.gov.au/sites/default/files/2019-11/AIMS%20NWSS%204pp%20newsletter%20December%2019_web.pdf [Accessed August 2024].	

Ref. No.	Description	Document ID
296.	Torres LG, Barlow DR, Chandler TE, Burnett JD. 2020. *Insight into the kinematics of blue whale surface foraging through drone observations and prey data*. PeerJ 8:e8906 https://doi.org/10.7717/peerj.8906	
297.	Jill R. Schoenherr. 1991. *Blue whales feeding on high concentrations of euphausiids around Monterey Submarine Canyon*. Canadian Journal of Zoology. 69(3): 583-594. https://doi.org/10.1139/z91-088	
298.	Gill, P.C., 2002. *A blue whale (Balaenoptera musculus) feeding ground in a southern Australian coastal upwelling zone*. J. Cetacean Res. Manage., 4(2), pp.179-184.	
299.	Thomas Doniol-Valcroze, Véronique Lesage, Janie Giard, Robert Michaud. 2011. *Optimal foraging theory predicts diving and feeding strategies of the largest marine predator*. Behavioral Ecology, Volume 22, Issue 4, Pages 880–888, https://doi.org/10.1093/beheco/arr038	
300.	Buchan, Susannah, Quiñones, Renato A. 2016. *First insights into the oceanographic characteristics of a blue whale feeding ground in northern Patagonia*, Chile. Marine Ecology Progress Series. 554. 10.3354/meps11762.	
301.	Truong G and Rogers TL. 2023. La Niña conditions influence interannual call detections of pygmy blue whales in the eastern Indian Ocean. Frontiers. Marine Science. 9:850162. doi: 10.3389/fmars.2022.850162	
302.	Ferreira, L.C., Jenner, C., Jenner, M. et al. 2024. *Predicting suitable habitats for foraging and migration in Eastern Indian Ocean pygmy blue whales from satellite tracking data*. Movement Ecology 12, 42. https://doi.org/10.1186/s40462-024-00481-x	
303.	Whittock, P., Pendoley, K., Hamann, M., 2014. *Inter-nesting distribution of Flatback Turtles Natator depressus and industrial development in Western Australia*. Endangered Species Research 26, 25–38. doi:10.3354/esr00628	
304.	Lohmann, Kenneth. 1992. "*How Sea Turtles Navigat*." Scientific American 100-106.	
305.	Lohmann, Kenneth, and Catherine Lohmann. 1996. "*Detection of magnetic field intensity by sea turtles.*" Nature 59-61.	
306.	Commonwealth Australia. 2013. *Recovery Plan for the White Shark (Carcharodon carcharias)*. Commonwealth Australia.	
307.	Threatened species scientific committee. 2024. *Listing Advice for Sphyrna lewini (scalloped hammerhead).* Threatened species scientific committee	
308.	Threatened species scientific committee. 2014. *Listing Advice for Isurus oxyrinchus (shortfin mako).* Threatened species scientific committee.	
309.	Threatened species scientific committee. 2022. *Listing Advice for Megaptera novaeangliae Humpback Whale).* Threatened species scientific committee.	
310.	Couillard, C.M., Lee, K., Légaré, B. and King, T.L. 2005. *Effect of dispersant on the composition of the water-accommodated fraction of crude oil and its toxicity to larval marine fish.* Environmental Toxicology and Chemistry, 24(6): 1496–1504. DOI: https://doi.org/10.1897/04-267R.1 [Accessed August 2024]	
311.	ERM. 2013. *Dispersant Use in Marine Spill Response – Toxicity and Relative Impacts*. Unpublished report for Chevron Australia, Perth, Western Australia.	

Ref. No.	Description	Document ID
312.	Fuller Chris, Bonner James, Cheryl Page, Ernest Andrew, McDonald Thomas McDonald Susanne. 2009. *Comparative toxicity of oil, dispersant, and oil plus dispersant to several marine species*	
313.	DPW. 2015. *Spring news 2015. Ningaloo coast*, Available at: https://library.dbca.wa.gov.au/static/Journals/080954/080954-2015.09.pdf [Accessed August 2024]	
314.	Chevron. 2023. PEMT Oil Spill Response Resource Assessment Tool	ABU23110 0481
315.	DBCA. No date. *Muiron Islands Marine Management Area*, Available at: https://exploreparks.dbca.wa.gov.au/park/muiron-islands-marine-management-area [Accessed August 2024]	
316.	DBCA. 2024. *Ningaloo Coast, Nyinggulu. Visitor guide.* Department of Biodiversity, Conservation and Attractions.	
317.	Zieman J.C., Orth R., Phillips R.C., Thayer G.W., Thorhaug A. 1984. “The effects of oil on seagrass ecosystems”. In: Cairns J, Buikema AL (eds) Restoration of habitats impacted by oil spills. Butterworth-Heinemann, Boston, MA, p37−64.	
318.	Peters, E.C. 1981. *Bioaccumulation and histopathological effects of oil on a stony coral*. Marine Pollution Bulletin 12(10):333–339	
319.	Knap A.H, Wyers S.C, Dodge R.E, Sleeter T.D, Frith H.R, Smith S.R, Cook C.B. 1985. *The effects of chemically and physically dispersed oil on the brain coral Diploria strigosa*. 1985 Oil Spill Conf, Publ 4385. Am Petroleum Inst, Washington, DC: 547–551.	
320.	O'Brien P.Y. and Dixon P.S. 1976. *The Effects of Oil and Oil Components on Algae: A review.* British Phycological Journal 11:115–142	
321.	Girard, F. and Fisher, C.R. 2018. *Long-term impact of the Deepwater Horizon oil spill on deep-sea corals detected after seven years of monitoring*. Biological Conservation 225: 117-127	
322.	DeMicco, E., P.A. Schuler, T. Omer, and B. Baca. 2011. *Net Environmental Benefit Analysis (NEBA) of Dispersed Oil on Nearshore Tropical Ecosystems:* Tropics the 25th Year Research Visit. International Oil Spill Conference Proceedings: March 2011, Vol. 2011, No. 1, pp. 1–14.	
323.	Burns, KA, Garrity, SD & Levings, SC 1993, ‘*How many years until mangrove ecosystems recover from catastrophic oil spills?*’, Marine Pollution Bulletin.	
324.	Suchanek Thomas H. 1993, ‘*Oil Impacts on Marine Invertebrate Populations Communities*. Amer. Zool. 33:510-523	
325.	NASEM, 2019. *National Academies of Science, Engineering and Medicine (NASEM) 2019 Report of the Committee on Evaluation of the Use of Chemical Dispersants in Oil Spill Response* (Washington, DC: National Academies Press) https://nap.edu/catalog/25161/the-use-of-dispersants-in-marine-oilspill-response	
326.	Commonwealth of Australia (Geoscience Australia) 2023. *Australian Marine Spatial Information System (AMSIS)*, Available at: https://amsis-geoscience-au.hub.arcgis.com/ [Accessed August 2024]	
327.	DCCEEW no date. *Find Environmental Data*, Available at: https://fed.dcceew.gov.au/ [Accessed August 2024]	

Ref. No.	Description	Document ID
328.	Jenner, K.C.S., Jenner, M.N. and McCabe, K.A. 2001. Geographical and Temporal Movements of Humpback Whales in Western Australian Waters. APPeA Journal. pp749–765.	
329.	DCCEEW. [no date]. Species Profile and Threat Database: Megaptera novaeangliae — Humpback Whale. Department of Climate Change, Energy, the Environment and Water, Canberra, Australian Capital Territory. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=38 [Accessed August 2024].	
330.	Irvine, L. G., Thums, M., Hanson, C. E., McMahon, C. R., & Hindell, M. A. (2018). *Evidence for a widely expanded humpback whale calving range along the Western Australian coast*. Marine Mammal Science, 34(2), 294-310	
331.	Jansz-Io *Soundscape Monitoring Marine fauna acoustic detections 1 Jan to 31 Dec 2019*. Chevron Energy Technology Pty Ltd, Perth, Western Australia.	ABU22020 0056
332.	Pendoley, K.L. 2005. *Sea turtles and the environmental management of industrial activities in north-west Western Australia*. Ph.D. Thesis. PhD Thesis, Murdoch University: Perth.	
333.	Pendoley, K., Bell, C., McCracken, R., Ball, K., Sherborne, J., Oates, J., Becker, P., Vitenbergs, A. and Whittock, P. 2014. R*eproductive* biology of the Flatback Turtle Natator depressus in Western Australia. Endangered Species Research, 23: 115–123.	
334.	Pendoley Environmental. 2010. *Barrow Island Marine Turtle Track Census Monitoring 2004/05–2009/2010. Unpublished report for Chevron Australia*, Perth, Western Australia.	
335.	Whittock, P. A., K. L. Pendoley, and M. Hamann. 2016. *Using habitat suitability models in an industrial setting: the case for internesting flatback turtles.* Ecosphere 7(11):e01551. 10.1002/ecs2.1551	
336.	Thums, M., Waayers, D., Huang, Z., Pattiaratchi, C., Bernus, J. and Meekan, M., 2017. *Environmental predictors of foraging and transit behaviour of Flatback Turtles Natator depressus*. Endangered Species Research, 32: 333-349.	
337.	Dobbs, K. 2007. Marine turtle and dugong habitats in the Great Barrier Reef Marine Park used to implement biophysical operational principles for the Representative Areas Program. Great Barrier Reer Marine Parks Authority, Australian Government.	
338.	Guinea, M., Sperling J.B., and Whiting S.D. 2006. *Flatback sea turtle inter-nesting habitat in Fog Bay Northern Territory, Australia*. In Proceedings of the 23rd Annual Sea Turtle Symposium on Sea Turtle Biology and Conservation 2003 Kuala Lumpur. 2006. Kuala Lumpur, Malaysia.	
339.	Pendoley Environmental. 2010. *Proposed Outer Harbour Development Port Hedland: Satellite Tracking of Flatback Turtles from Cemetery Beach 2009/2010 - Internesting Habitat*. Report prepared by Pendoley Environmental Pty Ltd for SKM/BHP Billiton Iron Ore.	
340.	DAWE. (no date). *Species Profile and Threat Database: Rhincodon typus – Whale Shark*. Department of Agriculture, Water and the Environment, Canberra, Australian Capital Territory. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=66680 [Accessed: August 2024]	

Ref. No.	Description	Document ID
341.	Gleiss, A., Wright, S., Liebsch, N. & Wilson, R. 2013. *Contrasting diel patterns in vertical movement and locomotor activity of Whale sharks at Ningaloo Reef.* Marine Biology	
342.	Sleeman, J.C., Meekan, M.G., Fitzpatrick, B.J., Steinberg, C.R., Ancel, R. and Bradshaw, C.J.A., 2010. Oceanographic and atmospheric phenomena influence the abundance of whale sharks at Ningaloo Reef, Western Australia. *Journal of Experimental Marine Biology and Ecology* 382: 77–81.	
343.	Meekan, M. and Radford, B., 2010. *Migration Patterns of Whale Sharks: A summary of 15 satellite tag tracks from 2005 to 2008*, Report to the Browse Joint Venture Partners, Australian Institute of Marine Science.	
344.	DBCA. Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area, 2005-2015. Management Plan Number 52.	
345.	Chevron Australia. 2021. Contractor Operational Excellence Management: ABU OE Process. Chevron Australia, Perth, Western Australia.OE-06.00.01	
346.	Webb, G.J.W. & H. Messel. 1978. *Movement and dispersal patterns of Crocodylus porosus in some rivers of Arnhem Land, northern Australia*. Australian Wildlife Research. 5:263-283.	
347.	CAPL. 2018. Gorgon Gas Development and Jansz Feed Gas Pipeline: Long-term Marine Turtle Management Plan. Chevron Australia, Perth, Western Australia.	GOR-COP-01728
348.	Verfuss UK, Gillespie D, Gordon J, Marques T, Miller B, Plunkett R, Theriault J, Tollit D, Zitterbart DP, Hubert P and Thomas L. 2017. Low Visibility Real-Time Monitoring Techniques Review. Report Number SMRUM-OGP2015-002. Provided to IOGP, June 2016	
349.	NOAA Fisheries. Section 7 Effects Analysis: Turbidity in the Greater Atlantic Region	

Appendix a. operational excellence—policy 530

policy 530

operational excellence: achieving world-class performance

It is the policy of Chevron Corporation to protect the safety and health of people and the environment, and to conduct our operations reliably and efficiently. The Operational Excellence Management System (OEMS) is the way Chevron systematically manages workforce safety and health, process safety, reliability and integrity, environment, efficiency, security, and stakeholder engagement and issues. OEMS puts into action our Chevron Way value of Protecting People and the Environment, which places the highest priority on the safety and health of our workforce and the protection of communities, the environment and our assets. Compliance with the law is a foundation for the OEMS.

Our OEMS is a risk-based system used to understand and mitigate risks and maintain and assure safeguards. OEMS consists of three parts:

leadership and OE culture

Leadership is the largest single factor for success in OE. Leaders are accountable not only for achieving results, but achieving them in the right way. Leaders must demonstrate consistent and rigorous application of OE to drive performance and meet OE objectives.

focus areas and OE expectations

Chevron manages risks to our employees, contractors, the communities where we operate, the environment and our assets through focus areas and OE expectations that guide the design, management and assurance of safeguards.

management system cycle

Chevron takes a systematic approach to set and align objectives; identify, prioritize and close gaps; strengthen safeguards and improve OE results.

We will assess and take steps to manage OE risks within the following framework of focus areas and OE expectations:

Workforce Safety and Health: We provide a safe and healthy workplace for our employees and contractors. Our highest priorities are to eliminate fatalities and prevent serious injuries and illnesses.

Process Safety, Reliability and Integrity: We manage the integrity of operating systems through design principles and engineering and operating practices to prevent and mitigate process safety incidents. We execute reliability programs so that equipment, components and systems perform their required functions across the full asset lifecycle.

Environment: We protect the environment through responsible design, development, operations and asset retirement.

Efficiency: We use energy and resources efficiently to continually improve and drive value.

Security: We protect personnel, facilities, information, systems, business operations and our reputation. We proactively identify security risks, develop personnel and sustainable programs to mitigate those risks, and continually evaluate the effectiveness of these efforts.

Stakeholders: We engage stakeholders to foster trust, build relationships, and promote two-way dialogue to manage potential impacts and create business opportunities. We work with our stakeholders in a socially responsible and ethical manner, consistent with our respect for human rights, to create a safer, more inclusive business environment. We also work with our partners to responsibly manage Chevron's non-operated joint venture partnerships and third-party aviation and marine activities.

There are specific OE expectations which need to be met under each focus area. Additional expectations apply to all focus areas and address legal, regulatory and OE compliance; risk management; assurance; competency; learning; human performance; technology; product stewardship; contractor OE management; incident investigation and reporting; and emergency management.

Through disciplined application of the OEMS, we integrate OE processes, standards, procedures and behaviours into our daily operations. While leaders are responsible for managing the OEMS and enabling OE performance, every individual in Chevron's workforce is accountable for complying with the principles of 'Do it safely or not at all' and 'There is always time to do it right'.

Line management has the primary responsibility for complying with this policy and applicable legal requirements within their respective functions and authority limits. Line management will communicate this policy to their respective employees and will establish policies, processes, programs and standards consistent with expectations of the OEMS.

Employees are responsible for understanding the risks that they manage and the safeguards that need to be in place to mitigate those risks. Employees are responsible for taking action consistent with all Company policies, and laws applicable to their assigned duties and responsibilities. Accordingly, employees who are unsure of the legal or regulatory implications of their actions are responsible for seeking management or supervisory guidance.

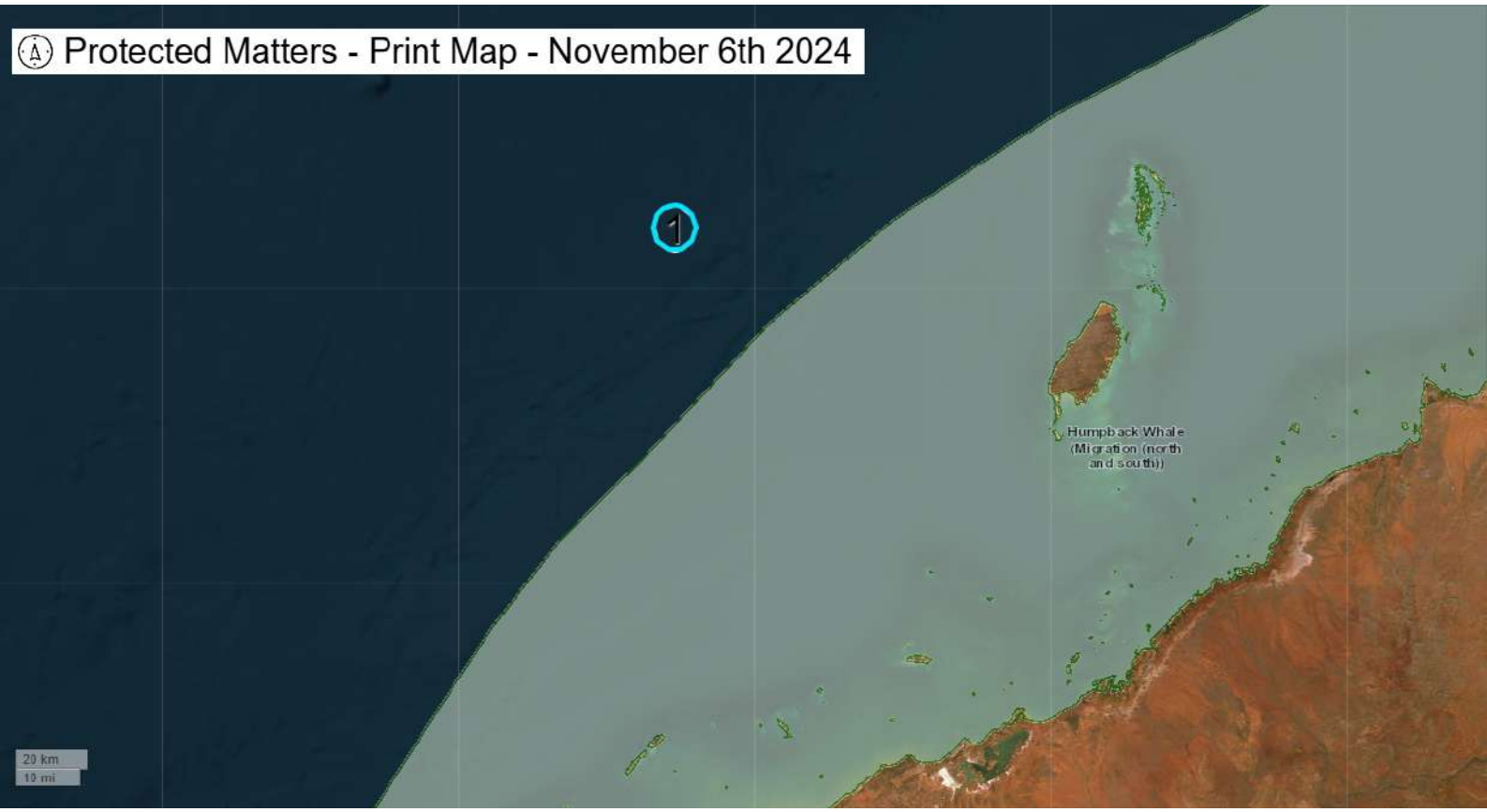
Mark Hatfield
Managing Director, Australasia Business Unit

the human energy company™

Appendix b. protected matters search reports


Protected Matters - Print Map - November 6th 2024
1
20 km
10 mi

Appendix B - Operational Area and humpback whale BIA



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 06-Nov-2024

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:	18
Listed Migratory Species:	32

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:	25
Whales and Other Cetaceans:	26
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
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:	16
Key Ecological Features (Marine):	1
Biologically Important Areas:	3
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
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
[Phaethon rubricauda westralis](#) Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat may occur within area
[Sternula nereis nereis](#) Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area
MAMMAL		
[Balaenoptera borealis](#) Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Migration route known to occur within area
[Balaenoptera physalus](#) Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
REPTILE		
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	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
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
SHARK		
[Carcharodon carcharias](#) White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
[Sphyrna lewini](#) Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
[Anous stolidus](#) Common Noddy [825]		Species or species habitat may occur within area
[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 may occur within area
[Macronectes giganteus](#) Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
[Phaethon lepturus](#) White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Migratory Marine Species		
[Anoxypristis cuspidata](#) Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat may occur within area
[Balaenoptera bonaerensis](#) Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
[Balaenoptera borealis](#) Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
[Balaenoptera edeni](#) Bryde's Whale [35]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat 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	Species or species habitat likely to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat 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

Scientific Name	Threatened Category	Presence Text
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat likely to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	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

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Anous stolidus		
Common Noddy [825]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris canutus		
Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area overfly marine area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Calonectris leucomelas		
Streaked Shearwater [1077]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Fregata ariel		
Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat may occur within area
Macronectes giganteus		
Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Phaethon lepturus		
White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Phaethon lepturus fulvus		
Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Reptile		
Aipysurus laevis		
Olive Sea Snake, Olive-brown Sea Snake [1120]		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	Species or species habitat likely to occur within area
Crocodylus porosus		
Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Ephalophis greyae as Ephalophis greyi		
Mangrove Sea Snake [93738]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat likely to occur within area
Hydrophis czeblukovi Fine-spined Sea Snake [59233]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area

Whales and Other Cetaceans		[Resource Information]
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
[Balaenoptera edeni](#) Bryde's Whale [35]		Species or species habitat likely to occur within area
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Migration route known to occur within area
[Balaenoptera physalus](#) Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
[Delphinus delphis](#) Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
[Feresa attenuata](#) Pygmy Killer Whale [61]		Species or species habitat may occur within area
[Globicephala macrorhynchus](#) Short-finned Pilot Whale [62]		Species or species habitat may occur within area
[Grampus griseus](#) Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
[Kogia breviceps](#) Pygmy Sperm Whale [57]		Species or species habitat may occur within area
[Kogia sima](#) Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
[Lagenodelphis hosei](#) Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area
[Megaptera novaeangliae](#) Humpback Whale [38]		Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat may occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval
Not controlled action (particular manner)			
3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P	2003/1271	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Surveys - Contos CT-13 & Supertubes CT-13, offshore WA	2013/6901	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
CGGVERITAS 2010 2D Seismic Survey	2010/5714	Not Controlled Action (Particular Manner)	Post-Approval
Charon 3D Marine Seismic Survey	2007/3477	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Draeck 3D Marine Seismic Survey, WA-205-P	2006/3067	Not Controlled Action (Particular Manner)	Post-Approval
Drilling 35-40 offshore exploration wells in deep water	2008/4461	Not Controlled Action (Particular Manner)	Post-Approval
Eendracht Multi-Client 3D Marine Seismic Survey	2009/4749	Not Controlled Action (Particular Manner)	Post-Approval
Orcus 3D Marine Seismic Survey in WA-450-P	2010/5723	Not Controlled Action (Particular Manner)	Post-Approval
Warramunga Non-Inclusive 3D Seismic Survey	2008/4553	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
Bianchi 3D Marine Seismic Survey, Carnavon Basin, WA	2013/7078	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
Continental Slope Demersal Fish Communities	North-west

Biologically Important Areas [Resource Information]

Scientific Name	Behaviour	Presence
Seabirds		
Ardenna pacifica		
Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Whales		

Scientific Name	Behaviour	Presence
Balaenoptera musculus brevicauda		
Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae		
Humpback Whale [38]	Migration (north and south)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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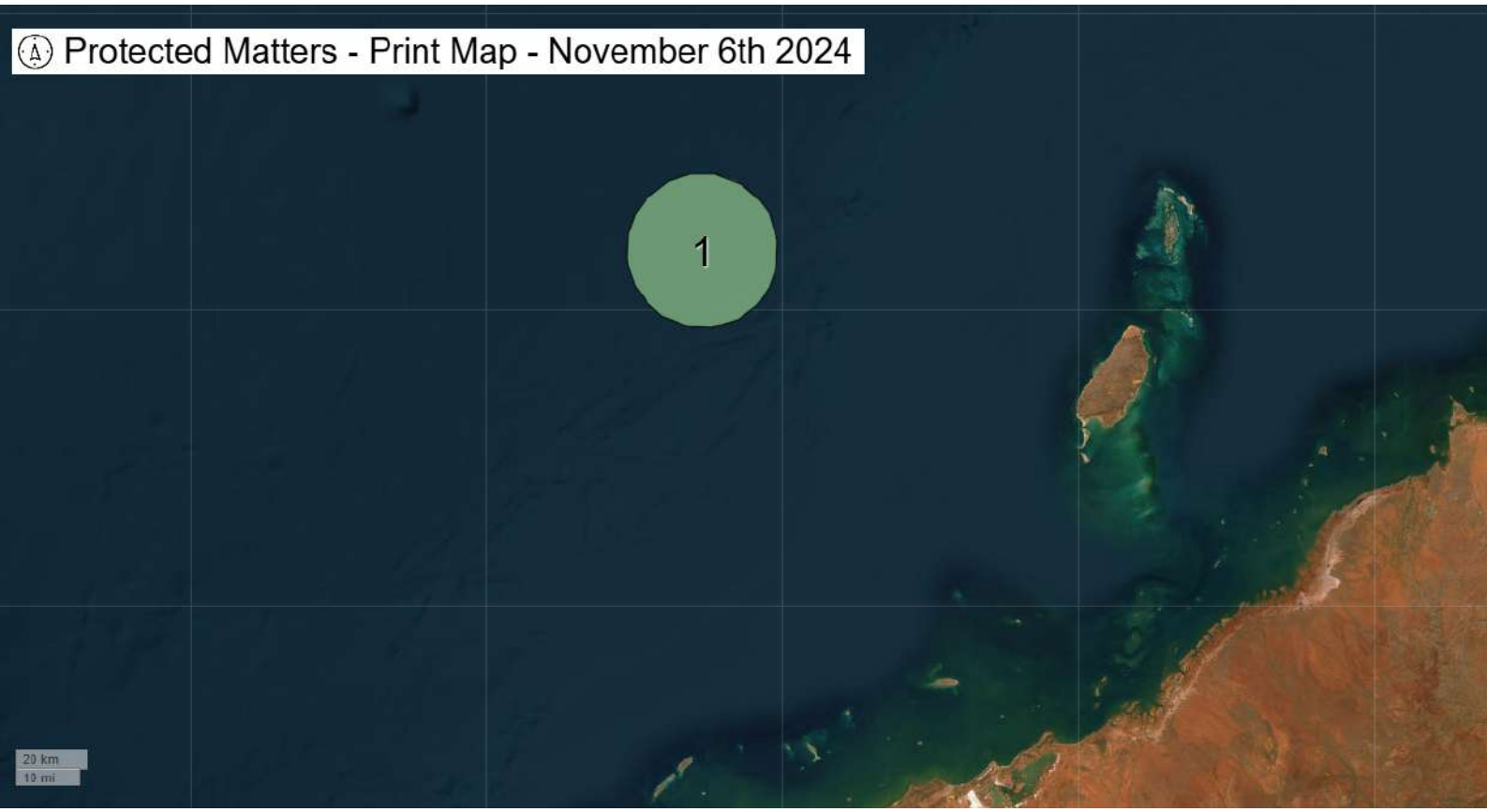
Protected Matters - Print Map - November 6th 2024
1
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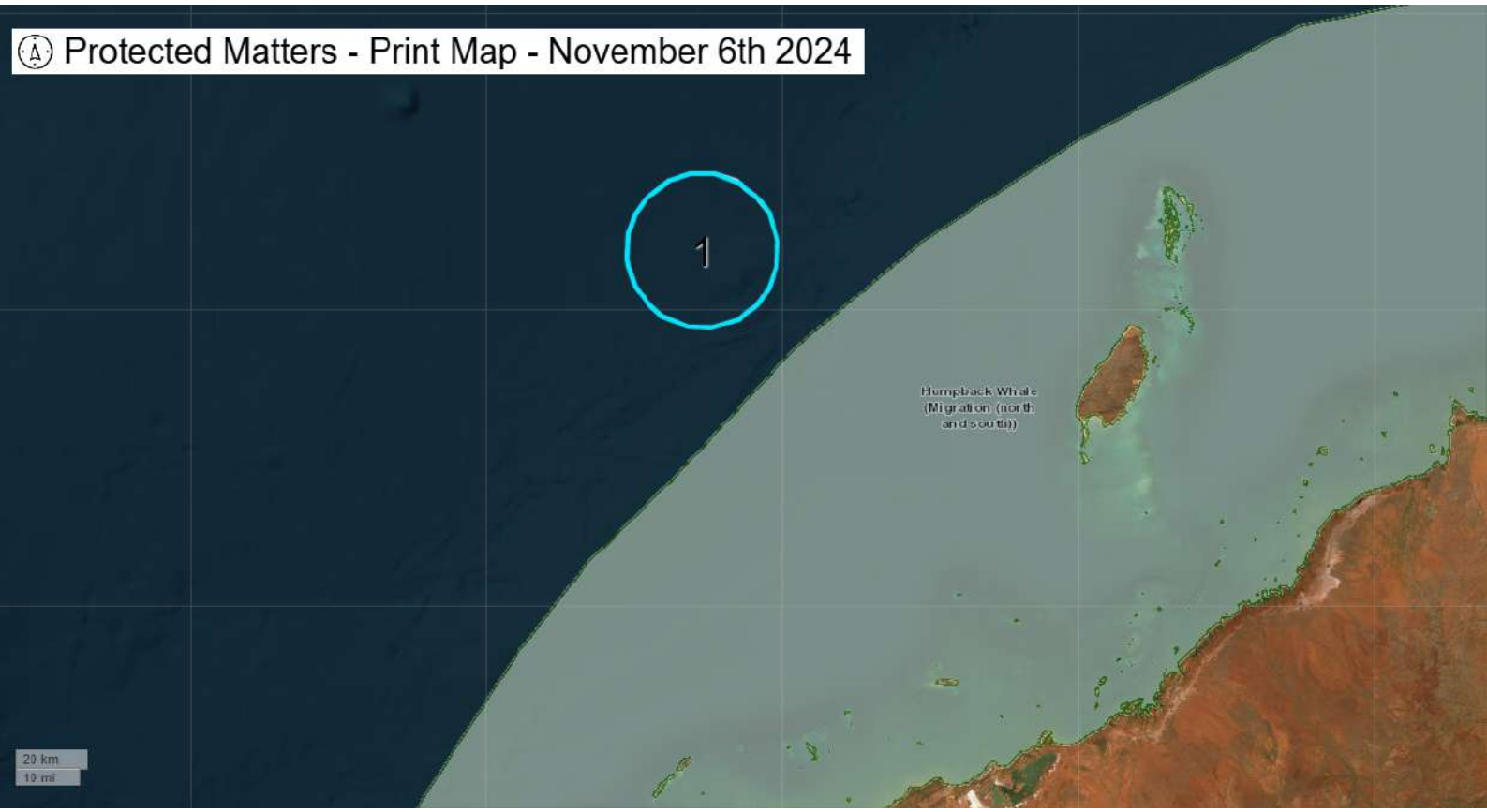
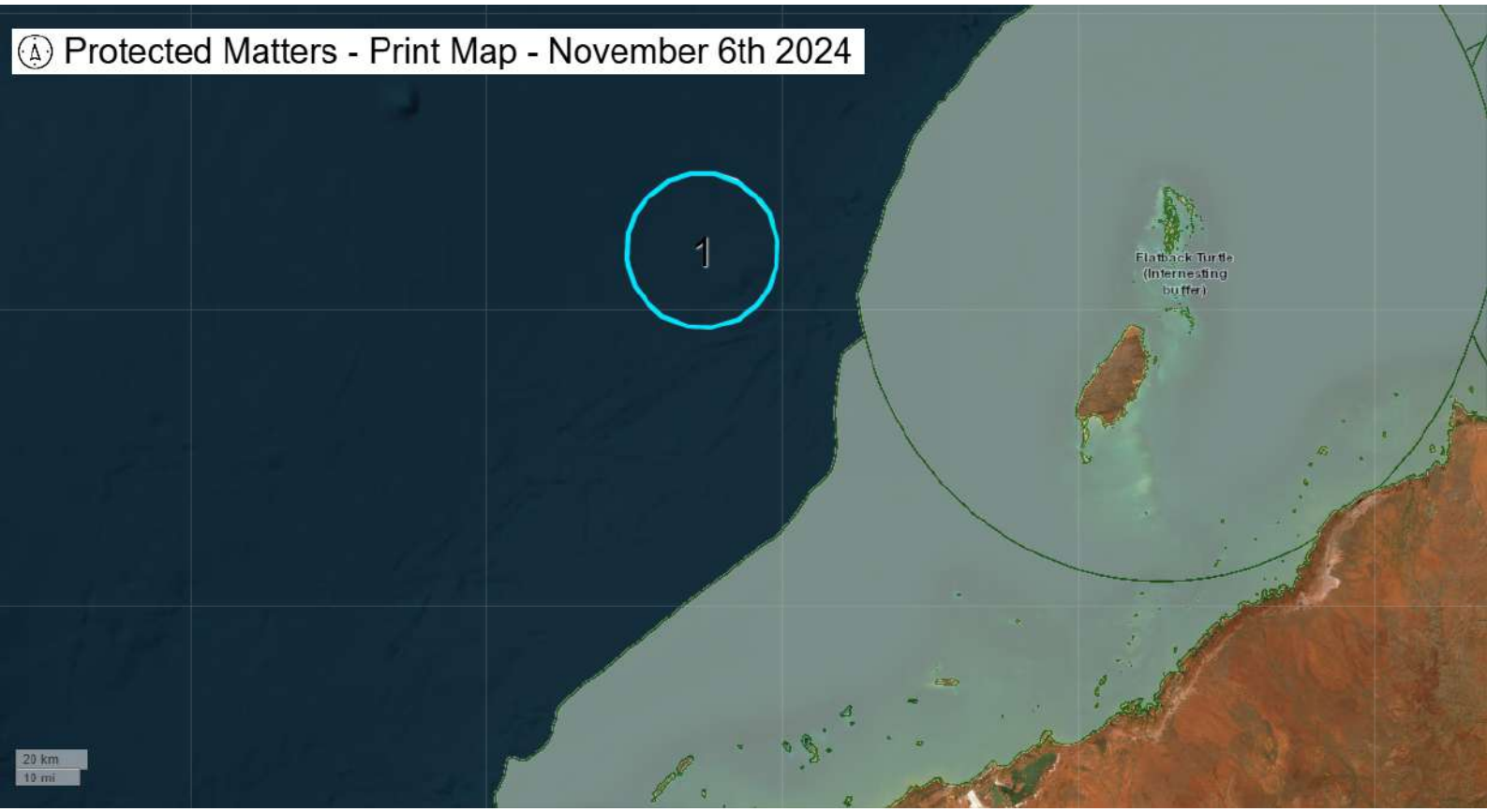
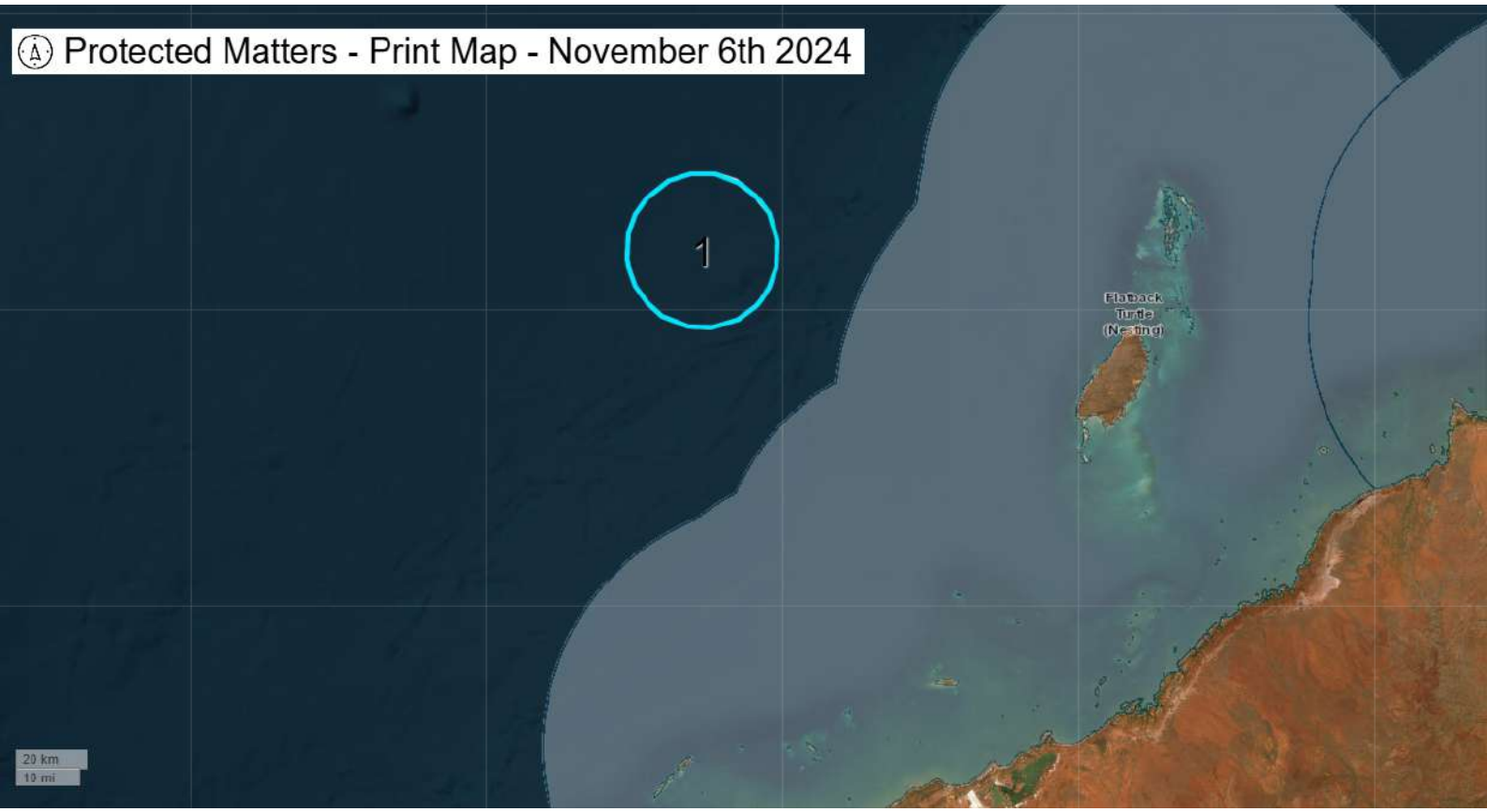
Appendix B - Sound EMBA and humpback whale BIA



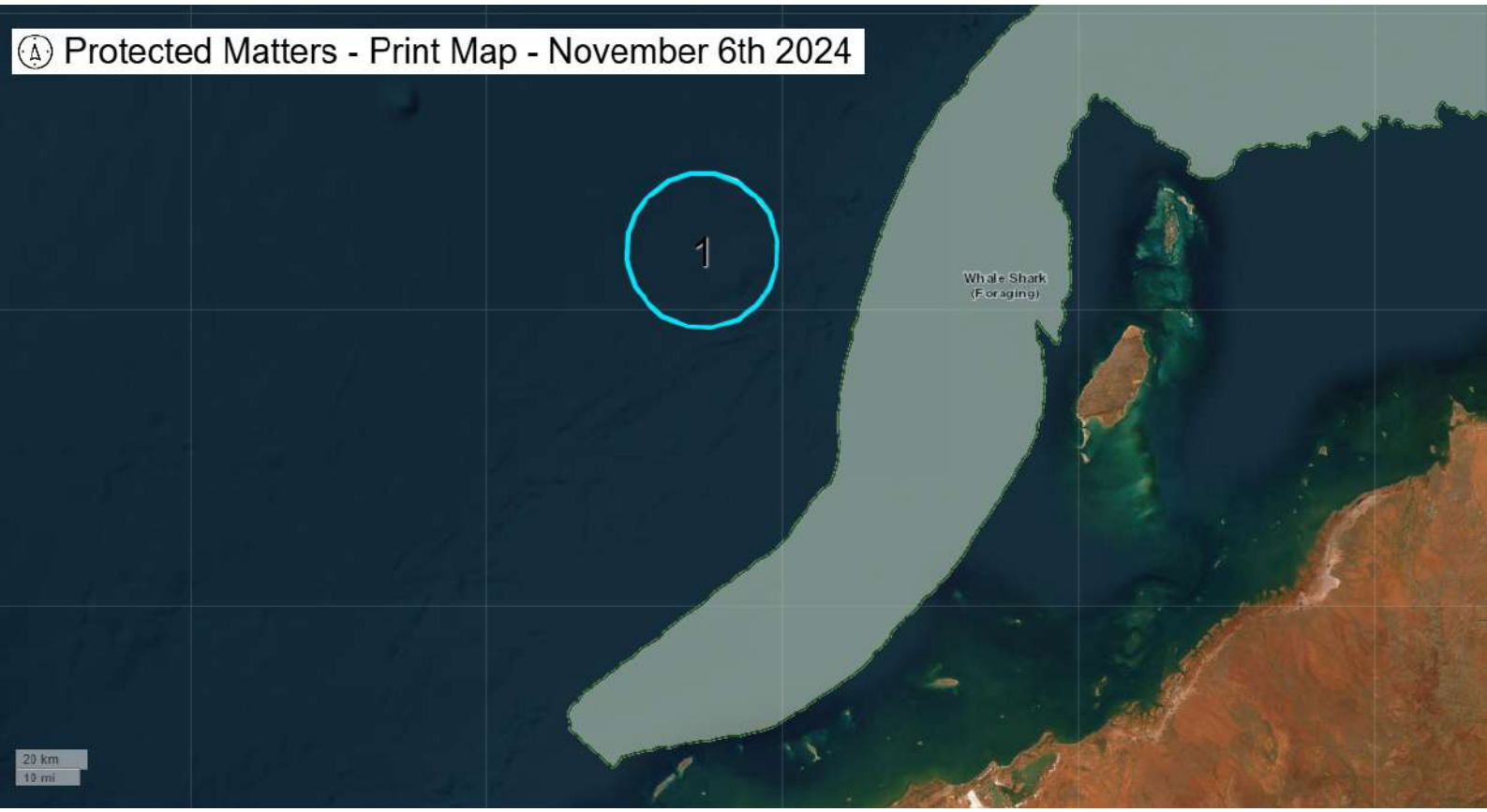
Appendix B - Sound EMBA and flatback turtle BIA



Appendix B - Sound EMBA and
habitat critical to the survival of the flatback turtle



Appendix B - Sound EMBA and whale shark BIA



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 06-Nov-2024

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:	22
Listed Migratory Species:	37

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	57
Whales and Other Cetaceans:	26
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
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:	27
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
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
[Phaethon rubricauda westralis](#) Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat may occur within area
[Sternula nereis nereis](#) Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
MAMMAL		
[Balaenoptera borealis](#) Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Migration route known to occur within area
[Balaenoptera physalus](#) Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
REPTILE		
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
[Eretmochelys imbricata](#) Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
SHARK		

Scientific Name	Threatened Category	Presence Text
Carcharias taurus (west coast population)		
Grey Nurse Shark (west coast population) [68752]	Vulnerable	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
Pristis pristis		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sphyrna lewini		
Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area

Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus		
Common Noddy [825]		Species or species habitat may occur within area
Calonectris leucomelas		
Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel		
Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat may occur within area
Macronectes giganteus		
Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat may occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
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 known to occur within area

Scientific Name	Threatened Category	Presence Text
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat likely to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
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 may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Fish		
Acentronura larsonae Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area
Bulbonaricus brauni Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus Muiron Island Pipefish [66196]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Doryrhamphus multiannulatus Many-banded Pipefish [66717]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
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 trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Phoxocampus belcheri Black Rock Pipefish [66719]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
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
Reptile		
[Aipysurus laevis](#) Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
[Crocodylus porosus](#) Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
[Emydocephalus annulatus](#) Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
[Ephalophis greyae as Ephalophis greyi](#) Mangrove Sea Snake [93738]		Species or species habitat may occur within area
[Eretmochelys imbricata](#) Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
[Hydrophis czeblukovi](#) Fine-spined Sea Snake [59233]		Species or species habitat may occur within area
[Hydrophis elegans](#) Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis kingii as Disteira kingii		
Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis major as Disteira major		
Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus		
Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area

Whales and Other Cetaceans		[Resource Information]
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata		
Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera bonaerensis		
Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis		
Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
Balaenoptera edeni		
Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus		
Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus		
Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenodelphis hosei Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Species or species habitat known to occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat may occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Habitat Critical to the Survival of Marine Turtles		[Resource Information]
Scientific Name	Behaviour	Presence
Aug - Sep		
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Gorgon Gas Development	2003/1294		Post-Approval
Controlled action			
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval
Not controlled action			
Hess Exploration Drilling Programme	2007/3566	Not Controlled Action	Completed
Not controlled action (particular manner)			
3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P	2003/1271	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Surveys - Contos CT-13 & Supertubes CT-13, offshore WA	2013/6901	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
Babylon 3D Marine Seismic Survey, Commonwealth Waters, nr Exmouth WA	2013/7081	Not Controlled Action (Particular Manner)	Post-Approval
CGGVERITAS 2010 2D Seismic Survey	2010/5714	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Charon 3D Marine Seismic Survey	2007/3477	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Drilling Program	2010/5532	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260	Not Controlled Action (Particular Manner)	Post-Approval
Draeck 3D Marine Seismic Survey, WA-205-P	2006/3067	Not Controlled Action (Particular Manner)	Post-Approval
Drilling 35-40 offshore exploration wells in deep water	2008/4461	Not Controlled Action (Particular Manner)	Post-Approval
Eendracht Multi-Client 3D Marine Seismic Survey	2009/4749	Not Controlled Action (Particular Manner)	Post-Approval
Glencoe 3D Marine Seismic Survey WA-390-P	2007/3684	Not Controlled Action (Particular Manner)	Post-Approval
Harmony 3D Marine Seismic Survey	2012/6699	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas MC3D Marine Seismic Survey (HZ-13) Carnarvon Basin, offshore WA	2013/7003	Not Controlled Action (Particular Manner)	Post-Approval
Munmorah 2D seismic survey within permits WA-308/9-P	2003/970	Not Controlled Action (Particular Manner)	Post-Approval
Orcus 3D Marine Seismic Survey in WA-450-P	2010/5723	Not Controlled Action (Particular Manner)	Post-Approval
Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R	2006/2609	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Warramunga Non-Inclusive 3D Seismic Survey	2008/4553	Not Controlled Action (Particular Manner)	Post-Approval
West Anchor 3D Marine Seismic Survey	2008/4507	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
Bianchi 3D Marine Seismic Survey, Carnavon Basin, WA	2013/7078	Referral Decision	Completed

Key Ecological Features [Resource Information]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Ancient coastline at 125 m depth contour	North-west
Continental Slope Demersal Fish Communities	North-west

Biologically Important Areas [Resource Information]

Scientific Name	Behaviour	Presence
Marine Turtles		
Natator depressus		
Flatback Turtle [59257]	Internesting buffer	Known to occur
Seabirds		
Ardenna pacifica		
Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Sharks		
Rhincodon typus		
Whale Shark [66680]	Foraging	Known to occur
Whales		
Balaenoptera musculus brevicauda		
Pygmy Blue Whale [81317]	Migration	Known to occur

Scientific Name	Behaviour	Presence
Megaptera novaeangliae		
Humpback Whale [38]	Migration (north and south)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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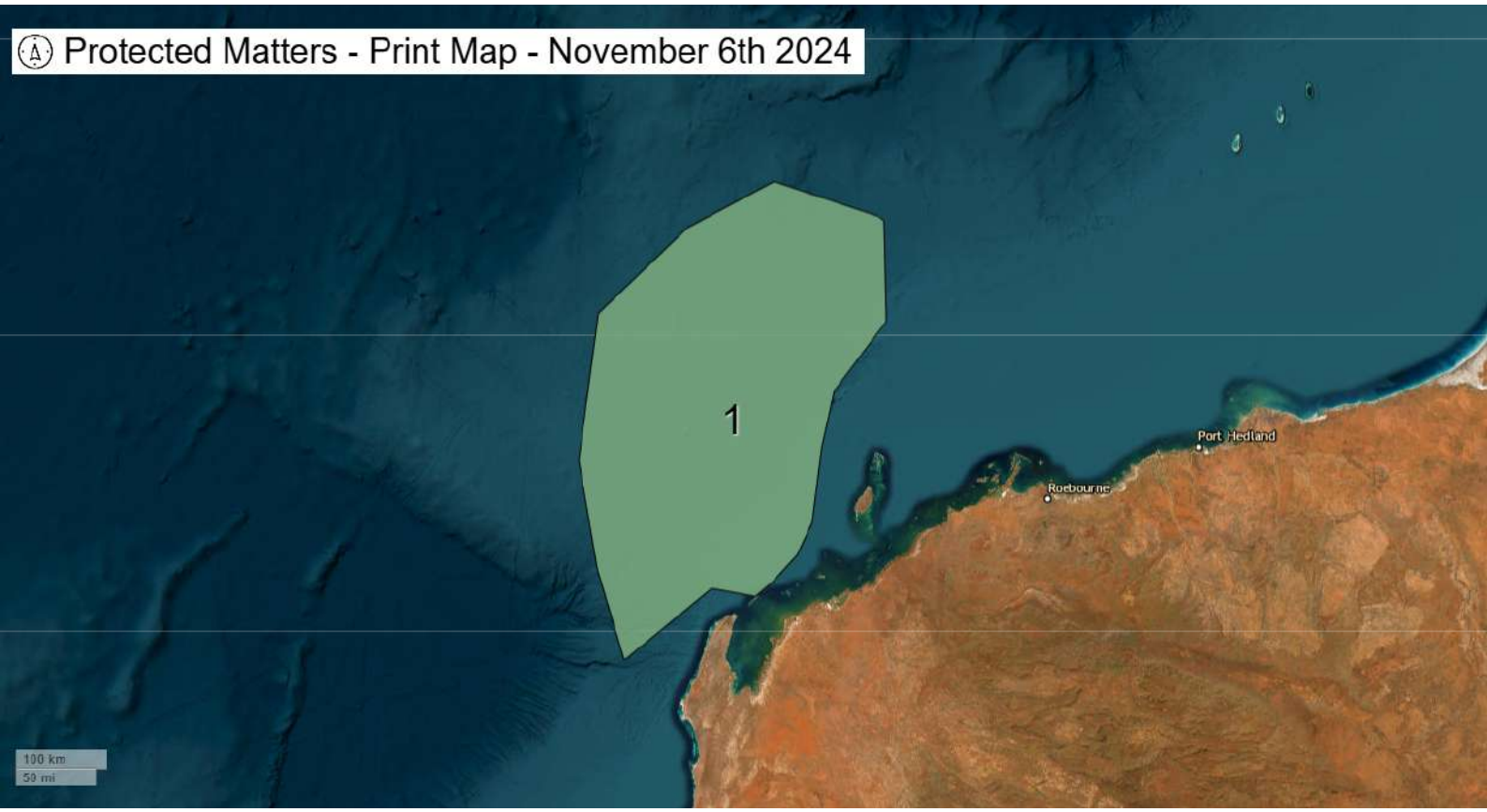
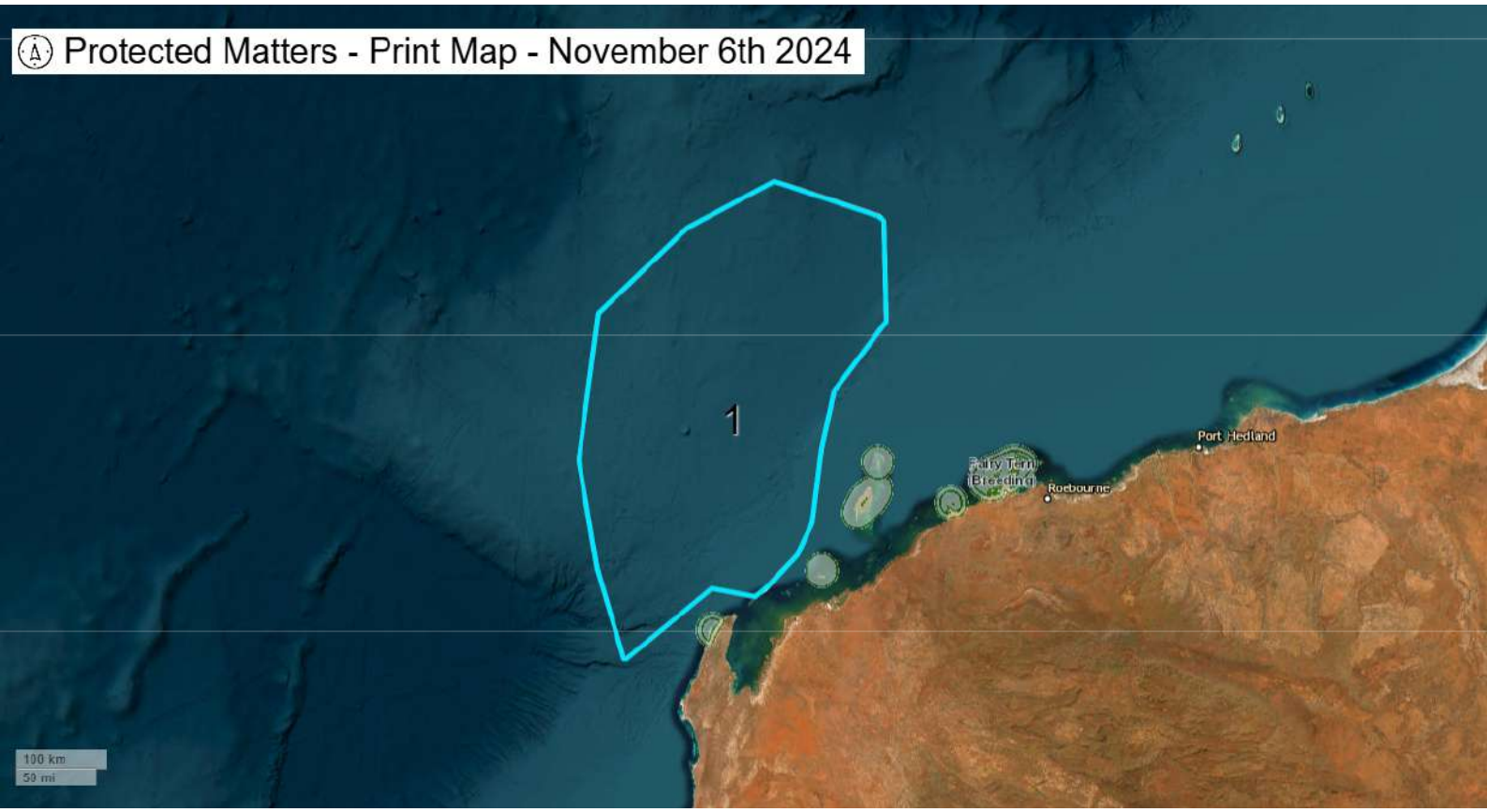

Protected Matters - Print Map - November 6th 2024
1
Port Hedland
Roebourne
100 km
50 mi

Appendix B - Hydrocarbon Ecological EMBA and fairy tern BIA



Appendix B - Hydrocarbon Ecological EMBA and lesser crested tern BIA

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 06-Nov-2024

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	1
National Heritage Places:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	2
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	32
Listed Migratory Species:	52

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:	83
Whales and Other Cetaceans:	30
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	2
Habitat Critical to the Survival of Marine Turtles:	4

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	2
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	122
Key Ecological Features (Marine):	4
Biologically Important Areas:	13
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties [Resource Information]

Name	State	Legal Status
The Ningaloo Coast	WA	Declared property

National Heritage Places [Resource Information]

Name	State	Legal Status
Natural		
The Ningaloo Coast	WA	Listed place

Commonwealth Marine Area [Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name
Commonwealth Marine Areas (EPBC Act)
Commonwealth Marine Areas (EPBC Act)

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat 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
Erythrotriorchis radiatus		
Red Goshawk [942]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
MAMMAL		
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area

Scientific Name	Threatened Category	Presence Text
[Balaenoptera physalus](#) Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
[Eubalaena australis](#) Southern Right Whale [40]	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
REPTILE		
[Aipysurus apraefrontalis](#) Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
[Aipysurus foliosquama](#) Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
[Eretmochelys imbricata](#) Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
SHARK		

Scientific Name	Threatened Category	Presence Text
Carcharias taurus (west coast population)		
Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
Carcharodon carcharias		
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Pristis clavata		
Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sphyrna lewini		
Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area

Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus		
Common Noddy [825]		Species or species habitat may occur within area
Ardenna carneipes		
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Ardenna pacifica		
Wedge-tailed Shearwater [84292]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat known to occur within area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Dugong dugon Dugong [28]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Pristis clavata		
Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sousa sahulensis as Sousa chinensis		
Australian Humpback Dolphin [87942]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations)		
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Hirundo rustica		
Barn Swallow [662]		Species or species habitat may occur within area
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
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]		Breeding known to 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
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Ardenna pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
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
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area overfly marine area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Breeding known to occur within area
Phaethon lepturus		
White-tailed Tropicbird [1014]		Species or species habitat known to occur within area
Phaethon lepturus fulvus		
Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Pterodroma mollis		
Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Rostratula australis as Rostratula benghalensis (sensu lato)		
Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area
Sternula albifrons as Sterna albifrons		
Little Tern [82849]		Species or species habitat may occur within area
Thalassarche carteri		
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche impavida		
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalasseus bengalensis as Sterna bengalensis		
Lesser Crested Tern [66546]		Breeding known to occur within area
Fish		
Acentronura larsonae		
Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Bulbonaricus brauni Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus Muiron Island Pipefish [66196]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus multiannulatus Many-banded Pipefish [66717]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area
Phoxocampus belcheri Black Rock Pipefish [66719]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
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 known to occur within area
Reptile		
[Aipysurus apraefrontalis](#) Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
[Aipysurus duboisii](#) Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
[Aipysurus foliosquama](#) Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
[Aipysurus laevis](#) Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
[Aipysurus mosaicus as Aipysurus eydouxii](#) Mosaic Sea Snake [87261]		Species or species habitat may occur within area
[Aipysurus tenuis](#) Brown-lined Sea Snake, Mjoberg's Sea Snake [1121]		Species or species habitat may occur within area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Foraging, feeding or related behaviour known to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Scientific Name	Threatened Category	Presence Text
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
Ephalophis greyae as Ephalophis greyi Mangrove Sea Snake [93738]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Hydrophis czeblukovi Fine-spined Sea Snake [59233]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area

Whales and Other Cetaceans		[Resource Information]
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenodelphis hosei Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahulensis Australian Humpback Dolphin [87942]		Species or species habitat likely to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
[Ziphius cavirostris](#) Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks [Resource Information]

Park Name	Zone & IUCN Categories
Gascoyne	Habitat Protection Zone (IUCN IV)
Gascoyne	Multiple Use Zone (IUCN VI)

Habitat Critical to the Survival of Marine Turtles [Resource Information]

Scientific Name	Behaviour	Presence
Aug - Sep		
[Natator depressus](#) Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		
[Chelonia mydas](#) Green Turtle [1765]	Nesting	Known to occur
Nov-Feb		
[Caretta caretta](#) Loggerhead Turtle [1763]	Nesting	Known to occur
Nov - May		
[Eretmochelys imbricata](#) Hawksbill Turtle [1766]	Nesting	Known to occur

Extra Information

State and Territory Reserves [Resource Information]

Protected Area Name	Reserve Type	State
Muiron Islands	Nature Reserve	WA
Muiron Islands	Marine Management Area	WA

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status
[Gorgon Gas Development](#)	2003/1294		Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Project Highclere Cable Lay and Operation	2022/09203		Completed
Action clearly unacceptable			
Highlands 3D Marine Seismic Survey	2012/6680	Action Clearly Unacceptable	Completed
Controlled action			
'Van Gogh' Petroleum Field Development	2007/3213	Controlled Action	Post-Approval
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
Develop Jansz-Io deepwater gas field in Permit Areas WA-18-R, WA-25-R and WA-26-	2005/2184	Controlled Action	Post-Approval
Development of Coniston/Novara fields within the Exmouth Sub-basin	2011/5995	Controlled Action	Post-Approval
Development of Stybarrow petroleum field incl drilling and facility installation	2004/1469	Controlled Action	Post-Approval
Enfield full field development	2001/257	Controlled Action	Post-Approval
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval
Greater Enfield (Vincent) Development	2005/2110	Controlled Action	Post-Approval
Light Crude Oil Production	2001/365	Controlled Action	Post-Approval
Pluto Gas Project	2005/2258	Controlled Action	Completed
Pluto Gas Project Including Site B	2006/2968	Controlled Action	Post-Approval
Pyrenees Oil Fields Development	2005/2034	Controlled Action	Post-Approval
The Scarborough Project - FLNG & assoc subsea infrastructure, Carnarvon Basin	2013/6811	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Vincent Appraisal Well	2000/22	Controlled Action	Post-Approval
Not controlled action			
'Van Gogh' Oil Appraisal Drilling Program, Exploration Permit Area WA-155-P(1)	2006/3148	Not Controlled Action	Completed
Bollinger 2D Seismic Survey 200km North of North West Cape WA	2004/1868	Not Controlled Action	Completed
Bultaco-2, Laverda-2, Laverda-3 and Montesa-2 Appraisal Wells	2000/103	Not Controlled Action	Completed
Carnarvon 3D Marine Seismic Survey	2004/1890	Not Controlled Action	Completed
Cazadores 2D seismic survey	2004/1720	Not Controlled Action	Completed
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for	2004/1703	Not Controlled Action	Completed
Controlled Source Electromagnetic Survey	2007/3262	Not Controlled Action	Completed
Development of Halyard Field off the west coast of WA	2010/5611	Not Controlled Action	Completed
Exploration drilling well WA-155-P(1)	2003/971	Not Controlled Action	Completed
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed
Exploration Well in Permit Area WA-155-P(1)	2002/759	Not Controlled Action	Completed
Exploratory drilling in permit area WA-225-P	2001/490	Not Controlled Action	Completed
HCA05X Macedon Experimental Survey	2004/1926	Not Controlled Action	Completed
Hess Exploration Drilling Programme	2007/3566	Not Controlled Action	Completed
Infill Production Well (Griffin-9)	2001/417	Not Controlled Action	Completed
Jansz-2 and 3 Appraisal Wells	2002/754	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Klammer 2D Seismic Survey	2002/868	Not Controlled Action	Completed
Montesa-1 and Bultaco-1 Exploration Wells	2000/102	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
Subsea Gas Pipeline From Stybarrow Field to Griffin Venture Gas Export Pipeline	2005/2033	Not Controlled Action	Completed
Wanda Offshore Research Project, 80 km north-east of Exmouth, WA	2018/8293	Not Controlled Action	Completed
Wheatstone 3D seismic survey, 70km north of Barrow Island	2004/1761	Not Controlled Action	Completed
Not controlled action (particular manner)			
'Kate' 3D marine seismic survey, exploration permits WA-320-P and WA-345-P, 60km	2005/2037	Not Controlled Action (Particular Manner)	Post-Approval
'Tourmaline' 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-32	2005/2282	Not Controlled Action (Particular Manner)	Post-Approval
"Leanne" offshore 3D seismic exploration, WA-356-P	2005/1938	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D seismic surveys	2005/2151	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey	2012/6296	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey	2008/4281	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P	2003/1271	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey over petroleum title WA-268-P	2007/3458	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
3D Marine Seismic Surveys - Contos CT-13 & Supertubes CT-13, offshore WA	2013/6901	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, WA	2008/4428	Not Controlled Action (Particular Manner)	Post-Approval
Apache Northwest Shelf Van Gogh Field Appraisal Drilling Program	2007/3495	Not Controlled Action (Particular Manner)	Post-Approval
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
Artemis-1 Drilling Program (WA-360-P)	2010/5432	Not Controlled Action (Particular Manner)	Post-Approval
Babylon 3D Marine Seismic Survey, Commonwealth Waters, nr Exmouth WA	2013/7081	Not Controlled Action (Particular Manner)	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled Action (Particular Manner)	Post-Approval
Bonaventure 3D seismic survey	2006/2514	Not Controlled Action (Particular Manner)	Post-Approval
CGGVERITAS 2010 2D Seismic Survey	2010/5714	Not Controlled Action (Particular Manner)	Post-Approval
Charon 3D Marine Seismic Survey	2007/3477	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Coverack Marine Seismic Survey	2001/399	Not Controlled Action (Particular Manner)	Post-Approval
Cue Seismic Survey within WA-359-P, WA-361-P and WA-360-P	2007/3647	Not Controlled Action (Particular Manner)	Post-Approval
CVG 3D Marine Seismic Survey	2012/6654	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Drilling Program	2010/5532	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260	Not Controlled Action (Particular Manner)	Post-Approval
Draeck 3D Marine Seismic Survey, WA-205-P	2006/3067	Not Controlled Action (Particular Manner)	Post-Approval
Drilling 35-40 offshore exploration wells in deep water	2008/4461	Not Controlled Action (Particular Manner)	Post-Approval
Eendracht Multi-Client 3D Marine Seismic Survey	2009/4749	Not Controlled Action (Particular Manner)	Post-Approval
Enfield M3 & Vincent 4D Marine Seismic Surveys	2008/3981	Not Controlled Action (Particular Manner)	Completed
Enfield M3 4D, Vincent 4D & 4D Line Test Marine Seismic Surveys	2008/4122	Not Controlled Action (Particular Manner)	Post-Approval
Enfield M4 4D Marine Seismic Survey	2008/4558	Not Controlled Action (Particular Manner)	Post-Approval
Enfield oilfield 3D Seismic Survey	2006/3132	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Exmouth West 2D Marine Seismic Survey	2008/4132	Not Controlled Action (Particular Manner)	Post-Approval
Exploration drilling of Zeus-1 well	2008/4351	Not Controlled Action (Particular Manner)	Post-Approval
Foxhound 3D Non-Exclusive Marine Seismic Survey	2009/4703	Not Controlled Action (Particular Manner)	Post-Approval
Gazelle 3D Marine Seismic Survey in WA-399-P and WA-42-L	2010/5570	Not Controlled Action (Particular Manner)	Post-Approval
Geco Eagle 3D Marine Seismic Survey	2008/3958	Not Controlled Action (Particular Manner)	Post-Approval
Glencoe 3D Marine Seismic Survey WA-390-P	2007/3684	Not Controlled Action (Particular Manner)	Post-Approval
Guacamole 2D Marine Seismic Survey	2008/4381	Not Controlled Action (Particular Manner)	Post-Approval
Harmony 3D Marine Seismic Survey	2012/6699	Not Controlled Action (Particular Manner)	Post-Approval
Honeycombs MC3D Marine Seismic Survey	2012/6368	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas MC3D Marine Seismic Survey (HZ-13) Carnarvon Basin, offshore WA	2013/7003	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas phase 2 marine seismic survey, Exmouth Plateau, Northern Carnarvon Basin, WA	2013/7093	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
John Ross & Rosella Off Bottom Cable Seismic Exploration Program	2008/3966	Not Controlled Action (Particular Manner)	Post-Approval
Julimar Brunello Gas Development Project	2011/5936	Not Controlled Action (Particular Manner)	Post-Approval
Klimt 2D Marine Seismic Survey	2007/3856	Not Controlled Action (Particular Manner)	Post-Approval
Laverda 3D Marine Seismic Survey and Vincent M1 4D Marine Seismic Survey	2010/5415	Not Controlled Action (Particular Manner)	Post-Approval
Leopard 2D marine seismic survey	2005/2290	Not Controlled Action (Particular Manner)	Post-Approval
Lion 2D Marine Seismic Survey	2007/3777	Not Controlled Action (Particular Manner)	Post-Approval
Macedon Gas Field Development	2008/4605	Not Controlled Action (Particular Manner)	Post-Approval
Marine reconnaissance survey	2008/4466	Not Controlled Action (Particular Manner)	Post-Approval
Munmorah 2D seismic survey within permits WA-308/9-P	2003/970	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Program, WA-264-P	2007/3844	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Survey	2005/2017	Not Controlled Action (Particular Manner)	Post-Approval
Orcus 3D Marine Seismic Survey in WA-450-P	2010/5723	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Osprey and Dionysus Marine Seismic Survey	2011/6215	Not Controlled Action (Particular Manner)	Post-Approval
Palta-1 exploration well in Petroleum Permit Area WA-384-P	2011/5871	Not Controlled Action (Particular Manner)	Post-Approval
Pomodoro 3D Marine Seismic Survey in WA-426-P and WA-427-P	2010/5472	Not Controlled Action (Particular Manner)	Post-Approval
Pyrenees 4D Marine Seismic Monitor Survey, HCA12A	2012/6579	Not Controlled Action (Particular Manner)	Post-Approval
Pyrenees-Macedon 3D marine seismic survey	2005/2325	Not Controlled Action (Particular Manner)	Post-Approval
Rose 3D Seismic Program	2008/4239	Not Controlled Action (Particular Manner)	Post-Approval
Rydal-1 Petroleum Exploration Well, WA	2012/6522	Not Controlled Action (Particular Manner)	Post-Approval
Salsa 3D Marine Seismic Survey	2010/5629	Not Controlled Action (Particular Manner)	Post-Approval
Santos Winchester three dimensional seismic survey - WA-323-P & WA-330-P	2011/6107	Not Controlled Action (Particular Manner)	Post-Approval
Skorpion Marine Seismic Survey WA	2001/416	Not Controlled Action (Particular Manner)	Post-Approval
Sovereign 3D Marine Seismic Survey	2011/5861	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Stybarrow 4D Marine Seismic Survey	2011/5810	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow Baseline 4D marine seismic survey	2008/4530	Not Controlled Action (Particular Manner)	Post-Approval
Tortilla 2D Seismic Survey, WA	2011/6110	Not Controlled Action (Particular Manner)	Post-Approval
Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R	2006/2609	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a three dimensional marine seismic survey	2010/5679	Not Controlled Action (Particular Manner)	Post-Approval
Vincent M1 and Enfield M5 4D Marine Seismic Survey	2010/5720	Not Controlled Action (Particular Manner)	Post-Approval
Warramunga Non-Inclusive 3D Seismic Survey	2008/4553	Not Controlled Action (Particular Manner)	Post-Approval
West Anchor 3D Marine Seismic Survey	2008/4507	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone 3D MAZ Marine Seismic Survey	2011/6058	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
3D Seismic Survey	2008/4219	Referral Decision	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Referral decision			
Bianchi 3D Marine Seismic Survey, Carnavon Basin, WA	2013/7078	Referral Decision	Completed
CVG 3D Marine Seismic Survey	2012/6270	Referral Decision	Completed
Enfield 4D Marine Seismic Surveys, Production Permit WA-28-L	2005/2370	Referral Decision	Completed
Rose 3D Seismic acquisition survey	2008/4220	Referral Decision	Completed
Stybarrow Baseline 4D Marine Seismic Survey (Permit Areas WA-255-P, WA-32-L, WA-	2008/4165	Referral Decision	Completed

Key Ecological Features [Resource Information]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Ancient coastline at 125 m depth contour	North-west
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	North-west
Continental Slope Demersal Fish Communities	North-west
Exmouth Plateau	North-west

Biologically Important Areas [Resource Information]

Scientific Name	Behaviour	Presence
Marine Turtles		
Caretta caretta Loggerhead Turtle [1763]	Internesting buffer	Known to occur
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting buffer	Known to occur
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Known to occur

Scientific Name	Behaviour	Presence
[Natator depressus](#) Flatback Turtle [59257]	Internesting buffer	Known to occur
Seabirds		
[Ardenna pacifica](#) Wedge-tailed Shearwater [84292]	Breeding	Known to occur
[Sternula nereis](#) Fairy Tern [82949]	Breeding	Known to occur
[Thalasseus bengalensis](#) Lesser Crested Tern [66546]	Breeding	Known to occur
Sharks		
[Rhincodon typus](#) Whale Shark [66680]	Foraging	Known to occur
Whales		
[Balaenoptera musculus brevicauda](#) Pygmy Blue Whale [81317]	Foraging	Known to occur
[Balaenoptera musculus brevicauda](#) Pygmy Blue Whale [81317]	Migration	Known to occur
[Megaptera novaeangliae](#) Humpback Whale [38]	Migration (north and south)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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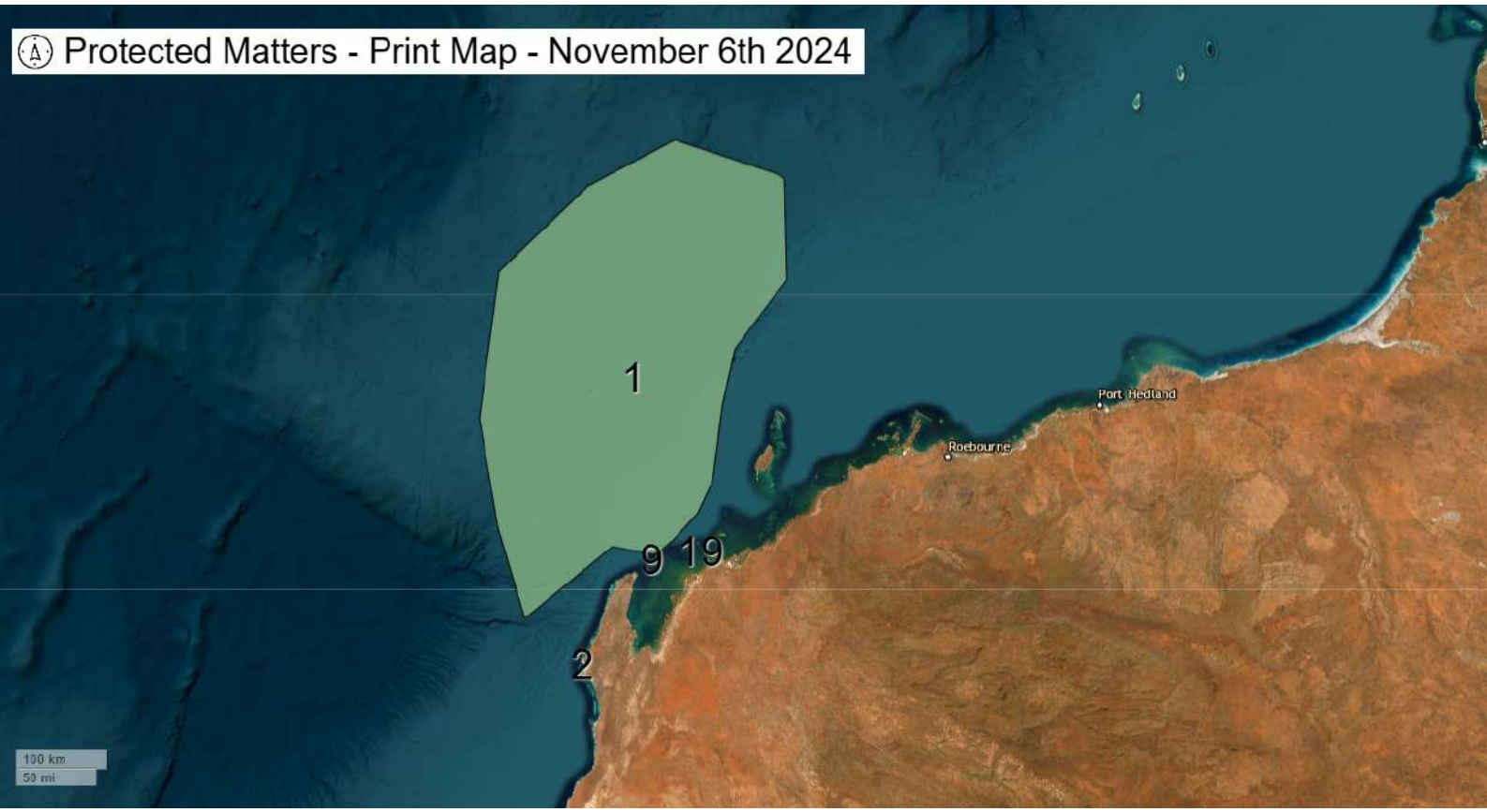
Protected Matters - Print Map - November 6th 2024
1
9
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Port Hedland
Roebourne
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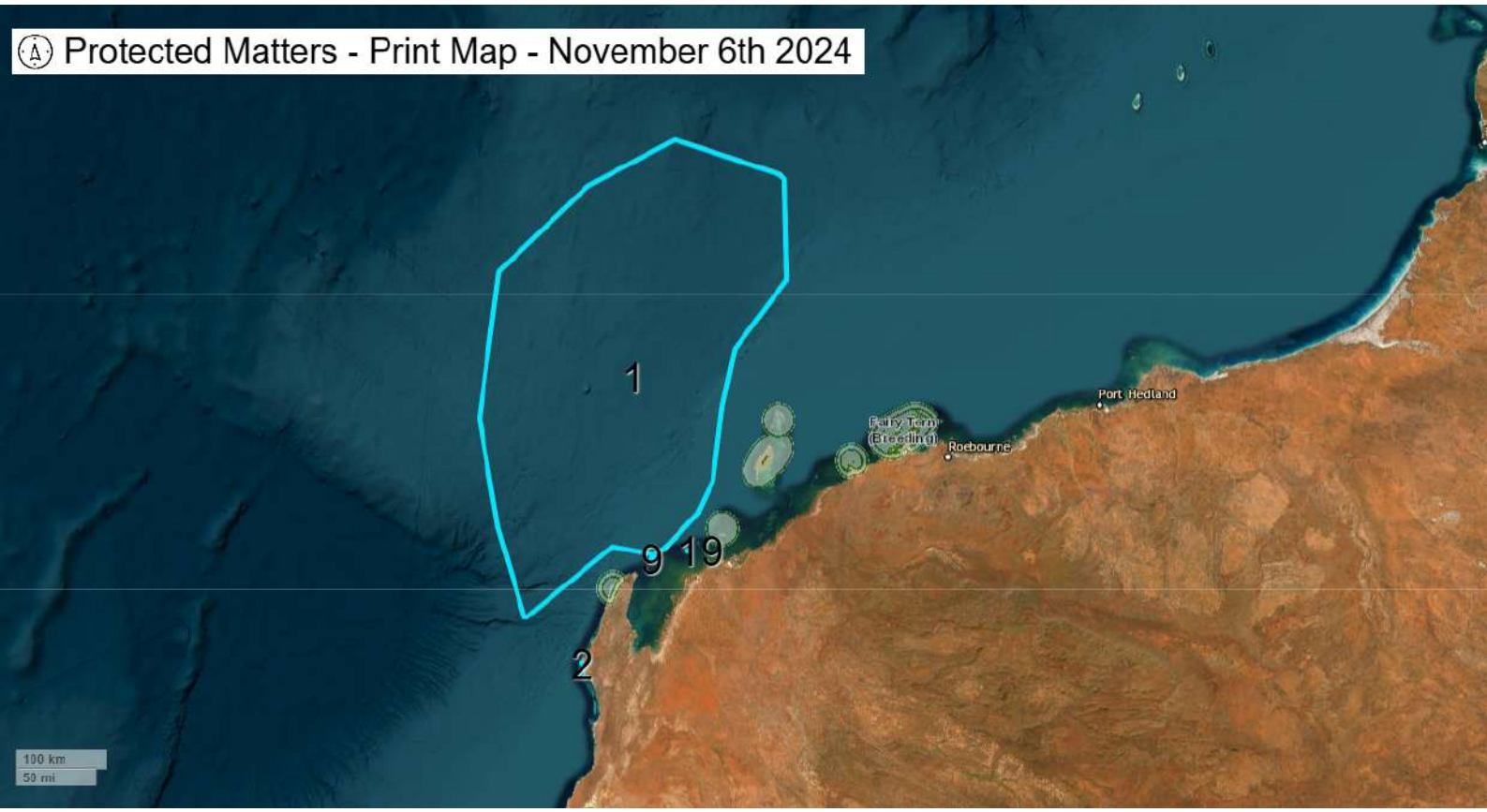
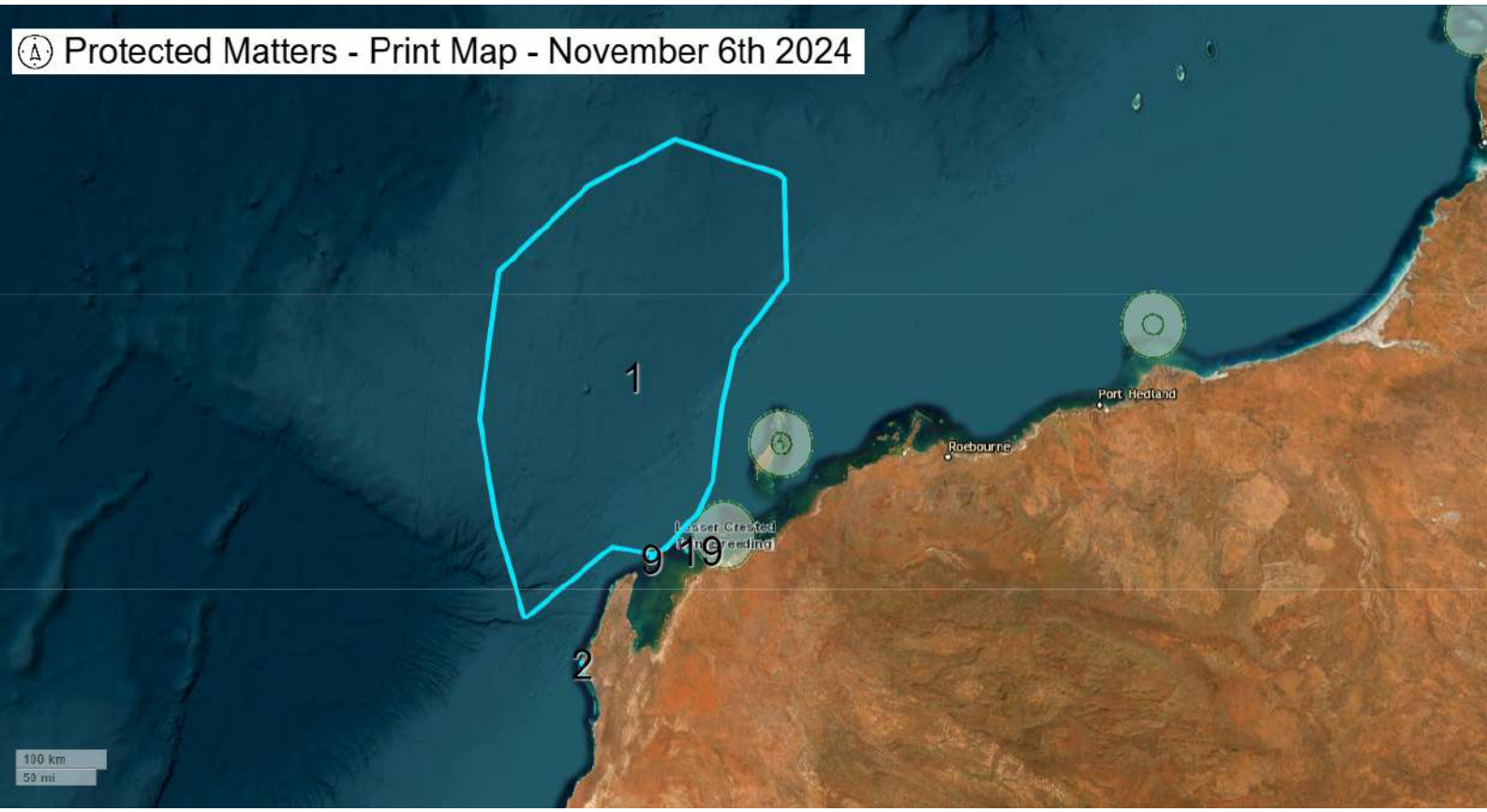
Appendix B - Hydrocarbon Social EMBA and fairy tern BIA



Appendix B - Hydrocarbon Social EMBA and lesser crested BIA



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 06-Nov-2024

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	1
National Heritage Places:	1
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	2
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	40
Listed Migratory Species:	60

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:	97
Whales and Other Cetaceans:	30
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	2
Habitat Critical to the Survival of Marine Turtles:	4

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	6
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	123
Key Ecological Features (Marine):	4
Biologically Important Areas:	21
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties		[Resource Information]
Name	State	Legal Status
The Ningaloo Coast	WA	Declared property

National Heritage Places		[Resource Information]
Name	State	Legal Status
Natural		
The Ningaloo Coast	WA	Listed place

Commonwealth Marine Area	[Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name
Commonwealth Marine Areas (EPBC Act)
Commonwealth Marine Areas (EPBC Act)

Listed Threatened Species		[Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text
BIRD		
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Vulnerable	Species or species habitat likely to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii		
Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Endangered	Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Phaethon rubricauda westralis Red-tailed Tropicbird (Indian Ocean), Indian Ocean Red-tailed Tropicbird [91824]	Endangered	Species or species habitat likely to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Thalassarche carteri		
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche impavida		
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area
FISH		
Milyeringa veritas		
Cape Range Cave Gudgeon, Blind Gudgeon [66676]	Vulnerable	Species or species habitat may occur within area
MAMMAL		
Balaenoptera borealis		
Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera musculus		
Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus		
Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Eubalaena australis		
Southern Right Whale [40]	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
Petrogale lateralis lateralis		
Black-flanked Rock-wallaby, Mororong, Black-footed Rock Wallaby [66647]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Rhinonicteris aurantia (Pilbara form)		
Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat 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 foliosquama		
Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Caretta caretta		
Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas		
Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea		
Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
SHARK		
Carcharias taurus (west coast population)		
Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area
Carcharodon carcharias		
White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Pristis clavata		
Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Ardenna pacifica Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat 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
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat known to occur within area
Sterna dougallii Roseate Tern [817]		Breeding likely to occur within area
Sternula albifrons Little Tern [82849]		Species or species habitat may occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat likely to occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
Carcharias taurus Grey Nurse Shark [64469]		Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Dugong dugon Dugong [28]		Breeding known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat likely to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sousa sahulensis as Sousa chinensis		
Australian Humpback Dolphin [87942]		Species or species habitat known to occur within area
Tursiops aduncus (Arafura/Timor Sea populations)		
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Hirundo rustica		
Barn Swallow [662]		Species or species habitat may occur within area
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Vulnerable	Species or species habitat likely to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Charadrius leschenaultii		
Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat 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
Limosa lapponica		
Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Pandion haliaetus		
Osprey [952]		Breeding known to occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to 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 known to occur within area
Anous stolidus		
Common Noddy [825]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Ardenna pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat likely to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
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 known to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat may occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Onychoprion fuscatus as Sterna fuscata Sooty Tern [90682]		Breeding known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat known to occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area
Sterna dougallii Roseate Tern [817]		Breeding likely to occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Sternula nereis as Sterna nereis		
Fairy Tern [82949]		Breeding known to occur within area
Thalassarche carteri		
Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche impavida		
Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalasseus bengalensis as Sterna bengalensis		
Lesser Crested Tern [66546]		Breeding known to occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area
Fish		
Acentronura larsonae		
Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area
Bulbonaricus brauni		
Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys tricarinatus		
Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma		
Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus		
Muiron Island Pipefish [66196]		Species or species habitat may occur within area
Choeroichthys suillus		
Pig-snouted Pipefish [66198]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus multiannulatus Many-banded Pipefish [66717]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
[Phoxocampus belcheri](#) Black Rock Pipefish [66719]		Species or species habitat may occur within area
[Solegnathus hardwickii](#) Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
[Solegnathus lettiensis](#) Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
[Solenostomus cyanopterus](#) Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
[Syngnathoides biaculeatus](#) Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
[Trachyrhamphus bicoarctatus](#) Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
[Trachyrhamphus longirostris](#) Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
[Dugong dugon](#) Dugong [28]		Breeding known to occur within area
Reptile		
[Aipysurus apraefrontalis](#) Short-nosed Sea Snake, Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat likely to occur within area
[Aipysurus duboisii](#) Dubois' Sea Snake, Dubois' Seasnake, Reef Shallows Sea Snake [1116]		Species or species habitat may occur within area
[Aipysurus foliosquama](#) Leaf-scaled Sea Snake, Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Aipysurus laevis Olive Sea Snake, Olive-brown Sea Snake [1120]		Species or species habitat may occur within area
Aipysurus mosaicus as Aipysurus eydouxii Mosaic Sea Snake [87261]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Sea Snake, Mjoberg's Sea Snake [1121]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area
Emydocephalus annulatus Eastern Turtle-headed Sea Snake [1125]		Species or species habitat may occur within area
Ephalophis greyae as Ephalophis greyi Mangrove Sea Snake [93738]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Hydrophis czeblukovi Fine-spined Sea Snake [59233]		Species or species habitat may occur within area
Hydrophis elegans Elegant Sea Snake, Bar-bellied Sea Snake [1104]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis kingii as Disteira kingii Spectacled Sea Snake [93511]		Species or species habitat may occur within area
Hydrophis major as Disteira major Olive-headed Sea Snake [93512]		Species or species habitat may occur within area
Hydrophis ornatus Spotted Sea Snake, Ornate Reef Sea Snake [1111]		Species or species habitat may occur within area
Hydrophis peronii as Acalyptophis peronii Horned Sea Snake [93509]		Species or species habitat may occur within area
Hydrophis platura as Pelamis platurus Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area
Hydrophis stokesii as Astrotia stokesii Stokes' Sea Snake [93510]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area

Whales and Other Cetaceans		[Resource Information]
Current Scientific Name	Status	Type of Presence
Mammal		
Balaenoptera acutorostrata Minke Whale [33]		Species or species habitat may occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area

Current Scientific Name	Status	Type of Presence
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenodelphis hosei Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat likely to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahulensis Australian Humpback Dolphin [87942]		Species or species habitat known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks [Resource Information]

Park Name	Zone & IUCN Categories
Gascoyne	Habitat Protection Zone (IUCN IV)
Gascoyne	Multiple Use Zone (IUCN VI)

Habitat Critical to the Survival of Marine Turtles [Resource Information]

Scientific Name	Behaviour	Presence
Aug - Sep		
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur
Nov-Feb		
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur
Nov - May		
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur

Scientific Name	Behaviour	Presence

Extra Information

State and Territory Reserves		[Resource Information]
Protected Area Name	Reserve Type	State
Cape Range (South)	National Park	WA
Muiron Islands	Nature Reserve	WA
Muiron Islands	Marine Management Area	WA
Ningaloo	Marine Park	WA
Nyingguulu (Ningaloo) Coastal Reserve	5(1)(h) Reserve	WA
Serrurier Island	Nature Reserve	WA

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Gorgon Gas Development	2003/1294		Post-Approval
Project Highclere Cable Lay and Operation	2022/09203		Completed
Action clearly unacceptable			
Highlands 3D Marine Seismic Survey	2012/6680	Action Clearly Unacceptable	Completed
Controlled action			
'Van Gogh' Petroleum Field Development	2007/3213	Controlled Action	Post-Approval
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
Develop Jansz-Io deepwater gas field in Permit Areas WA-18-R, WA-25-R and WA-26-	2005/2184	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Development of Coniston/Novara fields within the Exmouth Sub-basin	2011/5995	Controlled Action	Post-Approval
Development of Stybarrow petroleum field incl drilling and facility installation	2004/1469	Controlled Action	Post-Approval
Enfield full field development	2001/257	Controlled Action	Post-Approval
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval
Greater Enfield (Vincent) Development	2005/2110	Controlled Action	Post-Approval
Light Crude Oil Production	2001/365	Controlled Action	Post-Approval
Pluto Gas Project	2005/2258	Controlled Action	Completed
Pluto Gas Project Including Site B	2006/2968	Controlled Action	Post-Approval
Pyrenees Oil Fields Development	2005/2034	Controlled Action	Post-Approval
The Scarborough Project - FLNG & assoc subsea infrastructure, Carnarvon Basin	2013/6811	Controlled Action	Post-Approval
Vincent Appraisal Well	2000/22	Controlled Action	Post-Approval
Not controlled action			
'Van Gogh' Oil Appraisal Drilling Program, Exploration Permit Area WA-155-P(1)	2006/3148	Not Controlled Action	Completed
Bollinger 2D Seismic Survey 200km North of North West Cape WA	2004/1868	Not Controlled Action	Completed
Bultaco-2, Laverda-2, Laverda-3 and Montesa-2 Appraisal Wells	2000/103	Not Controlled Action	Completed
Carnarvon 3D Marine Seismic Survey	2004/1890	Not Controlled Action	Completed
Cazadores 2D seismic survey	2004/1720	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for	2004/1703	Not Controlled Action	Completed
Controlled Source Electromagnetic Survey	2007/3262	Not Controlled Action	Completed
Development of Halyard Field off the west coast of WA	2010/5611	Not Controlled Action	Completed
Exploration drilling well WA-155-P(1)	2003/971	Not Controlled Action	Completed
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed
Exploration Well in Permit Area WA-155-P(1)	2002/759	Not Controlled Action	Completed
Exploratory drilling in permit area WA-225-P	2001/490	Not Controlled Action	Completed
HCA05X Macedon Experimental Survey	2004/1926	Not Controlled Action	Completed
Hess Exploration Drilling Programme	2007/3566	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed
Infill Production Well (Griffin-9)	2001/417	Not Controlled Action	Completed
Jansz-2 and 3 Appraisal Wells	2002/754	Not Controlled Action	Completed
Klammer 2D Seismic Survey	2002/868	Not Controlled Action	Completed
Montesa-1 and Bultaco-1 Exploration Wells	2000/102	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
Subsea Gas Pipeline From Stybarrow Field to Griffin Venture Gas Export Pipeline	2005/2033	Not Controlled Action	Completed
Wanda Offshore Research Project, 80 km north-east of Exmouth, WA	2018/8293	Not Controlled Action	Completed
Wheatstone 3D seismic survey, 70km north of Barrow Island	2004/1761	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
'Kate' 3D marine seismic survey, exploration permits WA-320-P and WA-345-P, 60km	2005/2037	Not Controlled Action (Particular Manner)	Post-Approval
'Tourmaline' 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-32	2005/2282	Not Controlled Action (Particular Manner)	Post-Approval
"Leanne" offshore 3D seismic exploration, WA-356-P	2005/1938	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D seismic surveys	2005/2151	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey	2012/6296	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey	2008/4281	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P	2003/1271	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey over petroleum title WA-268-P	2007/3458	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Surveys - Contos CT-13 & Supertubes CT-13, offshore WA	2013/6901	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, WA	2008/4428	Not Controlled Action (Particular Manner)	Post-Approval
Apache Northwest Shelf Van Gogh Field Appraisal Drilling Program	2007/3495	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
Artemis-1 Drilling Program (WA-360-P)	2010/5432	Not Controlled Action (Particular Manner)	Post-Approval
Babylon 3D Marine Seismic Survey, Commonwealth Waters, nr Exmouth WA	2013/7081	Not Controlled Action (Particular Manner)	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled Action (Particular Manner)	Post-Approval
Bonaventure 3D seismic survey	2006/2514	Not Controlled Action (Particular Manner)	Post-Approval
CGGVERITAS 2010 2D Seismic Survey	2010/5714	Not Controlled Action (Particular Manner)	Post-Approval
Charon 3D Marine Seismic Survey	2007/3477	Not Controlled Action (Particular Manner)	Post-Approval
Coverack Marine Seismic Survey	2001/399	Not Controlled Action (Particular Manner)	Post-Approval
Cue Seismic Survey within WA-359-P, WA-361-P and WA-360-P	2007/3647	Not Controlled Action (Particular Manner)	Post-Approval
CVG 3D Marine Seismic Survey	2012/6654	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Drilling Program	2010/5532	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260	Not Controlled Action (Particular Manner)	Post-Approval
Draeck 3D Marine Seismic Survey, WA-205-P	2006/3067	Not Controlled Action (Particular Manner)	Post-Approval
Drilling 35-40 offshore exploration wells in deep water	2008/4461	Not Controlled Action (Particular Manner)	Post-Approval
Eendracht Multi-Client 3D Marine Seismic Survey	2009/4749	Not Controlled Action (Particular Manner)	Post-Approval
Enfield M3 & Vincent 4D Marine Seismic Surveys	2008/3981	Not Controlled Action (Particular Manner)	Completed
Enfield M3 4D, Vincent 4D & 4D Line Test Marine Seismic Surveys	2008/4122	Not Controlled Action (Particular Manner)	Post-Approval
Enfield M4 4D Marine Seismic Survey	2008/4558	Not Controlled Action (Particular Manner)	Post-Approval
Enfield oilfield 3D Seismic Survey	2006/3132	Not Controlled Action (Particular Manner)	Post-Approval
Exmouth West 2D Marine Seismic Survey	2008/4132	Not Controlled Action (Particular Manner)	Post-Approval
Exploration drilling of Zeus-1 well	2008/4351	Not Controlled Action (Particular Manner)	Post-Approval
Foxhound 3D Non-Exclusive Marine Seismic Survey	2009/4703	Not Controlled Action (Particular Manner)	Post-Approval
Gazelle 3D Marine Seismic Survey in WA-399-P and WA-42-L	2010/5570	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Geco Eagle 3D Marine Seismic Survey	2008/3958	Not Controlled Action (Particular Manner)	Post-Approval
Glencoe 3D Marine Seismic Survey WA-390-P	2007/3684	Not Controlled Action (Particular Manner)	Post-Approval
Guacamole 2D Marine Seismic Survey	2008/4381	Not Controlled Action (Particular Manner)	Post-Approval
Harmony 3D Marine Seismic Survey	2012/6699	Not Controlled Action (Particular Manner)	Post-Approval
Honeycombs MC3D Marine Seismic Survey	2012/6368	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas MC3D Marine Seismic Survey (HZ-13) Carnarvon Basin, offshore WA	2013/7003	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas phase 2 marine seismic survey, Exmouth Plateau, Northern Carnarvon Basin, WA	2013/7093	Not Controlled Action (Particular Manner)	Post-Approval
John Ross & Rosella Off Bottom Cable Seismic Exploration Program	2008/3966	Not Controlled Action (Particular Manner)	Post-Approval
Julimar Brunello Gas Development Project	2011/5936	Not Controlled Action (Particular Manner)	Post-Approval
Klimt 2D Marine Seismic Survey	2007/3856	Not Controlled Action (Particular Manner)	Post-Approval
Laverda 3D Marine Seismic Survey and Vincent M1 4D Marine Seismic Survey	2010/5415	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Leopard 2D marine seismic survey	2005/2290	Not Controlled Action (Particular Manner)	Post-Approval
Lion 2D Marine Seismic Survey	2007/3777	Not Controlled Action (Particular Manner)	Post-Approval
Macedon Gas Field Development	2008/4605	Not Controlled Action (Particular Manner)	Post-Approval
Marine reconnaissance survey	2008/4466	Not Controlled Action (Particular Manner)	Post-Approval
Munmorah 2D seismic survey within permits WA-308/9-P	2003/970	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Program, WA-264-P	2007/3844	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Survey	2005/2017	Not Controlled Action (Particular Manner)	Post-Approval
Orcus 3D Marine Seismic Survey in WA-450-P	2010/5723	Not Controlled Action (Particular Manner)	Post-Approval
Osprey and Dionysus Marine Seismic Survey	2011/6215	Not Controlled Action (Particular Manner)	Post-Approval
Palta-1 exploration well in Petroleum Permit Area WA-384-P	2011/5871	Not Controlled Action (Particular Manner)	Post-Approval
Pomodoro 3D Marine Seismic Survey in WA-426-P and WA-427-P	2010/5472	Not Controlled Action (Particular Manner)	Post-Approval
Pyrenees 4D Marine Seismic Monitor Survey, HCA12A	2012/6579	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Pyrenees-Macedon 3D marine seismic survey	2005/2325	Not Controlled Action (Particular Manner)	Post-Approval
Rose 3D Seismic Program	2008/4239	Not Controlled Action (Particular Manner)	Post-Approval
Rydal-1 Petroleum Exploration Well, WA	2012/6522	Not Controlled Action (Particular Manner)	Post-Approval
Salsa 3D Marine Seismic Survey	2010/5629	Not Controlled Action (Particular Manner)	Post-Approval
Santos Winchester three dimensional seismic survey - WA-323-P & WA-330-P	2011/6107	Not Controlled Action (Particular Manner)	Post-Approval
Skorpion Marine Seismic Survey WA	2001/416	Not Controlled Action (Particular Manner)	Post-Approval
Sovereign 3D Marine Seismic Survey	2011/5861	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow 4D Marine Seismic Survey	2011/5810	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow Baseline 4D marine seismic survey	2008/4530	Not Controlled Action (Particular Manner)	Post-Approval
Tortilla 2D Seismic Survey, WA	2011/6110	Not Controlled Action (Particular Manner)	Post-Approval
Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R	2006/2609	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Undertake a three dimensional marine seismic survey	2010/5679	Not Controlled Action (Particular Manner)	Post-Approval
Vincent M1 and Enfield M5 4D Marine Seismic Survey	2010/5720	Not Controlled Action (Particular Manner)	Post-Approval
Warramunga Non-Inclusive 3D Seismic Survey	2008/4553	Not Controlled Action (Particular Manner)	Post-Approval
West Anchor 3D Marine Seismic Survey	2008/4507	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone 3D MAZ Marine Seismic Survey	2011/6058	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
3D Seismic Survey	2008/4219	Referral Decision	Completed
Bianchi 3D Marine Seismic Survey, Carnavon Basin, WA	2013/7078	Referral Decision	Completed
CVG 3D Marine Seismic Survey	2012/6270	Referral Decision	Completed
Enfield 4D Marine Seismic Surveys, Production Permit WA-28-L	2005/2370	Referral Decision	Completed
Rose 3D Seismic acquisition survey	2008/4220	Referral Decision	Completed
Stybarrow Baseline 4D Marine Seismic Survey (Permit Areas WA-255-P, WA-32-L, WA-	2008/4165	Referral Decision	Completed

Key Ecological Features [Resource Information]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Ancient coastline at 125 m depth contour	North-west
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	North-west
Continental Slope Demersal Fish Communities	North-west
Exmouth Plateau	North-west

Biologically Important Areas [Resource Information]

Scientific Name	Behaviour	Presence
Dugong		
Dugong dugon Dugong [28]	Breeding	Known to occur
Dugong dugon Dugong [28]	Calving	Known to occur
Dugong dugon Dugong [28]	Foraging (high density seagrass beds)	Known to occur
Dugong dugon Dugong [28]	Nursing	Known to occur
Marine Turtles		
Caretta caretta Loggerhead Turtle [1763]	Internesting buffer	Known to occur
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting buffer	Known to occur
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Known to occur

Scientific Name	Behaviour	Presence
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
Seabirds		
Ardenna pacifica Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sternula nereis Fairy Tern [82949]	Breeding	Known to occur
Thalasseus bengalensis Lesser Crested Tern [66546]	Breeding	Known to occur
Sharks		
Rhincodon typus Whale Shark [66680]	Foraging	Known to occur
Rhincodon typus Whale Shark [66680]	Foraging (high density prey)	Known to occur
Whales		
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Foraging	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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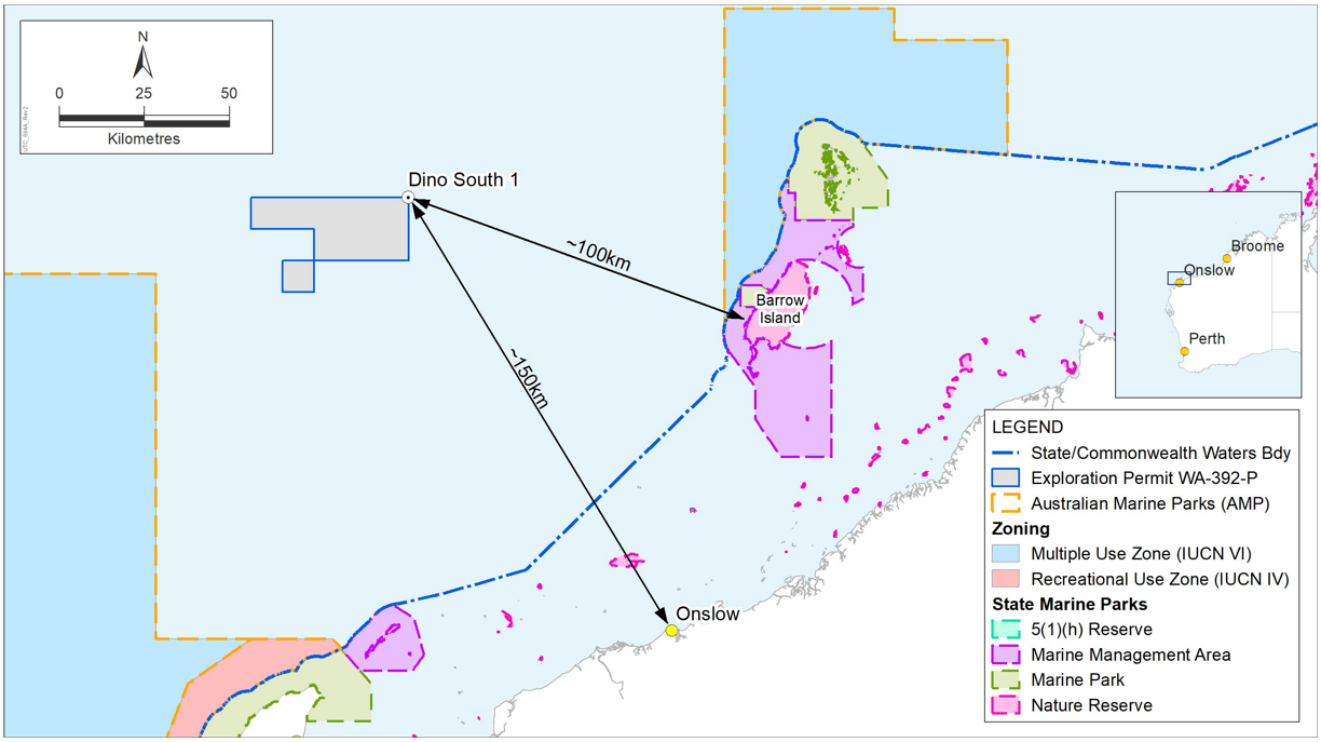
Appendix c. consultation material

dino south-1 exploration drilling

environment plan stakeholder consultation

May 2022



overview

Chevron Australia is planning to conduct exploration drilling within the Northern Carnarvon Basin off the northwest coast of Western Australia during 2023.

The proposed exploration well, Dino South-1, is targeting a dry gas reservoir within exploration permit WA-392-P in Commonwealth waters.

location and water depth

The proposed Dino South-1 exploration well is located ~150 km northwest of Onslow, and ~100 km west of Barrow Island, in water depths of~954 m and at the coordinates in the following table.

Latitude (WGS 84)	Longitude (WGS 84)
-20.499	114.417

An Operational Area, with a 5 km radius around the location of the Dino South-1 exploration well, has been set and all petroleum activities will be undertaken within this Operational Area

schedule and duration

Exploration drilling activities are scheduled to commence during Q2/Q3 2023, subject to approvals and drill rig availability.

The drilling and associated activities are estimated to take ~50 days to complete. Activities will be conducted 24 hours/day and 7 days/week.

activity summary

The petroleum activity includes:

- MODU positioning and general operations

- drilling
- formation evaluation
- well plug and abandonment
- field support (general vessel, helicopter, and ROV operations).

A semi-submersible mobile offshore drilling unit (MODU) will be used for the exploration drilling at Dino South-1, with up to two vessels supporting the activities. The MODU will be positioned using a mooring system. General operational activities occurring at the MODU include bunkering, bulk transfers of materials or supplies, solids control, and use of the helipad for personnel transfers.

Well design and drilling methods will be defined within the Well Operations Management Plan. The exploration drilling may use several types of drill fluids including seawater with high-viscosity gel sweeps, water-based muds, non-aqueous drill fluids, and/or potassium chloride. A blowout preventer will be installed after the top-hole section has been completed.

A standard data acquisition program is planned for formation evaluation, including mudlogging and logging while drilling.

Following completion of the drilling and evaluation activities, the Dino South-1 well will be permanently plugged and abandoned, and the wellhead removed.

exclusion zone

A 500 m safety exclusion zone will be requested around the MODU for the duration of the exploration drilling activities.

approvals process

Petroleum activities in Commonwealth waters are regulated by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Before petroleum activities can take place, Chevron Australia must develop an Environment Plan which will be assessed by NOPSEMA in accordance with the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations (2009).

The Environment Plan will describe the environment in which the petroleum activity takes place, an assessment of the potential environmental impacts and risks arising from the activity, and the identification of control measures to manage environmental impacts and risks to acceptable levels that are as low as reasonably practicable.

The Environment Plan is also required to describe how relevant stakeholders, whose interests, functions or activities may be affected, have been identified, engaged and consulted. The Environment Plan must include how feedback has been considered and addressed.

commercial fishing

Chevron Australia recognises the commercial fishing sector is an important and relevant stakeholder group whose members may be affected by the exploration drilling.

Chevron Australia is committed to engaging early and working proactively with the commercial fishing sector and will provide responses to any stakeholders that identify an interest in our planned activities.

implications for stakeholders

Chevron Australia define an aspect as an element of an activity that has the potential to interact with the environment. Relevant potential impacts and risks are identified for each of these aspects and evaluated in detail within the Environment Plan. Control measures are assigned to each aspect to eliminate, prevent, reduce, or mitigate consequences associated with each identified environmental impact and risk.

The aspects and the proposed control measures to be implemented during exploration drilling are summarised in the following table.

Further details will be provided in the Environment Plan and will incorporate feedback generated during the consultation process.

Aspect	Proposed control measures
Physical presence	• Marine safety information to be issued via AUSCOAST and/or Notice to Mariners prior to commencing activities. • Relevant stakeholders will be advised of the commencement of activities and any relevant exclusion zone information. • Vessels will meet the crew competency, navigation equipment, and radar requirements of Chevron Australia's Marine, Safety Reliability and Efficiency (MSRE) process. • In accordance with *EPBC Regulations 2000 – Part 8 Division 8.1 – Interacting with cetaceans*, vessels will implement caution and no approach zones, where practicable.
Seabed disturbance	• Mooring analysis will be undertaken before MODU anchoring, as per the requirements of API RP 2SK (Design and analysis of stationkeeping systems for floating structures). • Monitoring of mooring line tension as per the requirements of ISO 19901-7:2013 (Stationkeeping systems for floating offshore structures and mobile offshore units) • Vessels will meet the crew competency, navigation equipment, and radar requirements of Chevron Australia's MSRE process.

Air emissions	• Vessels will comply with the requirements of Marine Order 97 (MARPOL 73/78 Annex VI), including:
	  • sulfur content of fuel oils
	  • nitrous oxides emissions limits
	  • having a valid International Air Pollution Prevention Certificate
	  • having a valid Ship Energy Efficiency Management Plan (appropriate to vessel class).

Underwater sound	• In accordance with *EPBC Regulations 2000 – Part 8 Division 8.1 – Interacting with cetaceans*, vessels will implement caution and no approach zones, where practicable.
Invasive marine pests	• Vessels will meet the requirements of Chevron Australia's Quarantine Procedure for Marine Vessels. • Ballast water exchanges will be managed in accordance with the Australian Ballast Water Management Requirements. • Vessels will comply with the requirements of Marine Order 98 in relation to anti-fouling systems. • Where required, vessel pre-arrival information will be reported through the Maritime Arrivals Reporting System as per the Commonwealth *Biosecurity Act 2015*.
Planned discharge (MODU and vessel operations)	• Vessels will comply with the requirements of Marine Order 96 (MARPOL 73/78 Annex IV) in relation to sewage discharge. • Vessels will comply with the requirements of Marine Order 95 (MARPOL 73/78 Annex V) in relation to food waste discharge. • Vessels will comply with the requirements of Marine Order 91 (MARPOL 73/78 Annex I) in relation to oily bilge water discharges.
Planned discharges (drilling)	• Hazardous materials that will be discharged to the environment will undergo a detailed environmental assessment prior to commencement of activities, as per Chevron Australia's Hazardous Materials Management Procedure. • Discharges of drilling fluids and cuttings will be managed in accordance with Chevron Australia's Well Fluid Field Guidelines Offshore. • Drilling and cementing procedures will be in place prior to commencement of activities. • Critical equipment will be maintained in accordance with manufacturers specifications.
Unplanned release (waste)	• Vessels will comply with the requirements of Marine Order 95 (MARPOL 73/78 Annex V) in relation to managing waste offshore.
Unplanned release (minor loss of containment)	• Vessels will meet the requirements of Chevron Australia's MSRE process, including the pre-mobilisation inspections of equipment, couplings, containment, and bunkering procedures. • Hazardous materials that could be discharged to the environment will undergo a detailed environmental assessment prior to commencement of activities, as per Chevron Australia's Hazardous Materials Management Procedure. • Critical equipment will be maintained in accordance with manufacturers specifications. • Bulk transfers of drilling fluids to be undertaken in accordance with Chevron Australia's Well Fluid Field Guidelines Offshore.

Aspect	Proposed control measures
	• Vessels will comply with the requirements of Marine Order 91 (MARPOL 73/78 Annex I) in relation to having an approved Ship Oil Pollution Emergency Plan in place.
Unplanned release (vessel spill)	• Vessels will meet the crew competency, navigation equipment, and radar requirements of Chevron Australia's MSRE process. • Marine safety information to be issued via AUSCOAST and/or Notice to Mariners prior to commencing activities. • Vessels will comply with the requirements of Marine Order 91 (MARPOL 73/78 Annex I) in relation to having an approved Ship Oil Pollution Emergency Plan in place. • Emergency response implemented in accordance with the response arrangements and strategies detailed in Chevron Australia's Oil Pollution Emergency Plan. • Where required, operational and scientific monitoring undertaken in accordance with Chevron Australia's Operational and Scientific Monitoring Plan.
Unplanned release (loss of well control)	• A NOPSEMA-accepted Well Operations Management Plan will be in place prior to the commencement of activities. • Certifications as required by Chevron Australia's Wellsafe Standard Operating Procedure will be in place prior to commencement of activities. • A blowout preventer will be installed and tested. • Critical equipment will be maintained in accordance with manufacturers specifications. • Emergency response (including source control) implemented in accordance with the response arrangements and strategies detailed in Chevron Australia's Oil Pollution Emergency Plan. • Where required, operational and scientific monitoring undertaken in accordance with Chevron Australia's Operational and Scientific Monitoring Plan.

providing feedback

Feedback from stakeholders on potential or perceived impacts associated with Chevron Australia's activities will be carefully considered and assessed.

Please note Chevron Australia is required to include stakeholder feedback and Chevron Australia's response to that feedback, in the Environment Plan.

If feedback is identified as sensitive by a stakeholder, Chevron Australia will make this known to NOPSEMA in order for the information to remain confidential.

Feedback can be directed to:

Jeff Hunter
HSE - Regulatory Affairs Advisor
abuenvplaninfo@chevron.com
(08) 9216 4525

relevant persons information

dino south-1 exploration drilling

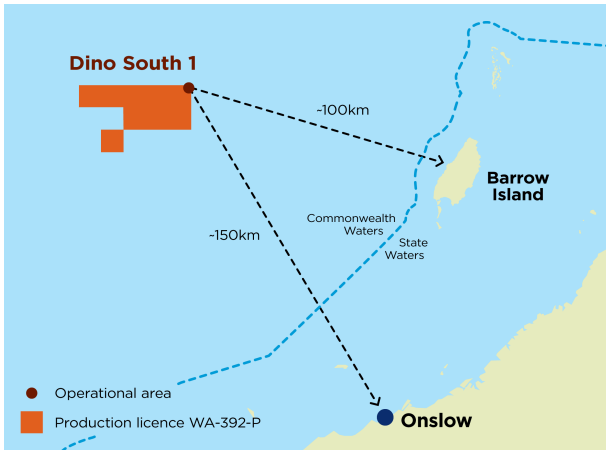
Chevron Australia is planning to conduct exploration drilling within the Northern Carnarvon Basin off the northwest coast of Western Australia between 2023 and 2025, to search for and confirm new gas resources.

The proposed exploration well, Dino South-1, is targeting a dry gas reservoir within exploration permit WA-392-P in Commonwealth waters.

location and water depth

The proposed well is located approximately 150 kilometres northwest of Onslow, and approximately 100 kilometres west of Barrow Island, at -20.499 latitude and 114.417 longitude, at a depth of approximately 954 meters.

All activities will be undertaken within a five-kilometre radius of the well.



Jump to detailed maps below

schedule and duration

Drilling is scheduled to commence between 2023 and 2025, subject to approvals and drill rig availability. Activities will be conducted 24/7 for up to approximately 50 days.

activity summary

A mobile offshore drilling unit (MODU) will drill a well below the seabed. It may be supported by up to three vessels.

The well will be drilled and a casing will be cemented into the ocean floor. The well is then drilled deeper from inside the casing. Following the shallow hole drilling a wellhead is installed on the seabed to support the deeper casings.

A blow-out preventer will be installed on top of the wellhead to enable control and monitoring of the well during drilling operations and to prevent an uncontrolled water, oil or gas flow out of the well.

A marine riser will be installed to provide a physical connection between the well and the MODU.

The process of drilling and casing the hole continues until the target gas reservoir of the well is reached.

Upon reaching the target gas reservoir, experts will evaluate the geological formation.

Once these activities are completed, the well will be plugged with cement at various depths and the wellhead will be removed below the seabed.

EMBA – environment that may be affected

Drilling activities will have the potential for environment interactions, known as ‘aspects’.

All planned aspects can result in environmental impacts and changes to the environment and may present environmental risks within the operational area, with the exception of underwater sound emission, which could extend approximately 14 kilometres from the source.

Unplanned releases and events may occur while conducting activities.

The size of the ‘environment that may be affected’, also known as an ‘EMBA’ is based on an emergency condition’s worst case environmental scenario, which in this case is an unplanned spill event from a loss of well control.

The EMBA has been defined through combining 300 simulations of loss of well control under three different hydrological and meteorological conditions. Figure 2 shows the EMBA.

Control measures to prevent this event are in place, but Chevron Australia is required to assess this highly unlikely scenario.

In this scenario, cultural, ecological and social values and sensitivities may be exposed to hydrocarbons. These are considered environmental risks because they are not

planned to occur.

Table 1 lists the potential environmental impacts, risks and control measures.

marine exclusion zone

A 500-metre safety exclusion zone will be requested around the drilling unit for the duration of the exploration drilling activities.

approvals process

Petroleum activities in Commonwealth waters are regulated by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). Before petroleum activities can take place, Chevron Australia must develop an Environment Plan which will be assessed by NOPSEMA in accordance with the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations (2009). These regulations require Chevron Australia to consult with relevant persons whose functions, interests and activities may be affected by the petroleum activity.

The Environment Plan will describe the environment in which the petroleum activity takes place, provide an assessment of the potential environmental impacts and risks arising from the activity, and identify control measures to manage environmental impacts and risks to acceptable levels that are as low as reasonably practicable.

The environment plans outline how Chevron Australia has engaged with 'relevant persons', whose interests, functions, and activities may be affected and how their feedback has been considered and addressed.

Exploratory drilling environment plans must be submitted to NOPSEMA and published on its website for a 30-day public comment period.

Chevron Australia welcomes feedback from relevant persons prior to the public comment period to ensure feedback is incorporated into the draft environment plan before it is submitted to NOPSEMA and published on NOPSEMA's website.

impacts, risks and proposed controls

Summary of impacts/risks and key proposed controls – view Table 1.

your feedback

We are committed to engaging with Traditional Owners and Custodians, commercial fishers, recreational groups and other relevant individuals and organisations, as required by regulation.

We are seeking your feedback if you consider your **functions**, **interests** or **activities** may be affected based on the information outlined in table 1.

Let us know if you consider there are any control measures we could implement to eliminate, reduce or avoid an effect.

You can contact us tollfree at **1800 225 195** or leave feedback online below.

If a relevant person asks that their feedback be treated as confidential, Chevron Australia will make this known to NOPSEMA and the information will be kept confidential.

To begin providing feedback for **Dino South-1**, select a feedback category

what's next

Your feedback during the consultation period will be considered and incorporated into the environment plan.

We commit to keeping you informed and providing responses to any relevant person who so requests.

privacy notice

If you choose to provide feedback on this proposal, Chevron Australia will collect your name and contact details, in addition to your comments, for the purposes of maintaining contact with you and inclusion of your feedback in our submission to NOPSEMA. Provision of this information is purely voluntary, however if you choose not to provide it, we may not be able to contact you in the future regarding your submission. Chevron may transfer your information to NOPSEMA, if required and if you do not identify it as sensitive, and to other Chevron affiliates including our head office based in the United States. For further information regarding how we protect your personal information, and your rights, please refer to our privacy notice.

further information

detailed maps and tables

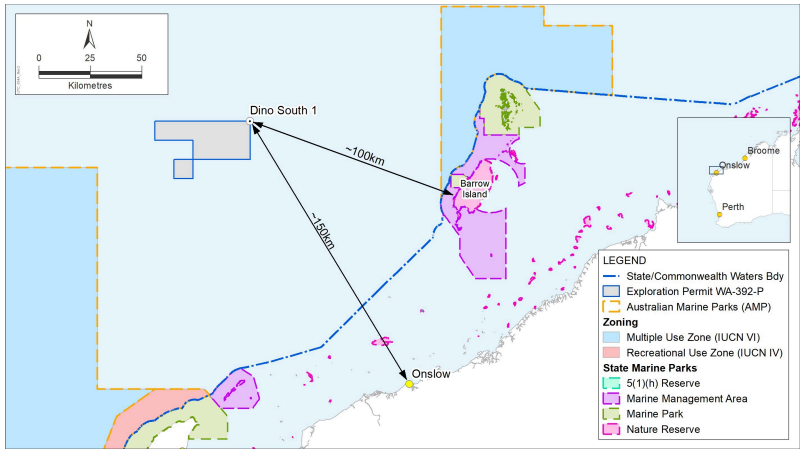


Figure 1: Location of Dino South-1

Figure 2: Dino-South EMBA.

Table 1: Summary of impacts/risks and key proposed controls – view here.

resources

- Consultation in the course of preparing an environment plan – NOPSEMA
- Environment plan content requirements – NOPSEMA
- Environmental requirements – NOPSEMA
- Offshore Petroleum Greenhouse Gas Storage (Environment) Regulations
- NOPSEMA Assessment Process Environment Plans
- Chevron Operational Excellence Management System (OEMS)

(Material for Newspaper Notices)

environment plans

seeking relevant persons' input

Chevron has been part of Australian energy since 1952 and over the past 70 years we've changed as the world's energy needs have changed.

Chevron Australia Pty Ltd (Chevron Australia) is planning several offshore petroleum activities and wish to consult with people and organisations whose functions, interests or activities may be affected.

We will use feedback we receive from relevant persons to enhance the environment plans for the activities, which will need to be reviewed and accepted by Australia's offshore energy regulator NOPSEMA.

Below is a list of the activities that can help you identify if you are a relevant person:

Jansz-Io subsea compression. Installation of a subsea compression station and associated infrastructure about 200 km off the northwest coast of Western Australia in about 1,350 m of water. Planned for mid-2024 to mid-2026.

Gorgon umbilical. Works on a control and electrical umbilical between the existing facility on Barrow Island and Gorgon gas field 65 km northwest of the island in about 200 m of water. Planned for late 2023/early 2024 to mid-2024.

Wheatstone 4D-seismic survey. The use of sound energy to develop a high-quality image of geological features in the Wheatstone and Iago gas fields about 150 km northwest of Dampier in 80 to 1,140 m of water. Planned for late 2023/early 2024.

Dino South and Wheatstone Deep exploration wells. Drilling an exploration well, about 150 km northwest of Onslow in 954 m of water, and a second one about 175 km northwest of the Port of Dampier in about 220 m of water. Planned for 2023 to 2025.

Wheatstone well intervention and infill drilling. Drilling up to seven new wells and repairs, maintenance and data acquisition at nine existing production wells in the Wheatstone and Iago fields, about 165 km northwest of Western Australia in 118 to 229 m of water. Planned for 2024 to 2028.

Wheatstone-2 and Gorgon and Jansz wellhead decommissioning. Decommissioning five wellheads by leaving them in place. The first is about 174 km northwest of the Port of Dampier in 213 m of water. The second is about 70 km northwest of Barrow Island in 258 m of water. The last three are 130 to 150 km northwest of Barrow Island in 1,313 to 1,347 m of water.

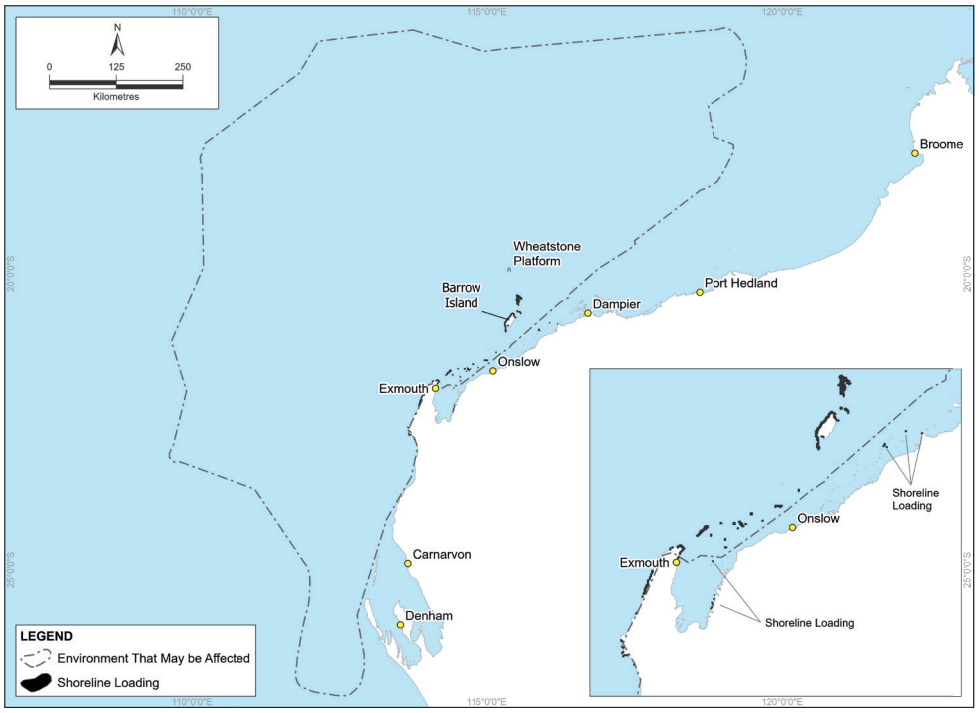
the environment that may be affected

We have assessed the planned impacts and unplanned risks from our proposed activities on the environment, including air and water quality, seabed habitat, marine fauna, and socioeconomic and cultural features.

The map shows a composite of the environments that may be affected by highly unlikely emergency conditions, including potential impacts to some shoreline from hydrocarbon loading. This is based on modelling for all the activities.

Chevron Australia has systematic control measures to prevent and mitigate emergencies and to reduce the impact of planned activities on the environment.

We are seeking your input on whether your functions, interests or activities may be affected within this area. These may include spiritual and cultural connection to land and sea country, commercial and recreational fishing, tourism, and local communities.



contact us

We are committed to meaningful consultation and providing information for people to make informed assessments. Please contact us by **Friday 10 March** to be included in consultations.

Visit **australia.chevron.com/feedback**, phone **1800 225 195** or use the **QR code** to provide feedback.

Chevron Australia Pty Ltd
(Chevron Australia)
ABN 29 086 197 757

(Chevron Australia LinkedIn post)

Chevron Australia · Following
19,376 followers
6mo

We are planning several offshore petroleum activities and wish to consult with people and organisations whose functions, interests or activities may be affected.

A list of activities and anticipated project dates that can help you identify if you are a relevant person can be accessed here > https://lnkd.in/gYkp-cxq

(Information session in Onslow)

[redacted]
Admin · March 2 ·

Chevron Environmental Plans Information Session –
Seeking Input on Offshore Petroleum Activities

Chevron invites the community of Onslow for a briefing on our proposed offshore petroleum activities.

We are seeking your input on whether your functions, interests or activities may be affected. These may include spiritual and cultural connection to land and sea country, commercial and recreational fishing, tourism, and local communities.

This is an opportunity to assist you to make an informed assessment on our activities. We will use feedback received to enhance the environment plans for the activities.

A list of the activities and the environment that may be affected is available here: https://bit.ly/3EOxlmn

To request more information, to arrange a meeting or to identify as a Relevant Person, please contact feedback@chevron.com

View insights 127 post reach

[redacted]
Admin · March 14 ·

Join Chevron tonight for a briefing on our proposed offshore petroleum activities.

We are seeking your input on whether your functions, interests or activities may be affected. We will use feedback received to enhance the environment plans for the activities.

Any queries, please email: feedback@chevron.com

View insights 111 post reach

From: Onslow Chamber of Commerce & Industry <secretary@onslowcci.com.au>
Sent: Monday, March 13, 2023 1:01 PM

View this email in your browser

OCCI ONSLOW CHAMBER OF COMMERCE & INDUSTRY

What's On

Chevron Seeks Input on Offshore Petroleum Activities

Date: Tuesday 14th March 2023
Time: 6:30pm
Venue: Onslow Sports Club

Chevron Australia invites the community of Onslow for a briefing on their proposed offshore petroleum activities.

They are seeking your input on whether your functions, interests or activities may be affected. These may include spiritual and cultural connection to land and sea country, commercial and recreational fishing, tourism, and local communities.

This is an opportunity to assist you to make an informed assessment on Chevron's activities. They will use feedback they receive to enhance the environment plans for the activities.

A list of the activities and the environment that may be affected is

environment plans

open for public comment

Chevron has been operating in Australia for more than 70 years – creating enduring benefits and delivering reliable, affordable energy. We welcome feedback to enhance our environmental management measures and support the ongoing supply of natural gas to Western Australia and the Asia Pacific region.

We have developed two Environment Plans for proposed exploration drilling within Commonwealth waters in the Northern Carnarvon Basin, Western Australia.

Dino South-1: will involve drilling an exploration well, about 150 kilometres northwest of Onslow and 100 kilometres west of Barrow Island in 954 metres of water.

Wheatstone Deep-1: will involve drilling an exploration well about 175 kilometres northwest of Dampier and 65 kilometres north of the Montebello Islands in about 220 metres of water.

We have actively consulted with the community, including Traditional Owners, commercial fishing groups and other relevant persons who may be affected by our activities.

This ongoing guidance and feedback helps us understand the values and sensitivities of the environment and further enhance our Environment Plans.

submit a comment

Australia's offshore energy regulator, the National Offshore Petroleum and Safety Management Authority (NOPSEMA) has now published both Environment Plans on its website for public comment.

This allows community members and stakeholders to review and provide feedback on environmental management matters related to our activities.

To view the Dino South-1 Exploration Drilling Environment Plan and Wheatstone Deep-1 Exploration Drilling Environment Plan or to submit a comment, visit **info.nopsema.gov.au** or scan the QR code.

what's next?

Once the public comment period closes, NOPSEMA will provide us with all information received from the public. We will take this into consideration before submitting the Environment Plans to NOPSEMA for assessment and acceptance.

contact us

We're committed to meaningful consultation and providing information for people to make informed assessments.

For more information on our proposed offshore activities visit **australia.chevron.com/feedback** or tollfree on **1800 225 195**.

Appendix d. summary of relevant persons consultation

Table of Contents

1.1 Regulation 25(1)(a)—each Commonwealth, State or Northern Territory agency or authority to which the activities to be carried out under the EP, or the revision of the EP, may be relevant

1.1.1 Commonwealth Departments or Agencies

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Australian Communications and Media Authority (ACMA)	08/05/2023	CN-000402	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage.	No objection or claim raised.		
	15/05/2023	OB-000880	Email	ACMA provided a response and raised the presence of subsea marine cables within the vicinity of CAPL Activities. ACMA encouraged CAPL to engage with the operators of any submarine cables in the vicinity of its activities, and recommended contacting AHO. ACMA stated that they do not require any further information from CAPL in relation to these activities at the current time.	1 AMCA raised the presence of subsea marine cables within the vicinity of CAPL activities. 2 ACMA identified relevant organisations to contact, including AHO and cable operators.	**Claims have merit:** 1 The presence of subsea marine cables within the region should be considered within the EP. 2 The identified stakeholders have the potential to be impacted by CAPL activities on the North West Shelf, therefore it is reasonable and appropriate to conduct engagement.	No action required. Submarine cables are already identified in Section 4.4.6. Further engagement with AHO and Vocus was conducted.
				Summary: • CAPL commenced consultation with ACMA on 8 May 2023 via formal written notification which provided an overview of the activity, information sheet and link to the Consultation Hub on CAPL's website. • ACMA responded to CAPLs email on 15 May 2023 noting they did not require any further information relating to the activity. • ACMA has not raised any objections or claims relating to the activity. However ACMA did provide feedback to CAPL and suggested engaging with operators of any submarine cables in the vicinity of its activities, and recommended contacting AHO. Further engagement with additional relevant persons was conducted. • CAPL has provided a reasonable period and sufficient information to ACMA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Australian Fisheries Management Authority (AFMA)	26/05/2022	CN-000073	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet. CAPL requested the organisation to confirm contact details for its correspondence. AFMA confirmed receipt of email and had no specific comments on the proposal. AFMA advised that it is important to consult with all fisheries who have entitlements to fish within the proposed area. AFMA provided website links to their website to identify relevant fishing industry associations and concession holders.	AFMA suggested engaging with operators who have entitlements to fish within the proposed area.	**Claim has merit:** As the activities have the potential to impact fishers, it is fair and reasonable to engage with fishers within the area.	No action required. CAPL has consulted with relevant fishing industry associations.
	15/02/2023-14/03/2024	CN-000214	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. AFMA provided other relevant industry associations CAPL should consult with. CAPL confirmed they have been engaging with WAFIC and have contacted the Northern Prawn Fishery (NPF) and Commonwealth Fishery Association (CFA).	AFMA suggested CAPL engage with: • Northern Prawn Fishery • Commonwealth Fisheries Association • North West Slope Trawl and Western Deepwater Trawl via CFA • Western Australia Fishing Industry Council (WAFIC).	**Claim has merit:** In accordance with CAPLs consultation approach, it is fair and reasonable to engage with fishers where the OA overlaps with a fishing management area and there is recent fishing effort. **Claim does not have merit:** AFMAs request for CAPL to contact the Western Deepwater Trawl fishery, via CFA, is not relevant to this EP. The licence area overlaps the OA but there has been no fishing effort recorded in the Operational Area in more than 10 years.	No action required. Over the course of consultation, CAPL has engaged with relevant fishers via their relevant industry associations.
				Summary: • CAPL commenced consultation with AFMA on 26 May 2022 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and information sheet. CAPL provided additional formal notification on 15 February 2023			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				overview of the activity, information sheet and link to the to the Consultation Hub on CAPL's website. • AFMA did not raise any objections or claims relating to the activity. However, AFMA did provide feedback to CAPL and suggested engaging with op erators who have entitlements to fish within the proposed area via the relevant industry association. CAPL emailed AFMA on 7 July 2023 to confirm it was consulting with relevant fishing bodies. • CAPL has provided a reasonable period and sufficient information to AFMA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Australian Hydrographic Office (AHO)	26/05/2022	CN-000072	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet. CAPL requested comments or feedback. AHO acknowledged receipt of the information sheet and email. AHO notified CAPL that the information and data provided will be registered, assessed, prioritised and validated in preparation for updating Navigational Charting products.	No objection or claim raised.		
	08/05/2023	CN-000416	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. AHO acknowledged receipt of email and notified CAPL that the data supplied will now be registered, assessed, prioritised and validated in preparation for updating our Navigational Charting products.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with AHO on 26 May 2022 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and information sheet. CAPL provided additional formal notification on 8 May 2023 overview of the activity, information sheet and link to the Consultation Hub on CAPL's website. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • AHO did not raise any objections or claims relating to the activity. AHO notified CAPL that they will use the information to update their Navigational Charting products. • CAPL has provided a reasonable period and sufficient information to AHO to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1)			
Australian Maritime Safety Authority (AMSA)	26/05/2022	CN-000078	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet. CAPL requested comments or feedback. AMSA notified CAPL that the Nautical Advice inbox is no longer monitored and that all future correspondence should be directed to the NavSafety@amsa.gov.au.	No objection or claim raised.		
	15/02/2023	CN-000537	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	3/07/2023	OB-000718	Email	AMSA requested information from CAPL regarding their upcoming activities for data analysis. CAPL responded and sent through the requested information. AMSA thanked CAPL for the information and advised that its activities would take place within charted sipping fairways. AMSA requested details on how CAPL would mitigate the risk of collision with these areas. AMSA also advised: • Notification requirements for the Joint Rescue Coordination Centre • AHO should be contacted before operations commence to notify mariners. • All vessels exhibit appropriate lights and shapes to reflect the nature of operations – and comply with the International Rules for Preventing Collisions at Sea (COLREGs). Vessels should also ensure their navigation status is set correctly in the ship's AIS unit.	AMSA raised the following: 1. Mitigation of risk of collision within charted shipping fairways 2. Requirement to notify JRCC before operations commence 3. Requirement to notify AHO before operations commence to notify mariners. 4. Lighting requirements comply with regulations	**Claims have merit:** All vessel collision, notification and lighting requirements are commonplace and industry standard. All claims are fair and reasonable for this offshore activity, and should be captured within the EP.	ALARP decision context justification' revised to include statement regarding receipt of one claim. No change to previous decision context (i.e. still Decision Context A). 'External context' (within 'Determination of acceptability') for Section 7.1 has been updated with a summary of claim and response. OA is not within NWS shipping fairways; notifications to AMSA JRCC and AHO are standard control measures and are included

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
							as both a control in Section 7.1 and notifications Table 8-5. Vessels are required to operate in accordance with any Class, Flag or Port State laws and regulations. This includes the use of appropriate signals to reflect nature of vessel operations.
	14/07/2023	OB-000719	Email	CAPL responded to AMSA previous email regarding risk of collision mitigation measures: • Relevant persons engagement • Maritime safety information • Marine Standards CAPL advised AMSA that they intended to notify AHO of operations. AMSA responded to CAPL thanking them for providing their mitigation measures. AMSA additionally stated that their main concern is where the activities occur within charted shipping fairways and that they would like to understand what the activities within the fairways entail, timeframe, specific risk mitigation for each activity. AMSA reiterated that these areas were higher risk due to the high density of shipping traffic. AMSA requested a Teams call to further discuss.	AMSA requested further details for planned activities within charted shipping fairways (such as timeframes and specific risk mitigation for each activity) in regards to collision risk.	**Claims do not have merit:** As a relevant person it is fair and reasonable for AMSA to request further information, and consultation is on going. However the OA is not within NWS shipping fairways.	No change made to the EP. No planned activities occur within shipping fairways. Clarification was provided to AMSA.
	27/09/2023	OC-000739	Email	CAPL responded to AMSA and enquired as to which activities concerned them so that CAPL may gather the correct people to further discuss in a call.	No objection or claim raised.		
	24/10/2023	OB-000863	Email	AMSA noted several activities will occur within the charted shipping fairways and requested further information around what the activities within the shipping fairways entail and over what time frame these activities would take place. AMSA also enquired about specific risk mitigation measures for these activities in higher-traffic areas.	AMSA requested further information around what the activities within the shipping fairways entail and over what time frame these activities would take place. AMSA also enquired about specific risk mitigation measures for these activities in higher-traffic areas.	**Claims do not have merit:** As a relevant person it is fair and reasonable for AMSA to request further information, and consultation is ongoing. However, for this activity no planned activities occur within shipping fairways. AMSA's request related to another CAPL EP.	No change made to the EP. No planned activities occur within shipping fairways.
	02/11/2023	OC-000884	Email	CAPL contacted AMSA to arrange a meeting.	No objection or claim raised.		
	09/11/2023	OC-000928	Virtual Meeting	CAPL spoke with representatives from AMSA to provide an overview of CAPL's Environment Plans, with a particular focus on the JIC Installation EP as the cable installation activity overlapped the shipping fairway. CAPL presented an overview of the cable installation activity, including scope, timing and duration. No objections and claims relating to the EP were raised by AMSA during the meeting.	No objection or claim raised. The objections and claims were related to a separate CAPL EP.		
				Summary: • CAPL commenced consultation with AMSA on 26 May 2022 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and information sheet. CAPL provided additional formal notification on 15 February 2023 overview of the activity, information sheet and link to the Consultation Hub on CAPL's website. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. CAPL also provided AMSA with shapefiles for the activity. • AMSA did not raise any objections or claims relating to the activity. AMSA requested that CAPL notify JRCC and AHO before activities commence. Notifications to JRCC and AHO have been included as controls in Section 7.1 and notifications in Table 8-5. • CAPL has provided a reasonable period and sufficient information to AMSA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Department of Agriculture, Fisheries and Forestry - Fishing impacts (DAFF)	15/02/2023	CN-000215	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. No response received.	No objection or claim raised.		
				Summary:			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• 7CAPL commenced consultation with DAFF via sent a formal written notification on 15 February 2023 which provided an overview of the activity, information sheet and link to the Consultation Hub on CAPL's website. • No further correspondence was undertaken. CAPL has engaged with CPA, NPF, WAFIC and RecFishWest to identify and engage with potentially impacted fishers. • DAFF did not raise any objections or claims relating to the activity. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1)			
Department of Climate Change, Energy, the Environment and Water - Director of National Parks (DNP)	26/05/2022	001603	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	15/02/2023- 10/03/2023	CN-000194	Email	CAPL sent a follow up email providing an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the DNP that they welcome meaningful feedback. DNP confirmed that they wish to be consulted as a relevant person, and to direct consultation to marineparksauthorisations@dcceew.gov.au.	DNP confirmed that they wish to be consulted as a relevant person, and to direct consultation to a separate email address	**Claim has merit:** Directing consultation to a different email address is a reasonable and appropriate request.	No change made to the EP. Additional engagement with DCCEEW took place.
	03/03/2023- 12/04/2023	001311	Email	CAPL emailed DNP to follow up on the consultation for CAPL environment plans. CAPL included a link to the recently launched Consultation Hub on the Chevron Australia website. CAPL summarised the current status of consultation with DNP for each of the activities. DNP thanked CAPL for the summary of Chevron activities and EPs. DNP confirmed that it had no feedback or claims and objections at this time on CAPL activities.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with DNP on 26 May 2022 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and information sheet. CAPL provided additional formal notification on 15 February 2023 overview of the activity, information sheet and link to the Consultation Hub on CAPL's website. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • DNP did not raise any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to DNP to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Department of Climate Change, Energy, the Environment and Water (DCCEEW) – Cultural Heritage	16/05/2023- 08/06/2023	CN-000547	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. DCCEEW advised CAPL of the requirements regarding Underwater Cultural Heritage (UCH) and its importance to Aboriginal Corporations and people. CAPL acknowledged the email and informed DCCEEW that they are aware and understand the importance of UCH and have been engaging accordingly to ensure they meet the requirements and engage with the appropriate corporations.	1. The Department recommends engaging a suitably qualified and experienced maritime or underwater archaeologist for advice on how to mitigate risks associated with protected underwater cultural heritage (UCH). 2. The Department recommends undertaking a Desktop UCH Assessment 3. A detailed UCH resource assessment should be undertaken, including a description, risks and mitigation measures 4. Noted adverse impacts include directly or indirectly disturbing or otherwise damaging protected UCH or causing the removal of protected UCH 5. Raised the UCH Act and associated obligations	**Claims have merit:** All claims made by DCCEEW were considered relevant given CAPL's understanding of the legislation, recent focus and activity location.	Section 7.3 was revised to reflect engagement with DCCEEW. 'ALARP decision context justification' was revised to include statement regarding receipt of one claim. No change to previous decision context (i.e. still Decision Context A). 'External context' (within 'Determination of acceptability') for Section 7.3 has been updated with a summary of claim and response. Table 8-5 has been revised to capture engagement requirements with DCCEEW regarding UCH. Table 8-13 has been revised to include the UCH Act notification requirements. No additional changes made to the EP. As discussed in Section 4.6.2 Underwater cultural heritage, a

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
					6. Noted that potential impacts to First Nations UCH should be considered. 7. Requested the inclusion of Underwater Cultural Heritage team in ongoing consultation process in relation to activities that have the potential to impact UCH.		desktop UCH assessment was undertaken, and no UCH was identified within the EMBA. The risks to UCH area assessed in 7.3 Seabed Disturbance.
				Summary: • CAPL commenced consultation with DCCEEW on 16 May 2023 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and information sheet. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • DCCEEW did not raise any objections or claims relating to the activity. However, DCCEEW recommended CAPL to undertake a Desktop UCH Assessment to identify known and potential UCH in the environment that may be impacted by the activity and to propose a forward work program for additional UCH Impact Assessment if required. CAPL completed a desktop UCH assessment and no UCH was identified within the EMBA. Additional feedback received was not relevant to the activity. • CAPL has provided a reasonable period and sufficient information to DCCEEW to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Department of Defence (DoD)	14/02/2023	CN-000220	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	16/03/2023	OC-000368	Email	DoD replied to CAPL's consultation that the activity areas are located in the North-West Exercise Area (NWXA) and restricted airspace. CAPL was advised that unexploded ordnance (UXO) may be present on and in the seafloor. DoD stated that CAPL must, therefore, inform itself as to the risks associated with conducting activities in the area. DoD requested CAPL continue liaison with the Australian Hydrographic Service (AHS) for Notices to Mariners (NOTMAR) three weeks prior to the actual commencement of activities where applicable (not in situ wellheads). CAPL acknowledged receipt of DoD response. CAPL understands that the activity areas are located in the North-West Exercise Area (NWXA) and have checked where known unexploded ordnance (UXO) are using the UXO map UXO Map (whereisuxo.org.au) and there are no known UXOs present within the proposed operational area's for the activities consulted on, however CAPL note that there may be UXOs present on and in the sea floor. CAPL confirmed they will contact the Australian Hydrographic Service 3-weeks prior to any activities occurring. CAPL requested further clarification and understanding of where the restricted airspace is within the vicinity of the activity areas. DoD responded and attached a map of the restricted airspace. DoD added that should CAPL have any additional questions they shouldn't hesitate to get in touch.	DoD advised CAPL: 1. Activity areas are located in the North-West Exercise Area (NWXA) and restricted airspace and the potential presence of unexploded ordnance (UXO) on and in the seafloor. 2. To contact Australian Hydrographic Service (AHS) for Notices to Mariners (NOTMAR) three weeks prior to the actual commencement of activities where applicable.	**Claims have merit** 1. There are no known UXOs present within the proposed operational areas, however CAPL notes there may be UXOs present on and in the sea floor. 2. It is considered fair and reasonable to notify the AHO.	No changes made to the EP. Notifications to AHO is a standard control measure and is included as both a control in Section 7.1 and notifications Table 8-5.
				Summary: • CAPL commenced consultation with DoD on 14 February 2023 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and link to the Consultation Hub on CAPL's website. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • DoD did not raise any objections or claims relating to the activity. DoD provided feedback to CAPL that the activity areas are located in the North-West Exercise Area (NWXA) and restricted airspace and the potential presence of an unexploded ordnance (UXO on and in the seafloor. There are no known UXOs present within the proposed operational areas for our activities we have consulted on, however CAPL notes there may be UXOs present on and in the sea floor. DoD requested CAPL contact AHS three weeks prior to the actual			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				commencement of activities where applicable. Notifications to AHO is a standard control measure and is included as both a control in Section 7.1 and notifications Table 8-5. • CAPL has provided a reasonable period and sufficient information to DNP to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.1.2 State Departments or Agencies

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Department of Biodiversity, Conservation and Attractions (DBCA)	26/05/2022	CN-000076	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet. CAPL requested comments or feedback. DBCA acknowledged receipt of the information for CAPL's upcoming activities. DBCA has no comments in relation to their responsibilities under the Conservation and Land Management Act 1984 and Biodiversity Conservation Act 2016 based on the information sheet provided to DBCA.	No objection or claim raised.		
	7/02/2023 - 15/02/2023	CN-000109	Email	CAPL sent a follow up email providing an overview of the activity and provided a link to their website for further information regarding the activity. DBCA requested to be involved in future consultations as the proposals may impact DBCA's responsibilities. DBCA provide CAPL with updated contact information. CAPL thanks DBCA for their response and requested additional contact information for the World Heritage Committees, particularly for Shark Bay and Ningaloo. DBCA provided relevant contact information. CAPL expressed their intention to continue engagement, and requested additional contacts at the DBCA and whether an in person meeting was possible.	DBCA requested to be involved in future consultations, and to direct consultation to a separate email address	**Claim has merit:** DBCA is a relevant person. Directing consultation to a different email address is a reasonable and appropriate request.	No change made to the EP.
	24/02/2023	OC-000267	Virtual Meeting	CAPL met with the representatives from DBCA Exmouth and provided an overview of their new approach to consultation along with an update on their Environment Plans. Discussion focused around EMBA map and shoreline loading queries. DBCA Exmouth advised CAPL of the importance of engagement with the World Heritage Committees and NOPSEMA guidelines and sensitivities relevant to World Heritage Areas.	DBCA Exmouth advised CAPL of the importance of engagement with the World Heritage Committees and NOPSEMA guidelines and sensitivities relevant to World Heritage Areas.	**Claim has merit:** There are World Heritage Areas within the region. As such the request to engage with the World Heritage Committee has merit.	No change made to the EP. Additional engagement with The Heritage Advisory Committee (NCWHAC) took place. World Heritage Properties are described in Section 4.6 of the EP.
	11/05/2023	OC-000456	Email	CAPL sent a follow up email requesting feedback on the EP. CAPL confirmed that DBCA has not expressed specific concerns or objections to the planned activity. DBCA Exmouth contacted CAPL and notified them that all queries regarding Environment Plans and consultation on proposals should be sent to a separate branch of DBCA. CAPL responded, included the updated email address, noting that CAPL had provided information to this email address and had received no feedback to date.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with DBCA on 26 May 2022 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and information sheet. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • DBCA did not raise any objections or claims relating to the activity. DBCA did provide feedback to CAPL on the importance of engagement with the World Heritage Committees and NOPSEMA guidelines and sensitivities relevant to World Heritage Areas. CAPL has engaged with NCWHAC and World Heritage Properties are described in the EP. • CAPL has provided a reasonable period and sufficient information to DBCA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Department of Primary Industries and Regional	08/05/2023	CN-000453	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Development (WA DPIRD): Fisheries				No response received.			
				Summary: • CAPL commenced consultation with WA DPIRD on 8 May 2022 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and information sheet. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • WA DPIRD did not raise any objections or claims relating to the activity. CAPL has engaged with WAFIC and RecFishWest to identify potentially impacted fishers. • CAPL has provided a reasonable period and sufficient information to WA DPIRD to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Department of Transport (DoT) - Maritime Environmental Emergency Response (MEER) - Marine Pollution	26/05/2022	CN-000503	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet. CAPL requested comments or feedback. DoT advised CAPL that if there is a risk of a spill impacting State waters from the proposed activities, please ensure that the Department of Transport is consulted as outlined in the Department of Transport Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (July 2020)	If there is a risk of a spill impacting State waters from the proposed activities, the Department of Transport should be consulted as outlined in the Department of Transport Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (July 2020)	**Claim has merit:** CAPL acknowledge that the activity has the potential to result in a spill that impacts state waters, and that DOT must be consulted in accordance with the Department of Transport Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (July 2020).	No action required. Reporting requirement to DoT for spills potentially affecting State waters is already included in Section 8.4.2 (table 8-12).
	15/02/2023	CN-000168	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. DoT notified CAPL that if there is a risk of a spill impacting State waters from the proposed activities that DoT Oil Spill Response Unit is consulted as outlined in the Department of Transport Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (July 2020). CAPL sent a follow up asking DoT to confirm that contacts within DoT had been engaged with. DoT confirmed that key contacts had been engaged with.	If there is a risk of a spill impacting State waters from the proposed activities, the Department of Transport should be consulted as outlined in the Department of Transport Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (July 2020)	**Claim has merit:** CAPL acknowledge that the activity has the potential to result in a spill that impacts state waters, and that DOT must be consulted in accordance with the Department of Transport Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (July 2020).	No action required. Reporting requirement to DoT for spills potentially affecting State waters is already included in Section 8.4.2 (table 8-12).
	17/08/2023	OC-000735	Email	DoT requested that information as outlined in the DoT Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (July 2020). CAPL sent through consultation information in accordance with the guidance note to DoT.	DoT requested further information.	**Claim has merit:** As a relevant person, DoT's request for further information is considered fair and reasonable	No change made to the EP. CAPL provided a response to DoT's queries.
	27/09/2023	OC-000734	Email	DoT requested further information to address the requirements of the Industry Guidance Note. CAPL responded in accordance with DoT's request.	DoT requested further information.	**Claim has merit:** As a relevant person, DoT's request for further information is considered fair and reasonable	No change made to the EP. CAPL provided a response to DoT's queries.
	12/12/2023	OB-001032	Email	DoT thanked CAPL for their email, and requested spill EMBA figures for potential spill scenarios, and timeframes for potential impacts to state waters.	DoT requested further information.	**Claim has merit:** As a relevant person, DoT's request for further information is considered fair and reasonable	No change made to the EP. CAPL provided a response to DoT's queries.
	20/12/2023	OC-001085	Email	CAPL responded to DoT request regarding three Environment Plans, including this EP.	No objection or claim raised.		
	18/01/2024	OC-001092	Email	DoT responded with thanks and no further comments.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with DoT on 26 May 2022 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and information sheet. CAPL sent a follow up email on 15 February 2023			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. CAPL also provided additional information to DoT in accordance with the Department of Transport Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements (July 2020) including EMBA figures for potential spill scenarios, and timeframes for potential impacts to state waters. • DoT did not raise any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to DoT to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Pilbara Ports Authority	08/02/2023	CN-000236	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with PPA on 8 February 2023 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and information sheet. • CAPL has contacted with PPA via email. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • PPA did not raise any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to PPA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.2 Regulation 25(1)(b) - Department of the responsible State Minister

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Department of Energy, Mines, Industry Regulation and Safety (WA DEMIRS)	26/05/2022 - 22/06/2022	CN-000123	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet. CAPL requested comments or feedback. WA DEMIRS acknowledged receipt of the information and noted it had reviewed the information sheet and did not require any further information. WA DEMIRS requested that CAPL provides a pre-start notification confirming the start date of its proposed activity and a cessation notification to WA DEMIRS upon completion of the activity. WA DEMIRS also provided the Consultation Guidance Note for reporting incidents that could potentially impact on any land or water under State jurisdiction.	1 DEMIRS requested that CAPL provides a pre-start notification confirming the start date of its proposed activity and a cessation notification to DMIRS upon completion of the activity. 2 DEMIRS provided the Consultation Guidance Note for reporting incidents that could potentially impact on any land or water under State jurisdiction.	**Claims have merit:** 1. As a relevant person and regulatory body, it is fair and reasonable to provide DEMIRS with commencement and completion notification. 2. CAPL acknowledge the reporting requirements required under relevant guidelines.	No action required. Commencement and completion notification to DEMIRS is already captured in Table 8-13 of the EP. Incident reporting requirement are already captured in Section 8.4.2 of the EP.
				Summary: • CAPL commenced consultation with WA DEMIRS on 26 May 2022 via email and provided an overview of the activity and information sheet. • CAPL has contacted with WA DEMIRS via email. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • WA DEMIRS did not raise any objections or claims relating to the activity. WA DEMIRS requested that CAPL provides a pre-start notification and cessation notifications for the activity. DEMIRS also referred CAPL to its Consultation Guidance Note for reporting incidents that could potentially impact on any land or water under State jurisdiction.			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL has provided a reasonable period and sufficient information to WA DEMIRS to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.3 Regulation 25(1)(d)— Person or organisation whose functions, interests, or activities may be affected by the petroleum activity

1.3.1 First Nations people and/or representative bodies

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Baiyungu Aboriginal Corporation	09/02/2023	CN-000321	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	22/02/2023	OC-000323	Email	CAPL advised that they are interested in speaking to a representative of BAC about CAPL's activities.	No objection or claim raised.		
	13/03/2023	OC-000322	Email	CAPL engaged with BAC to express their gratitude for BAC's continued partnership. CAPL also indicated intention to present to the Directors of Baiyungu and asked for further information.	No objection or claim raised.		
	15/03/2023	OC-000232	Email	CAPL and BAC organised a meeting for CAPL to present on the upcoming activities along with explore possible opportunities for the Traditional Owners in regard to ranger programs, protection areas and other programs that may have impacts on country. A meeting was organised.	No objection or claim raised.		
	30/03/2023	OC-000245	Face-to-face	CAPL met with the BAC Board of Directors at Cardabia Station to present the details of CAPL's upcoming offshore activities and the identified risks and impacts. CAPL requested advice as to whether additional relevant persons not present at the meeting should be informed and consulted with. BAC did not identify any additional relevant persons to consult. CAPL sought feedback on areas of significance and cultural values including sea country and underwater cultural heritage. Protecting land and sea country is a significant focus of the BAC and they are interested in collaborating with CAPL to protect it.	Protecting land and sea country is a significant focus of BAC and they are interested in collaborating with CAPL to protect it.	**Claim has merit:** Although not a specific claim or objective, the request for CAPL to further engage with BAC to identify collaboration opportunities has merit.	The EP was revised to include Table 4-14, which includes specific responses from First Nations consultation in regard to cultural values or features. Ongoing engagement with this stakeholder is taking place. Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with First Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which further describes ongoing engagement.
	04/04/2023	OC-000242	Phone	BAC enquired if CAPL have engaged Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC), CAPL confirmed they met with the NTGAC Board in March and have a further meeting with NTGAC organised for September. CAPL reiterated their interest to meet with the Baiyungu board again and to maintain momentum on discussions.	No objection or claim raised.		
	02/05/2023	OC-000357	Email	CAPL contacted BAC to confirm they have no specific objections and claims regarding the activity. CAPL reiterated with BAC that this has not just been a one-off engagement and CAPL are committed to ongoing consultation.	No objection or claim raised.		
	09/05/2023	OC-000421	Phone	CAPL contacted BAC to confirm they have no specific objections and claims regarding the activity. BAC confirmed that there were no issues or objections with respect to the Environment Plan and look forward to ongoing consultations and discussions.	No objection or claim raised.		
	10/05/2023	OB-000525	Email	CAPL advised BAC of the completion of the consultation timeframe regarding CAPL Environment Plans and provided the following summary:	BAC requests CAPL's continued engagement and support in relation to the Environment Plans and	**Claim has merit:** Although not a specific claim or objective, the request for CAPL to	Ongoing engagement with BAC is taking place. Section 8.3.4.1 of the EP (specifically Table 8-5) has

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• The Baiyungu coastal area, sea country, and adjacent islands are highly valuable to the Baiyungu people. Impact on these areas from a planned or unplanned event may cause harm to the cultural landscape, individuals, and the community. Based on the current activity proposal, BAC, as representatives for the Baiyungu people has not expressed objections to the planned activities discussed in the consultation process. BAC requests CAPL to formalise continued engagement and support in relation to the Environment Plans and related activities to assist in properly performing its duties in advocating for and protecting rights and interests on Baiyungu country, including to inform emergency response planning. CAPL sent through a summary of engagements with BAC for confirmation. BAC advised CAPL that it is not their role to provide a formal response and advised CAPL to engage with NTGAC. CAPL explained that they are consulting with the NTGAC/YAC, and have erred on the side of caution by consulting with individual corporations in parallel to NTGAC to ensure that all relevant knowledge holders have the opportunity to participate. A meeting was arranged to discuss CAPLs ongoing consultation and relationship with BAC.	related activities to assist in properly performing its duties in advocating for and protecting rights and interests on Baiyungu country, including to inform emergency response planning.	further engage with BAC on EP's to assist in performing its duties has merit given they are considered relevant to this Activity. In addition to this, the consideration of how BAC can support / inform emergency response planning has merit .	been revised to describe the ongoing consultation with First Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which further describes ongoing engagement.
				Summary: • CAPL commenced consultation with BAC on 9 February 2023 with an introductory email and link to the Consultation Hub on CAPL's website • CAPL has met with BAC representatives in face-to-face meetings and maintained contact through email and telephone correspondence. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures • CAPL has considered feedback provided by BAC during consultation, including information on BAC's functions, interests and activities within the EMBA and all claims raised have been addressed. • CAPL has informed BAC that they may request information provided during consultation not to be published (Regulation 25(4)) during consultation co-design, in opening consultation emails and activity information sheets. CAPL has also provided BAC with a copy of NOPSEMA's consultation guideline, which further describes their right to request information not to be published. • On 10 May 2023, CAPL emailed BAC with a summary of the outcomes of consultation undertaken to date. BAC has not raised any further objections or claims relating to the activity and as CAPL has provided a reasonable period and sufficient information to BAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25 CAPL will continue to engage BAC as part of its ongoing consultation as outlined in Section 8.3.4.1 of the EP			
Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	07/09/2022	OC-000477	Phone	CAPL contacted BTAC to have an initial conversation about the new Environment Plan consultation requirements. BTAC agreed to meet when CAPL had further information to share.	No objection or claim raised.		
	11/11/2022-16/11/2022	OC-000478	Email	CAPL emailed BTAC an overview of their presentation about decommissioning and requested a meeting to discuss the upcoming activities in 2023. CAPL advised BTAC of the requirements for Environment Plan Consultation following the court case and the importance of the consultation approach. CAPL identified some of the new regulation requirements and informed BTAC of their four upcoming Environment Plans, including this Exploration well EP, in the immediate future that require consultation. CAPL informed BTAC of their intentions to have a focused conversation around visibility of the various projects which require consultation, discuss and agree on the method to apply and identify relevant persons, and how the consultation should occur. This ensures relevant people receive the information and have the opportunity to provide feedback. BTAC and CAPL discussed consultation date(s) for early 2023 to present the information in detail and define timeframe and methods of gathering feedback. CAPL indicated that they would take BTAC guidance on what the best forum to achieve these goals would be. BTAC responded and a meeting was organised.	No objection or claim raised.		
	17/11/2022-23/12/2022	OC-000479	Email	BTAC provided CAPL with a report, and shapefiles on surveys undertaken on Barrow Island in June 2022.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				CAPL requested to set up two meetings with BTAC regarding confirmation of the cultural heritage work plan for 2023 and upcoming activities and the best way to develop a consultation plan with BTAC. CAPL representative thanked BTAC for the work they have accomplished together and expressed appreciation of the relationship they have developed. BTAC acknowledged the email and provided suggested meeting dates.			
	13/12/2022	OC-000480	Face-to-face	CAPL met with BTAC to discuss cultural heritage planning for 2023. During the meeting CAPL raised the need to meet and develop a consultation approach for Environment Plans with BTAC. BTAC expressed concerns about the pressures the PBCs are under due to demands from the resource industry and how the requirements would strain the PBCs abilities. CAPL acknowledged the challenges and concerns of BTAC and informed them that CAPL does not mean to impose another process but sees this as an opportunity to work together to design a process to assist BTAC and CAPLs needs. CAPL had previously created a draft copy and timeline for consultation and invited BTAC to provide comments. BTAC expressed their positive experience with CAPL and requested to reconvene in January to delve deeper into this process. It was noted that CAPL would remain flexible, considering the expectations of BTAC and the Thalanyji community regarding the consultation. CAPL also expressed their willingness to present the project activities at a BTAC board meeting and engage with common law holders. CAPL offered to facilitate the community's input into the consultation process and provide an opportunity to provide feedback on the values and sensitivities within the proposed project areas.	No objection or claim raised.		
	13/01/2023	OC-000249	Face-to-face	CAPL met with the Chair of the BTAC to present an overview of the consultation process for CAPL's upcoming offshore activities. CAPL sought feedback on areas of significance and cultural values including sea country and underwater cultural heritage. CAPL requested advice as to whether additional relevant persons not present at the meeting should be informed and consulted with. BTAC provided details of other relevant persons in neighbouring PBCs.	BTAC identified local relevant persons for CAPL to consider engaging with.	**Claim has merit:** CAPL acknowledge the potential relevant people identified by BTAC and that engagement with these stakeholders is required.	No change made to the EP. The individuals provided by BTAC were Yinggarda, Malgana, Thalanyji and Baiyungu people. CAPL has engaged the PBCs that represent these groups and each PBC confirmed that it was appropriate to consult at PBC level and direct engagement with individuals was not required
	15/01/2023	OC-001009	Face-to-face	CAPL met with BTAC CEO and discussed: • Resourcing • EP Stakeholder Consultation • Cultural Awareness Training CAPL requested a meeting to discuss consultation and for BTAC to consider how they want to structure consultation process and payment.	No objection or claim raised.		
	16/01/2023	OC-001010	Email	BTAC emailed CAPL further details of other PBC's discussed in meeting on 13 January 2023 (Record ID OC-000249).	No objection or claim raised.		
	03/02/2023- 21/02/2023	CN-000484	Email	CAPL provided BTAC with the formal 2023 written notice of the upcoming activities and provided a link to their website for further information regarding the activity. CAPL outlined the timeline of the consultation period and requested guidance on the next steps to ensure the right people received the information and are able to provide informed feedback. CAPL acknowledged the additional pressure this puts on BTAC and offered to assist monetarily for an independent environmental consultant to review the information for BTAC. CAPL also prepared to compensate Board sitting fees should BTAC prefer to meet CAPL representatives to discuss further. BTAC acknowledged receipt of CAPLs email and confirmed they would provide feedback soon. BTAC identified the extensive and ongoing engagement through this new process and offered to develop or enter into some form of "consultation agreement" regarding offshore proposals. CAPL responded with an affirmative approach and would welcome the opportunity to design the consultation process together. A discussion about timelines ensued in the email chain. CAPL also offered to present to the BTAC board about the upcoming activities. Both parties began drafting an agreement in parallel. BTAC asked how CAPL were engaging with other PBCs which CAPL answered.	No objection or claim raised.		
	03/02/2023	OC-000481	Face-to-face	CAPL and BTAC held a meeting to discuss the environmental planning consultation requirements of the Commonwealth. During the meeting, CAPL provided an overview of its proposed activities and directed BTAC to CAPL's public website for detailed information,	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				including project overviews, potential impacts, and risks. CAPL explained the process of identifying Relevant Persons and stated that BTAC had been identified as a Relevant Person. CAPL expressed their intentions to seek feedback from the Thalanyji community regarding any concerns related to the proposed projects, taking into account Thalanyji's values and sensitivities within and around the EMBA. CAPL advised that they aimed to work with BTAC to co-design the consultation process, without imposing a process on the PBC. The goal was to develop a consultation process that would meet the needs of both parties. BTAC identified themselves as a relevant person and committed to providing a written response to CAPL's request in the upcoming days.			
	16/02/2023	OC-000979	Phone	CAPL provided BTAC with the opportunity to visit Barrow Island. BTAC discussed it will be raised as an agenda item during the next board meeting.	No objection or claim raised.		
	20/02/2023	OC-000980	Email	BTAC sent CAPL minutes from phone meeting on the 16 February 2023 (Record ID OC-000979).	No objection or claim raised.		
	27/02/2023- 10/03/2023	OB-000482	Email	BTAC responded to CAPL written notice regarding the 8 upcoming environment plans including WHS Deep and Dino South. BTACs letter requests further engagement with CAPL to understand the projects in order to protect Thalanyji interests, obtain a deeper understanding of the project, ensure management measure are in place and to involve BTAC members in ongoing monitoring and management of risks from the activities. BTAC informed CAPL of the Thalanyji peoples deep connection to sea country north of Onslow, extending out into the east islands off the coast of the Pilbara including the Montebello Islands, Barrow Island and Mackerel Islands. 1. Values and definition and management BTAC explained that they have not yet developed their values regarding Sea Country beyond their own culture and seek CAPL's assistance and support to develop anthropological and ethnographic team to define and articulate our values on Sea Country in a way that industry can understand. That way future management and protection of the values can be taken care of. 2. Information and understanding BTAC are seeking support from CAPL to obtain appropriate independent technical support to review the proposals and provide BTAC and its members with feedback on the project risks to Sea Country and potential management controls that could be developed to protect their values and interests. 3. Emergency response planning and capability BTAC acknowledge that there is still a risk with devastating impacts to the environment and values and sensitivities. BTAC acknowledges the importance of emergency responses are developed and locally provided to be able to respond to the potential actions that may impact their interests. BTAC also encourages CAPL and other industry to be active in BTACs ranger program and b participants in response planning and management activities. This would enhance the security of the Thalanyji people's interests. 4. Ongoing engagement, consultation and cost recovery BTAC acknowledges the importance of ongoing consultation regarding offshore projects and the strain on their resources. BTAC proposes to enter into a consultation or engagement framework which ensures BTAC can be properly resources financially and intellectually to participate in the consultation and management planning processes for the activities. CAPL responded to BTACs letter and requested a meeting to go through the points raised to ensure BTACs values be respected and heard. CAPL recommended that the framework and plan be constructed in parallel with the current environmental approval consultation.	The Thalanyji peoples deep connection to sea country north of Onslow, extending out into the East Islands off the coast of the Pilbara including the Montebello Islands, Barrow Island and Mackerel Islands. BTAC raised the following topics: 1. Values and definition and management 2. Information and understanding 3. Emergency response planning and capability 4. Ongoing engagement, consultation and cost recovery	**Claim has merit:** Given BTAC's claim connection to Pilbara islands they are considered relevant. CAPL acknowledge the Thalanyji peoples deep connection to sea country north of Onslow, extending out into the Bast Islands off the coast of the Pilbara including the Montebello Islands, Barrow Island and Mackerel Islands. Although not a specific claim or objective, this must be acknowledged and considered in the EP. All topics raised during this engagement are considered to have merit, and require consideration and a response.	Ongoing engagement with BTAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and BTAC, and once finalised will be implemented. The Engagement Plan will capture opportunities for collaboration and knowledge sharing, and the type and frequency of interactions. Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with First Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which further describes ongoing engagement.
	30/03/2023	OC-000538	Email	Consultants to BTAC reached out to CAPL to discuss CAPL's upcoming activities and to organise a meeting.	No objection or claim raised.		
	12/04/2023	OC-000483	Face-to-face	CAPL and consultants to BTAC, representing BTAC's interests, met up to discuss the next steps in relation to BTAC providing feedback on CAPLs Environment Plan consultation. BTAC requested the draft statements or principles specifically tailored to BTAC or the Thalanyji people and for a summary of consultation.	No objection or claim raised.		
	13/04/2023- 08/05/2023	OC-000486	Email	The new BTAC representative notified CAPL that they would be point of contact for BTAC. BTAC and CAPL discussed a number of matters including CAPLs consultation of environment plans for offshore activities consistent with NOPSEMAs guidelines.	1. The significance of Thalanyji coastal area, sea country, and adjacent islands was noted	**Claim has merit:** 1. Given BTAC's claim connection to Pilbara islands they are considered relevant.	Ongoing engagement with BTAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and BTAC, and once

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				BTAC emailed a summary of the face to face discussion on 12 April 2023. BTAC advised it would provide a formal response for the written notice soon. BTAC also requested any drafted consultation and engagement documents from CAPL. CAPL sent through the consultation guideline draft on the 24 April 2023 to BTAC for review. CAPL informed BTAC that if they would like to provide comments or discuss any of the items, they should let CAPL know. CAPL also re-informed BTAC of their intention to sit down and present / discuss with BTAC ongoing consultation framework and how they can support each other. CAPL requested some dates to set up a meeting. Based on these discussions, CAPL noted: • The significance of Thalanyji coastal area, sea country, and adjacent islands. • BTAC requests CAPL to formalise continued engagement and support in relation to the Environment Plans • The expectations that CAPL will provide an annual update, or as otherwise requested, to the BTAC board or common law holders of CAPL's activities in the EMBA. • BTAC can at any time make direct representations to NOPSEMA about the nature of BTAC's interests and values and how they may be affected by CAPL's activities. CAPL followed up with BTAC on the 4 May 2023 to see if they had any further queries on the consultation summary CAPL sent through and to inform BTAC that they are working on the engagement plan and are interested in getting BTACs involvement. BTAC informed CAPL that they would provide some edits to the document and that they were very interested in working on the framework together for ongoing consultation. BTAC sent through their edits to the draft consultation summary. CAPL acknowledged receipt of email and informed BTAC that they would review and send back with any additional comments..	2. BTAC requests CAPL to formalise continued engagement Subject to CAPL formalising ongoing engagement and consultation with BTAC about the proposed activities under an agreement within a reasonable timeframe, BTAC is agreeable in-principle to CAPL including this consultation summary in its Environment Plans. BTAC expects that CAPL will provide an annual update, or as otherwise requested, to the BTAC board or common law holders of CAPL's activities in the EMBA	CAPL acknowledge the Thalanyji peoples deep connection to sea country north of Onslow, extending out into the Bast Islands off the coast of the Pilbara including the Montebello Islands, Barrow Island and Mackerel Islands. Although not a specific claim or objective, this must be acknowledged and considered in the EP. 2. CAPL acknowledge BTAC's request formalise continued engagement and support in relation to the Environment Plans, and the expectation for annual updates. As a relevant person, this is reasonable and appropriate.	finalised will be implemented. The Engagement Plan will capture opportunities for collaboration and knowledge sharing, and the type and frequency of interactions. Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with First Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which further describes ongoing engagement.
	10/05/2023	OC-000589	Phone	BTAC contacted CAPL following email correspondence to discuss edits made to the consultation summary post review. CAPL confirmed they would send through a revised copy to BTAC.	No objection or claim raised.		
	16/05/2023- 18/05/2023	OC-000556	Email	CAPL reached out to BTAC to see if any further comments were received regarding the draft summary. BTAC sent through an updated version of the plan and stated that BTACs position is agreeable in-principle to this consultation summary on the understanding that Chevron intends to formalise ongoing consultation and engagement at some point in the near future. CAPL thanked BTAC for the update and inquired if BTAC had any time to discuss and work on the engagement plan together. BTAC responded affirmatively and informed that the engagement plan would need to be endorsed by the CEO and reflect the position conveyed by BTAC to date. A meeting was organised to meet and discuss further. CAPL provided BTAC with the Draft Engagement Plan and the EP Consultation Statement for their review.	BTAC agreed to the consultation summary in principle on the basis that CAPL formalises ongoing consultation and engagement with BTAC in the future.	**Claim has merit**: CAPL acknowledge BTAC's concerns for continued engagement. As a relevant person, this is reasonable and appropriate.	Ongoing engagement with BTAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and BTAC, and once finalised will be implemented. The Engagement Plan will capture opportunities for collaboration and knowledge sharing, and the type and frequency of interactions.
	19/05/2023	OC-000985	Face-to-face	CAPL met with BTAC for monthly meeting. CAPL reminded BTAC about the progress of the EP and asked BTAC to raise any objections or claims.	No objection or claim raised.		
	24/05/2023	OC-000555	Face-to-face	CAPL met with BTAC to finalise BTAC's formal response to consultation. BTAC agreed to suggested changes by CAPL and requested a final copy. The engagement plan was discussed for ongoing consultation and interactions between CAPL and BTAC.	No objection or claim raised.		
	26/05/2023	OC-001030	Email	CAPL provided final copy of consultation summary and statements agreed upon in meeting between BTAC Consultants/BTAC and CAPL on 24 May 2023 (Record ID OC-000555). CAPL provided a copy of the draft engagement plan.	No objection or claim raised.		
	7/06/2023	OC-001014	Email	CAPL sent through Underwater Cultural Heritage (UCH) plan to BTAC relating to other CAPL EPs. CAPL advised they would be interested in working with BTAC on this topic. BTAC confirmed receipt of information regarding UCH.	No objection or claim raised.		
	8/06/2023	OC-001013	Email	CAPL emailed BTAC with consultation summary inclusive of WHS Deep and Dino South and draft engagement plan. CAPL requested opportunity to work through engagement plan.	No objection or claim raised.		
	03/07/2023- 04/07/2023	OB-000579	Email	BTAC reviewed the consultation summary and accepted the minor changes. BTAC noted the engagement plan was a useful starting point but required more work. BTAC provided CAPL with their edits.	Concerns raised about ongoing engagement and the formalised engagement plan.	**Claim has merit:** CAPL acknowledge BTAC's concerns for continued	Ongoing engagement with BTAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and BTAC, and once

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				The BTAC representative proposed to forward a letter agreement to formalise cost recovery to enable progressing meaningful consultation with CAPL in relation to environment plan activities. CAPL responded to the email and informed BTAC they would review the document and comments in preparation for the next meeting.		engagement. As a relevant person, this is reasonable and appropriate.	finalised will be implemented. The Engagement Plan will capture opportunities for collaboration and knowledge sharing, and the type and frequency of interactions. Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with First Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which further describes ongoing engagement.
	06/07/2023	OC-000978	Email	BTAC sent CAPL a letter thanking them for the invitation to visit Barrow Island and that the senior BTAC executive team were interested in attending the trip.	No objection or claim raised.		
	13/07/2023	OC-000582	Email	BTAC followed up with CAPL by email following their morning meeting outlining the takeaway actions for BTAC. CAPL responded with their own actions and agreed outcomes. Both organisations were happy to discuss and continue engagement.	No objection or claim raised.		
	13/07/2023	OC-000581	Face-to-face	CAPL met with BTAC to continue discussions around EP consultations and OPP, and progress latest version of the engagement plan.	No objection or claim raised.		
	15/08/2023	OC-000618	Email	CAPL and BTAC discussion relating to ongoing consultation. CAPL advised BTAC that it was still waiting for feedback from BTAC on comments on the engagement plan. CAPL advised desire to be involved in sea country ethnographic project and BTAC confirmed requirement for agreement to be in place.	No objection or claim raised.		
	15/08/2023	OC-000619	Phone	CAPL and BTAC had discussion to clarify aspects of the draft Engagement plan. CAPL reiterated support to stand up a group within BTAC to handle consultations with a view that they develop fluency around engagements. BTAC advised that there were some minor changes that they will be sharing via email and that they were happy with the progress being made.	No objection or claim raised.		
	25/08/2023	OC-000974	Face-to-face	CAPL met with BTAC for monthly meeting. CAPL reminded BTAC about the EP progress and asked BTAC to raise any objections or claims.	No objection or claim raised.		
	30/08/2023	OC-000975	Face-to-face	CAPL met with new BTAC CEO to discuss EP consultation process.	No objection or claim raised.		
	04/09/2023	OC-000634	Email	CAPL contacted BTAC via email to follow up on endorsement of draft engagement plan.	No objection or claim raised.		
	10/10/2023	OC-000825	Email	CAPL provided BTAC with a signed acceptance of their cost recovery budget for consultations.	No objection or claim raised.		
	04/12/2023	OB-000976	Phone	BTAC contacted CAPL to express concerns that BTAC have not be properly consulted on the EP's in 2023. CAPL assured BTAC that CAPL have been consulting with BTAC since November 2022 on the EP's and have provided BTAC with all relative information on EP activities and have asked BTAC on multiple occasions to meet with the BTAC Board of Directors and Elders council. CAPL also offered to facilitate a briefing session later in the week to discuss consultation process and progress.	Raised concern about not being properly consulted on the EPs.	**Claims have merit:** As a relevant person, CAPL acknowledges the concerns raised.	No change made to the EP. CAPL responded to BTAC's objection and claim (Record ID OC-000977). CAPL disagrees with BTACs position that it has not consulted sufficiently with BTAC. CAPL has co-designed consultation with BTAC and undertook consultation in accordance with that co-designed method for 2023. CAPL provided a 3-month consultation period to allow BTAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities. This included written and verbal information on the activity, the risks

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							and impacts of the activity, and the EMBA. CAPL and BTAC prepared a consultation summary where it was acknowledged by BTAC that the information was to be published in the EP. Ongoing engagement with BTAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and BTAC, and once finalised will be implemented. The Engagement Plan will capture opportunities for collaboration and knowledge sharing, and the type and frequency of interactions.
	4/12/2023	OC-000977	Email	CAPL sent BTAC the letter previously sent by BTAC to CAPL on approved summary of consultation for CAPL EP's. CAPL also offered the opportunity to discuss the planned activities within the EPs.	No objection or claim raised.		
	5/12/2023	OB-000981	Email	BTAC sent CAPL a written summary letter of concerns that BTAC have not be properly consulted on EP activities to date. BTAC invited CAPL to present at Board meeting in January 2024 to discuss the following: • activity overview for CAPL EPs to be submitted to NOPSEMA • risks and mitigation measures associated with CAPL activities • the engagement plan/proposed future consultation, and • settle the engagement plan and framework agreement.	Raised concern about quality of consultation, requested further information regarding activities, risks and mitigation measures, and raised the need to finalise engagement plan.	**Claims have merit:** As a relevant person, CAPL acknowledges the concerns raised.	No change made to the EP. A response to the objection and claims raised was provided to BTAC. CAPL has co-designed consultation with BTAC and undertook the consultation in accordance with that co-designed method for 2023. CAPL provided a 3-month consultation period to allow BTAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities. This included written and verbal information on the activity, the risks and impacts of the activity, and the EMBA. CAPL and BTAC prepared a consultation summary where it was acknowledged by BTAC that the information was to be published in the EP. Ongoing engagement with BTAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and BTAC, and once finalised will be implemented. The Engagement Plan will capture opportunities for collaboration and knowledge sharing, and the type and frequency of interactions.
	07/12/2023	OC-000983	Face-to-face	CAPL met with BTAC to discuss finalisation of overarching relationship (engagement plan) agreement. This will include formalising social benefits, resourcing and the implementation of a Cultural Mapping Program. CAPL provided an update on progress for procedure development for UCH. BTAC requested CAPL present at January 2024 board meeting to update on progress of offshore activities and submitted Environment Plans. BTAC confirmed that there were no concerns in regard to the Environment Plans submitted. BTAC requested an additional meeting on 21 December 2023 to prepare for the presentation to the board in January 2024.	No objection or claim raised.		
	08/12/2023	OC-000987	Email	CAPL provided a refreshed consultation summary to BTAC for review	No objection or claim raised.		

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	11/12/2023	OC-001005	Phone	CAPL contacted BTAC to confirm they had more consultation time than any other stakeholder (14 months) and is yet to come back with any substantive comments around the planned activities. CAPL confirmed with BTAC that it would be re-submitting the EP to NOPSEMA this week. CAPL advised that consultation with BTAC, as guided by BTAC consultants, has focused purely on the engagement plan despite numerous offers by Chevron to visit Barrow Island, present to the Board or to members during the past 14 months. CAPL confirmed that it was happy to present to the BTAC Board in January 2024 on our next lot of planned activities, and to the February Common Law Holders meeting. CAPL reiterated that it is happy to provide support to BTAC to be able to help understand its planned activities.	No objection or claim raised.		
	11/12/2023	OB-001007	Email	BTAC via their consultants provided comments to updated consultation summary to reflect additional steps since initial consultation summary was co-designed and agreed in May 2023. BTAC via their consultants also provided Land Access Heritage Agreement Template.	No objection or claim raised.		
	12/12/2023	OC-001006	Email	CAPL provided BTAC with an updated consultation response and statements from the original consultation summary co-designed with BTAC at the close of consultation in May 2023	No objection or claim raised.		
	15/12/2023	OC-001017	Email	CAPL provided detailed summary of consultation and engagements between 2022 and 2023 to BTAC via email.	No objection or claim raised.		
	15/12/2023	OC-001008	Phone	CAPL followed up with BTAC by phone to discuss 12 December correspondence. BTAC advised that they will formally respond to CAPL email by COB 15 December 2023.	No objection or claim raised.		
	17/12/2023	OB-001020	Email	BTAC responded to CAPL letter. BTAC thanked CAPL for draft engagement agreement. BTAC stated that they have limited resources, and in order to undertake effective consultation, two matters must be satisfied: • Consultation must satisfy the requirements of Regulation 11A as explained in Santos NA Barossa Pty Ltd v Tipakalippa. • BTAC's members and other Native Title holders need sufficient and timely information in relation to the proposals in the EPs. BTAC outlined requirements to facilitate adequate consultation with itself and its members. BTAC set out an action plan to provide feedback and meet the requirements noted raised. BTAC expressed that the conditions raised must be met before providing commentary to CAPL for EPs. BTAC requested a copy of the submission to NOPSEMA for BTAC's record.	Raised concern about quality of consultation, raised need for technical advice and support, and raised the need to finalise engagement plan. BTAC request that this engagement be included in the EP submission and provide BTAC a copy of your submission to NOPSEMA for BTAC's record.	**Claims have merit:** As a relevant person, CAPL acknowledges the objection and claims raised.	No change made to the EP. A response to the objection and claims raised will be provided to BTAC through ongoing engagement. A further meeting has been planned with BTAC for this purpose. CAPL disagrees with BTACs position that it has not consulted sufficiently with BTAC. CAPL provided a 3-month consultation period to allow BTAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities. This included written and verbal information on the activity, the risks and impacts of the activity, and the EMBA. CAPL and BTAC prepared a consultation summary together where it was acknowledged by BTAC that the information was to be published in the EP. A formal Engagement Plan is also being co-designed by CAPL and BTAC, and once finalised will be implemented. The Engagement Plan will capture opportunities for collaboration and knowledge sharing, and the type and frequency of interactions.

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	18/12/2023	OC-001029	Phone	CAPL contacted BTAC to discuss comments in letter 17 December 2023 and to arrange a meeting to plan for meetings in January 2024. A meeting was arranged.	No objection or claim raised.		
	19/12/2023	OC-001039	Face-to-face	CAPL met with the BTAC CEO to discuss plans for 2024. CAPL reiterated the NOPSEMA Environment Plan process to BTAC. CAPL confirmed that following consultation period in early 2023, the EP was submitted to NOPSEMA. CAPL explained that the EP will continue to evolve through requests for information and changes in concert with NOPSEMA. In reference to BTAC letter received on 17 December 2023, CAPL advised that the reason why conversations since June had been focused on the development of an engagement plan between CAPL and BTAC was because CAPL had closed consultation and developed a consultation summary with BTAC to include in the submitted EP in May. BTAC expressed their appreciation for CAPL being proactive and driving the development of the engagement plan well in advance of other operators. CAPL confirmed support for an independent environmental specialist to review activity information sheets, not the EP. BTAC thanked CAPL for providing the draft consultation/framework agreement and advised it was reviewing it. CAPL expressed that it was important for it to demonstrate that CAPL was compensating people fairly for their time and input into the development of environment plans. BTAC expressed an interest in CAPL presenting information on current activities at the January Board Meeting. CAPL accepted invitation to present to BTAC board in January 2024 but requested to use this as an opportunity to get the input of the BTAC board and introduce the opportunity to work with the board to co-design ongoing consultation. CAPL requested that there be a separate 1/2 day workshop with the board before or after their February 2024 board meeting focused on designing on-going consultation. BTAC via their consultants requested that board meeting be used to finalise the engagement agreement. CAPL advised that it would like for the board to be involved in designing the agreement for how BTAC and CAPL work together in addition to future consultation. BTAC advised that it would be the board, rather than a separate working group, that would be responsible for future consultations. CAPL expressed desire to work with BTAC to help develop fluency around its work so that BTAC was in a better position to understand and contribute to the enhancement of environment plans in the future. BTAC to confirm times and locations for meetings in January and February.	BTAC expressed interest in CAPL presenting at its board meeting and finalising the engagement agreement.	**Claim has merit:** As a relevant person CAPL acknowledges BTAC's claim.	No changes made to the EP. CAPL will continue to consult BTAC as per its request in accordance with CAPL's ongoing consultation arrangements.
	19/12/2023	OC-001040	Email	BTAC sent an email follow up after meeting CAPL confirming next steps and advised that subject to confirmation by the Board, CAPL will be invited to present to the common law holders at the next meeting.	BTAC confirmed interest in CAPL presenting at its board meeting, finalising the relationship agreement and engaging an environmental consultant to provide independent advice	**Claim has merit.** As a relevant person CAPL acknowledges BTAC's claim.	No changes made to the EP. CAPL will continue to consult BTAC as per its request in accordance with CAPL's ongoing consultation arrangements.
	21/12/2023	OC-001042	Email	CAPL responded to BTAC email from 19 December 2023 (Record ID OC-001040). CAPL confirmed that it appreciated the opportunity to provide clarification on the consultation process and how it would like CAPL to work with them on future EP consultations as well as the opportunity to confirm close of consultation with BTAC in May 2023 before its EPs were submitted to NOPSEMA in June. CAPL confirmed support for BTAC to engage an independent environment specialist to review future information sheets. CAPL accepted invitation to meet the board in February 2024 to discuss opportunities to support BTAC's ongoing sustainability.	No objection or claim raised		
	22/12/2023	OC-001043	Phone	CAPL contacted BTAC to discuss plans to meet in preparation for the Board meeting in January and February. During the meeting, BTAC acknowledged completed consultation and ongoing engagement by CAPL in 2023.	No objection or claim raised.		
	13/01/2024	001325	Email	CAPL provided BTAC with draft of proposed relationship roadmap via email, prior to planned presentation at the BTAC Board meeting.	No objection or claim raised.		
	31/01/2024	001326	Email	CAPL sent BTAC an email proposing changes to the funding agreement to reflect the separate work streams between BTAC and CAPL.	No objection or claim raised.		
	06/02/2024	001332	Email	CAPL sent email to BTAC outlining discussions points for meeting occurring later that day.	No objection or claim raised.		

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				BTAC responded to CAPL's email requesting CAPL to include additional discussion points to the agenda.			
	07/02/2024- 19/02/2024	001334	Email	BTAC and CAPL emailed regarding amendments to the funding agreement. BTAC advised CAPL that they were developing the agenda for the upcoming board meeting requested reviewed funding agreement. CAPL sent BTAC the draft relationship roadmap document for BTAC's review and requested BTAC to advise CAPL if the documents will be presented at the BTAC board meeting.	No objection or claim raised.		
	19/02/2024	001336	Email	BTAC contacted CAPL via email to advise date of BTAC's general meeting and an authorisation meeting. CAPL responded to BTAC acknowledging request and advised the relevant CAPL representatives will be made aware.	No objection or claim raised.		
	22/02/2024	001337	Email	CAPL sent BTAC revised funding agreement, acknowledging that BTAC amendments had been accepted by CAPL. CAPL summarised next steps if accepted by BTAC.	No objection or claim raised.		
	23/02/2024	001338	Email	CAPL sent BTAC the agenda for meeting occurring on the 27 February 2024 (Record ID 001638) and requested BTAC feedback. BTAC responded to CAPL questions regarding the agenda. CAPL acknowledged BTACs email.	No objection or claim raised.		
	27/02/2024	001638	Face-to-face	CAPL met with BTAC CEO to discuss the implementation of the Engagement Plan and meeting schedule for EP consultation. During the meeting, BTAC advised CAPL that it would not be possible for CAPL to attend the February 2024 Board Meeting and suggested March 2024 meeting to present the funding agreement (inclusive of engagement plan) and consult on its EP Revision.	No objection or claim raised.		
	07/03/2024- 08/03/2024	001341	Email	CAPL and BTAC emailed to organise a kick off meeting for the cultural mapping program. A meeting was organised.	No objection or claim raised.		
	08/03/2024	001342	Email	CAPL sent BTAC meeting minutes from meeting on 27 February 2024 (Record ID 001638). CAPL requested that BTAC review minutes and make any amendments to reflect the conversation and actions.	No objection or claim raised.		
	14/03/2024	001343	Email	CAPL sent BTAC via email the agenda of kick off meeting for the cultural mapping program.	No objection or claim raised.		
	14/03/2024	001640	Face-to-face	CAPL met with the BTAC CEO to review draft proposal for cultural mapping program and discuss next steps to progress cultural mapping proposal.	No objection or claim raised.		
	20/03/2024- 23/03/2024	001344	Email	CAPL contacted BTAC via email requesting information on the BTAC board members and requested a planning session with BTAC prior to meeting between CAPL leadership team and BTAC board. CAPL followed up with BTAC on previous email. CAPL requested BTAC to advise timeline on delivery of biographies of BTAC board members and requested planning session. BTAC advised that request will be raised to the board members.	No objection or claim raised.		
	25/03/2024- 03/04/2024	001345	Email	BTAC contacted CAPL via email regarding a meeting between CAPL leadership team and BTAC board.	No objection or claim raised.		
	26/03/2024	001347	Email	CAPL contacted BTAC via email to outline meeting request protocols.	No objection or claim raised.		
	02/04/2024- 03/04/2024	001348	Email	CAPL and BTAC emailed regarding agenda for upcoming meeting between CAPL leadership team and the BTAC board to discuss general relationship matters.	No objection or claim raised.		
	04/04/2024	001727	Face-to-face	BTAC CEO meet with CAPL Managing Director & Operations Director to discuss relationship matters.	No objection or claim raised.		
	08/04/2024	001383	Email	CAPL sent BTAC a letter via email regarding a meeting with BTAC to discuss general relationship matters.	No objection or claim raised.		
	10/04/2024	001384	Phone	BTAC called CAPL representative to discuss concerns related to a previous meeting that occurred on the 4 April 2024 (Record ID 001727).	No objection or claim raised.		
	11/04/2024	001264	Face-to-face	CAPL met with BTAC Board to consult on CAPL's EP Revision. BTAC advised on arrival that due to perceived conflicts of interest for two BTAC directors, they would not be able to participate in consultation. BTAC confirmed that this would then mean that a quorum cannot be formed and that the meeting could not be continued.	No objection or claim raised.		

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	11/04/2024	001274	Email	CAPL wrote to BTAC following the attempt to consult with the BTAC board (Record ID 001264). The meeting did not proceed due to BTAC advising they did not have a quorum. CAPL advised that it was still willing to meet with the BTAC board to consult on another CAPL EP Revision. CAPL provided BTAC with: • EP information sheet to its EP Revision together with a link to the current accepted EP on the NOPSEMA website. NOPSEMA guideline on consultation.	No objection or claim raised.		
	15/04/2024	001276	Phone	BTAC contacted CAPL via phone to discuss timing of a further meeting to be held with external facilitators.	No objection or claim raised.		
	15/04/2024	001390	Email	BTAC sent CAPL executed funding agreement for CAPL's countersignature.	No objection or claim raised.		
	15/07/2024	001597	Email	CAPL notified BTAC of launch of another CAPL EP and requested consultation.	No objection or claim raised.		
	17/07/2024	001604	Face-to-face	CAPL met with BTAC at their offices with the following being discussed: • Cultural Mapping Project • Co-design of consultation for JIC Operations EP • Co-design of consultation for future Barrow Island EP's CAPL provided BTAC with a presentation on consultation as well as provided information sheets for another CAPL EP. BTAC's proposal outlined the key areas of cultural interest and significance that they would like to be the focus of the cultural mapping project.	No objection or claim raised.		
	29/07/2024	001626	Phone	CAPL contacted BTAC representative to discuss how to move ahead with consultation. BTAC representative advised that it was his understanding that consultation would occur with the Board for the moment, however he was agreeable to a CAPL proposal to plan set sessions throughout the year with the Other Projects Committee or Cultural Mapping Project Reference Group.	No objection or claim raised.		
	08/08/2024	001643	Email	CAPL sent email to BTAC to approve the Cultural Mapping proposal and outlined administrative matters relating to the proposal.	No objection or claim raised.		
	09/08/2024	001892	Email	CAPL requested opportunity to consult with the board on its EPs (not related to this EP)	No objection or claim raised.		
	29/08/2024	001722	Email	BTAC confirmed interest in participating in consultation and that it would respond to CAPL shortly with date options.	No objection or claim raised.		
	02/09/2024	001946	Email	CAPL provided BTAC with August Communication Update which included references to requests for EP consultation.	No objection or claim raised.		
	03/10/2024	001947	Email	CAPL provided BTAC with September Communication Update which included references to requests for EP consultation.	No objection or claim raised		
	7/10/2024	001816	Email	CAPL wrote to BTAC requesting opportunity to consult with the Board on one of its EPs.	No objection or claim raised		
	10/10/2024	001812	Phone	CAPL spoke to BTAC representative by telephone. BTAC confirmed invitation for CAPL to consult on other CAPL EPs with the BTAC Board on 7 November 2024. BTAC confirmed interest in CAPL presenting on WA Oil Decommissioning at the Common Law Holders Meeting on 19 November 2024.	No objection or claim raised		
	05/11/2024	001945	Email	CAPL confirmed attendance at BTAC board meeting on 8 November 2024 via email. CAPL provided copies of the presentations as well as NOPSEMA consultation guideline and brochure. BTAC confirmed that it would have a quorum of 3 BTAC directors.	No objection or claim raised		
	05/11/2024	001948	Email	CAPL provided BTAC with October Communication Update which included references to requests for EP consultation.	No objection or claim raised		
	08/11/2024	001952	Face-to-face	CAPL presented on a new EP to the BTAC Board.	No objection or claim raised		
				Summary:			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL commenced consultation and discussions relating to the EP with BTAC on 7 September 2022 (Record ID OC-000477). Information sheets were provided at this time. CAPL provided BTAC with an introductory email and link to the Consultation Hub on CAPL's website on 3 February 2023 (Record ID OC-000481). • CAPL has provided BTAC the opportunity to provide feedback and CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. BTAC had a period of over three months for consultation, which CAPL maintains is a reasonable period consistent with Section 6.2.3 of the EP. • CAPL has met with BTAC on multiple occasions as well as maintaining contact through multiple calls and email exchanges. This included a face-to-face meeting between the BTAC CEO and CAPL Managing Director in 2024 (Record ID 001727). • CAPL co-designed consultation with BTAC. BTAC requested the consultation be undertaken through its consultants (Record ID OC-00538), and CAPL undertook the consultation in accordance with that co-designed method for 2023. In 2023 CAPL made repeated offers to brief the Board and/or Common Law Holders (Record ID OC-000480, CN-000484) and BTAC did not take up those invitations. • CAPL has informed BTAC that they may request information provided during consultation not to be published (Regulation 25(4)) during consultation co-design, in opening consultation emails and activity information sheets. CAPL has also provided BTAC with a copy of NOPSEMA's consultation guideline, which further describes their right to request information not to be published. • The consultation window for the EP closed in April 2023. On 16 May 2023, BTAC emailed CAPL with a summary of the outcomes of consultation undertaken to date to close consultation (Record ID OC-000556). The consultation summary was co-designed/written with BTAC (Record ID OC-001013, OC-000555, OC-000486, OC-000987) where it was acknowledged by BTAC that the information was to be published in the EP. • CAPL has considered feedback provided by BTAC during consultation, including information on BTAC's functions, interests and activities within the EMBA and all claims raised have been addressed in the EP as outlined above. • On 4 December 2023, BTAC contacted CAPL to express concerns that BTAC have not been properly consulted on the EP's (Record ID OB-000976). CAPL responded to BTAC with a detailed summary of consultation and engagements between 2022 and 2023 (Record ID OC-001017) and also met with BTAC on 19 December 2023 to explain CAPL has provided a reasonable period and sufficient information (Record ID OC-001039). On 21 December 2023, CAPL confirmed with BTAC via email that consultation had closed and discussed the process for consultation for future EPs (Record ID OC-001042). On 22 December 2023, BTAC acknowledged completed consultation and ongoing engagement by CAPL in 2023 (Record ID OC-001043). • CAPL has provided a reasonable period and sufficient information to BTAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities because CAPL has allowed a 3-month period for consultation and provided written and verbal information on the activity, the risks and impacts of the activity, and the EMBA. CAPL asserts it has discharged its obligations under regulation 25. • CAPL and BTAC continue to engage separately to EP consultations in relation to their Wheatstone Native Title Agreement and onshore Cultural Heritage activities at Wheatstone and Barrow Island (Refer to Record ID 001948 as an example) • CAPL executed an engagement plan / funding agreement in April 2024 (Record ID 001390) which confirmed acceptance of cost recovery for BTAC to participate in consultation as well as other activities. CAPL will continue to engage BTAC as part of its ongoing consultation for environment plans, including progressing cultural mapping, as outlined in Section 8.3.4.1 of the EP.			
Mardathoonera Cultural Heritage Pty Ltd	22/08/2023	OC-000623	Phone	CAPL received a voicemail from MCH as a self-identified relevant person (SIRP) advising that they were interested in having a conversation with CAPL. CAPL returned the phone call leaving a voicemail.	No objection or claim raised.		
	23/08/2023	OC-000626	Phone	MCH contacted CAPL via phone to identify themselves as being a Traditional Custodian for Barrow Island and therefore a Relevant Person for ongoing consultation. CAPL confirmed that it would welcome the opportunity to meet with MCH to discuss its activities.	No objection or claim raised.		

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	30/08/2023	OC-000632	Face-to-face	CAPL met with MCH and representatives for an introductory meeting in Karratha. MCH and representatives confirmed significance and importance of Barrow Island and their interest in CAPL's offshore activities. CAPL confirmed that it would provide a number of available dates for a visit to Barrow Island. CAPL confirmed that it would treat MCH and people as Relevant Persons for the purposes of developing its Environment Plans. CAPL committed to confirming availability to meet again in Karratha in the week commencing the 11 September.	During the meeting, MCH outlined: • Its connection with Barrow Island and surrounding waters • Whale Dreaming and songlines CAPL confirmed that it would be able to work with MCH as a relevant person.	**Claim has merit**: Given MCHs claim to connection to BWI, they are considered relevant. CAPL acknowledges MCH connection to Barrow Island. Although not a specific claim or objective, this must be acknowledged and considered in the EP. As a relevant person, it is fair and reasonable to provide ongoing engagement	Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with First Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which further describes ongoing engagement.
	08/09/2023	OC-000640	Phone	CAPL confirmed a meeting with MCH. CAPL confirmed intent to discuss current EP activities and other approvals.	No objection or claim raised.		
	12/09/2023	OC-000646	Face-to-face	CAPL met with MCH in Karratha to provide information sheets for its EPs and other approvals. MCH advised that they are concerned about impacts to their stories and songlines CAPL confirmed that it would be able to work with MCH to design how it consults on current and future activities.	CAPL confirmed that it would be able to work with MCH to design how we consult on current and future activities.	**Claim has merit:** As a relevant person, it is fair and reasonable to provide ongoing engagement	Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with First Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which further describes ongoing engagement.
	15/09/2023	OC-000662	Phone	CAPL spoke with MCH in regard to coordinating next meeting with a CAPL General Manager. MCH proposed potential meeting dates and would advise CAPL of their availability.	No objection or claim raised.		
	19/09/2023	OC-000713	Phone	MCH contacted CAPL advising that they would not be available to meet again until after 27 September. CAPL reiterated that it was looking forward to meeting again.	No objection or claim raised.		
	29/09/2023	OC-000768	Phone	CAPL spoke with MCH over the phone. MCH advised that they will confirm availability for in person meeting.	No objection or claim raised.		
	02/10/2023	OC-000818	Phone	CAPL confirmed availability to travel to BWI with MCH. MCH advised that they would come back to confirm. MCH advised that earliest time available to meet in Karratha to discuss activities with her legal representation would be after October 2.	No objection or claim raised.		
	13/10/2023	OC-000828	Phone	CAPL sent MCH text message requesting call to: • Confirm meeting in Karratha • Confirm arrangements for BWI visit • Provide an update and information on other CAPL EPs.	No objection or claim raised.		
	21/10/2023-	OC-000852	Phone	MCH contacted CAPL by phone and sent text. MCH confirmed 30 October for meeting with CAPL. MCH advised that they could call again on Monday 23 October	No objection or claim raised.		
	21/10/2023	OC-000853	Phone	CAPL attempted to call MCH but didn't connect. CAPL sent text message to MCH to confirm that we would be available to meet on the 30 October 2023. CAPL advised MCH that it was still available to meet in Karratha in the week commencing the 23 October	No objection or claim raised.		
	23/10/2023	OC-000854	Phone	CAPL attempted to call MCH. CAPL sent text message to MCH to confirm it would be available to meet on the 30 October 2023. CAPL advised MCH that it was still available to meet in Karratha in the week commencing the 23 October 2023	No objection or claim raised.		
	25/10/2023	OC-000865	Phone	MCH sent a text message to CAPL confirm meeting in Karratha on 30 October 2023.	No objection or claim raised.		

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	25/10/2023	OC-000867	Phone	CAPL and MCH confirmed attendance for meeting in Karratha on 30 October 2023 [Note: Meeting did not proceed]	No objection or claim raised.		
	25/10/2023	OC-000869	Phone	MCHs solicitors contacted CAPL via phone to discuss meeting with MCH.	No objection or claim raised.		
	15/12/2023	OC-001015	Phone	MCH representatives provided new contact for CAPL. MCH representatives advised that they would be organising a meeting in 2024 and requested that they be copied into future communications	No objection or claim raised.		
	12/01/2024- 17/01/2024	001253	Email	CAPL and MCH confirmed meeting on 1 Feb 2024.	No objection or claim raised.		
	19/12/2023	OC-001037	Email	CAPL emailed MCH and thanked them for all their input over the last few weeks. CAPL outlined their preference for a meeting in 2024 to discuss consultation requirements regarding a number of EPs and informal opportunities to meet and build relationships. CAPL referenced a list of drilling, maintenance and decommissioning activities to be consulted with in 2024 and provided links to the relevant information sheets on CAPLs consultation hub. CAPL requested opportunity to meet and plan for 2024 to co-design future sessions and provided MCH with a series of potential dates.	No objection or claim raised.		
	24/01/2024	001254	Email	CAPL sent an email to MCH to request their acceptance the calendar meeting invitation sent 1 February 2024. CAPL also provided an update regarding the BWI trip.	No objection or claim raised.		
	31/01/2024	001229	Email	CAPL requested a follow up meeting with MCH to co-design and plan for consultation and relationship development in 2024. CAPL provided MCH with available dates and times they are available to attend the proposed meeting.	No objection or claim raised.		
	01/02/2024	001230	Email	MCH thanked CAPL for the proposed agenda and confirmed they would like to finalise the terms of the negotiation agreement prior to moving forward. CAPL responded to MCH noting it looked forward to understanding more about the MCH organisation. CAPL noted attendees for the meeting to include the drilling and well team manager who can provide technical understanding of the activities planned.	No objection or claim raised.		
	01/02/2024	001256	Face-to-face	CAPL met with MCH to discuss the following topics: • Overview and discussion focused on EP activities • Co-design of on-going consultation planning for 2024. • Planning for 2024. CAPL SME's presented on technical aspects of the EP activities. MCH expressed concerns about potential impacts of earthquakes and leaving well heads in situ. CAPL EP information sheets, including this EP, were provided to MCH. CAPL and MCH discussed urgency to close out consultation on EP. MCH advised that EP sections had been sent to their environmental specialist for review. CAPL and MCH confirmed a follow up meeting to discuss further questions about the EP and to finalise details for upcoming BWI trip.	MCH expressed concerns about potential impacts of earthquakes and leaving well heads in situ.	**Claim has merit:** CAPL note concern regarding earthquakes. CAPL note MCH's preference for wellheads to be removed. As outlined in Section 3.5, once exploration drilling activities are complete the well will be P&A'd and the wellhead removed.	No change made to the EP. CAPL has committed to removing the wellhead following completion of the exploration drilling activities.
	07/02/2024	001231	Email	CAPL provided MCH a copy of the minutes from the meeting held on 1 February 2024 (Record ID: 001256). CAPL requested MCH to review minutes and provide information of any items to be added.	No objection or claim raised.		
	07/02/2024- 16/02/2024	001220	Email	CAPL and MCH discussed: Comments on consultation agreements • Timing options for an upcoming visit BWI and to consult on the drilling EPs	No objection or claim raised.		
	19/02/2024	OC-001108	Phone	MCH contacted CAPL to discuss visit to BWI and implications for cyclone. CAPL advised that it was still waiting on dates and requested MCH advise. MCH advised that they wanted more detail in the consultation agreement. CAPL reiterated that it welcomed feedback and additions and for MCH to send these through via email and track changes. CAPL confirmed that it would be in Karratha on the 27th and 28th of February and would be available to meet to discuss the agreement.	No objection or claim raised.		
	19/02/2024	001249	Email	CAPL sent an email to MCH following on from a phone call made 19 February 2024. CAPL summarized the key points discussed:	No objection or claim raised.		

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				• CAPL to travel to Karratha to discuss the Consultation agreement. CAPL requested MCH provide any additional details to be added to the agreement. • Travel to Barrow Island.			
	26/02/2024	001248	Email	CAPL contacted MCH to discuss CAPLs travel to Karratha. CAPL further advised their flight to Karratha has been cancelled due to Industrial action. CAPL requested to meet with MCH if they are available and in Perth.	No objection or claim raised.		
	29/02/2024	001117	Phone	CAPL spoke with MCH to discuss the opportunity to consult on EP. The following topics were discussed: • Requirement to consult in the next fortnight. • Confirmation of payment terms MCH advised that they would provide comments on agreement later today.	No objection or claim raised.		
	29/02/2024	001127	Phone	CAPL contacted MCH to arrange a meeting to confirm consultation dates for EP.	No objection or claim raised.		
	01/03/2024	001135	Phone	MCH contacted CAPL by telephone to confirm that comments to negotiation and consultation agreements had been reviewed by legal and that CAPL could expect comments. MCH advised that they would confirm within 24 hours a time to meet to discuss agreements and consultation. MCH advised that they had new legal representation.	No objection or claim raised.		
	05/03/2024	001143	Phone	MCH advised CAPL to progress organisation of meetings through MCH delegate.	No objection or claim raised.		
	05/03/2024	001138	Phone	CAPL spoke with MCH requesting progress update on meeting for finalising agreements and EP Consultation. CAPL and MCH agreed that CAPL would forward list of outstanding items. CAPL agreed to provide accommodation support to enable meeting in Perth this week.	No objection or claim raised.		
	05/03/2024	001225	Email	CAPL provided MCH a summary of outstanding actions relating to comments on consultation and negotiation agreements, planning for upcoming consultation meetings and BWI trip.	No objection or claim raised.		
	06/03/2024	001245	Email	CAPL emailed MCH outlining the agenda and attendees for upcoming meetings relating to the negotiation and consultation agreement and consultation on well related EP's. CAPL referenced potential collaboration opportunities. CAPL also provided a copy of the full submission and exec summary for the Submission on 'Clarifying Consultation requirements for offshore petroleum and greenhouse gas storage regulatory approvals'.	No objection or claim raised.		
	06/03/2024	001246	Email	CAPL emailed MCH requesting a time to meet to discuss the agendas for the upcoming Consultation meetings.	No objection or claim raised.		
	08/03/2024	001243	Email	CAPL provided MCH the following information for the meeting on 8 March 2024 (Record ID 001257): • Meeting overview slides, • CAPL submission on 'Clarifying Consultation requirements for offshore petroleum and greenhouse gas storage regulatory approvals'. • Drilling / Wells Overview	No objection or claim raised.		
	08/03/2024	001257	Face-to-face	CAPL met with MCH to discuss consultation on its EPs and to progress discussions about ongoing engagement plan and cost recovery. CAPL provided an overview and introduction to its EPs, including this exploration EP. CAPL provided MCH with its EP information sheets, drilling fact sheet, submission on '*Clarifying Consultation requirements for offshore petroleum and greenhouse gas storage regulatory approvals*'. CAPL and MCH discussed dates for trip to Barrow Island.	No objection or claim raised.		
	08/03/2024	001224	Email	CAPL thanked MCH for their attendance on 8 March 2024. CAPL summarised: • CAPLs submission on '*Clarifying Consultation requirements for offshore petroleum and greenhouse gas storage regulatory approvals*' • Drilling / Wells Overview • Referred MCH to publicly available information sheets for its current EPs, including this EP. • Provided an updated Engagement Plan	No objection or claim raised		

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				CAPL requested MCH to provide negotiation agreements comments for CAPL review. CAPL also provided an update on potential Barrow Island trip. CAPL noted that it would provide relevant sections of the Exploration EPs, once available.			
	09/03/2024- 11/03/2024	001239	Email	MCH provided CAPL with the draft negotiation protocol. CAPL thanked MCH for the marked-up negotiation agreement and referenced some of the points raised by MCH. CAPL noted that it would still like to meet on 13 March 2024 as scheduled.	No objection or claim raised		
	12/03/2024	001223	Email	MCH provided CAPL with the draft negotiation protocol. CAPL confirmed receipt of the draft negotiation protocol and confirmed the attendees for an upcoming meeting.	No objection or claim raised		
	13/03/2024	001237	Email	CAPL sent an email to MCH including the materials for consultation session on 13 March 2024, including relevant EP sections, including for the exploration well EP.	No objection or claim raised		
	13/03/2024	001258	Face to face	CAPL met with MCH to discuss their EPs, including this exploration EP. The following topics were discussed: • Overview of how CAPL explores, drills, operates, maintains and retires a well. During the meeting, MCH asked questions regarding: • timing of seismic activities • cement and drill fluids used • source of water was used in the drilling process • ongoing safety of the well. MCH raised the issue of leaking wells. • asked about how CAPL manages a well in an emergency situation • CAPL's renewables projects • well retirement and the removal of well heads. MCH's preference is for the well heads to be removed. CAPL was asked how often wells were inspected. CAPL confirmed that it would confirm this information with MCH. MCH confirmed that it would provide sections of CAPL's EP to their EP specialist for review, which had been provided previously to MCH (Record ID 001257 and 001237). CAPL confirmed that it would look forward to consulting with MCH in the future on seismic activities.	MCH requested information on how often wells are inspected. MCH noted that it was their preference for the wellhead to be removed.	**Claims have merit** As a relevant person, MCH's request for information on well inspection is considered fair and reasonable. CAPL note MCH's preference for wellheads to be removed. MCH are entitled to express their opinion as a relevant person, and CAPL acknowledge this response. Additionally, it is noted that this statement of preference was made regarding wellheads outside of the scope of this activity.	No change made to the EP. CAPL provided a response to MCH's query and closed out this engagement.
	13/03/2024	001235	Email	CAPL advised MCH that it would like to help close out consultation for the two exploration wells on 15 March 2024. CAPL asked MCH whether it would be worthwhile bringing together SME's that can spend the time going through the risks and controls sections of the EPs. CAPL sent MCH urgent action items from the meeting on 13 March 2024 (Record ID 001258). CAPL followed up with MCH on changing the reference in its EPs from "Coastal Mardudhunera" to "Mardathoonera"			
	14/03/2024	001142	Phone	CAPL confirmed with MCH via text details for meeting on Friday 15 March. MCH confirmed that it was forwarding EP sections to their environmental specialist on their team.	No objection or claim raised.		
	15/03/2024	001140	Face-to-face	CAPL met with MCH to finalise details for BWI visit and to discuss future meetings and consultation. CAPL and MCH co-designed a work in progress email where detail could be added by each party to update each other and track progress. MCH advised CAPL to forward all contact going forward to MCH directors. MCH confirmed that not all participants would now be available for BWI trip. CAPL confirmed that it would therefore cancel and postpone to a time which suited everyone.	No objection or claim raised.		
	15/03/2024- 25/03/2024	001221	Email	CAPL sent a summary email to MCH outlining: • Timing of BWI trip • Outlining scope and dates for MCH consultation input and feedback. CAPL noted that the timeframes for consultation align with that provided previously through co-design in 2023 • Summary of other recent correspondence with MCH. • Addressed MCH query relating to First Nations Engineering and future decommissioning works on Barrow Island.	No objection or claim raised		

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				CAPL resent the email on 25 March 2024 noting that a response had not been received and requesting any advice as soon as practicable. CAPL noted that some dates for MCH consultation input and feedback had moved.			
	20/03/2024	001147	Phone	MCH contacted CAPL by phone to discuss progress. CAPL confirmed that it was still waiting for MCH to provide comments and feedback on negotiation and consultation protocols.	No objection or claim raised.		
	26/03/2024	001222	Email	Consultant for MCH contact CAPL regarding a meeting regarding the relationship between CAPL and MCH. CAPL responded with potential meeting dates. CAPL also attached the summary of MCH consultation input and feedback required.	MCH requested a meeting.	**Claims have merit** As a relevant person, MCH's request for a meeting is fair and reasonable.	No change made to the EP.
	08/04/2024	001459	Email	MCH contacted CAPL to arrange a meeting.	MCH requested a meeting.	**Claims have merit** As a relevant person, MCH's request for a meeting is fair and reasonable.	No change made to the EP.
	10/04/2024	001260	Face to Face	CAPL met with MCH to discuss progress on EP and negotiation protocol. MCH advised that they had not received recent emails due to technical issues. MCH requested that emails be forwarded to personal email addresses. CAPL advised MCH of EP submission dates. CAPL and MCH discussed finalising negotiation protocol and consultation agreement. MCH advised that it would like to return to Perth within a week to execute agreements with CAPL. CAPL and MCH discussed other aspects relating to future work scopes.	MCH requested emails to be forwarded.	**Claims have merit** As a relevant person, MCH's request for information to be re-forwarded is considered fair and reasonable.	No change made to the EP. CAPL forwarded relevant emails to MCHs nominated email addresses.
	10/04/2024	001454	Email	CAPL sent an email to MCH referring to previous information consulted on (Record ID: OC-001037).	No objection or claim raised		
		001255	Email	CAPL emailed MCH to follow up on the Exploration Drilling EPs and requested any responses to be provided as soon as possible. CAPL noted it plans to submit the EP on 12 April 2024. CAPL also attached information shared in meetings on 8 March 2024 (Record ID 001257) and 13 March 2024 (Record ID 001258) as well as reshared emails previously issued.	No objection or claim raised		
	11/04/2024	001262	Email	CAPL emailed MCH advising it would be submitting its Exploration Drilling EPs on 12 April 2024. CAPL provided a summary of notes and actions from the meeting held on 10 April 2024 (Record ID 001260) and requested any feedback. CAPL noted it looked forward to continued discussions on the cultural mapping proposal.	No objection or claim raised		
	11/04/2024	001263	Email	MCH confirmed receipt of email information sent by CAPL on 11 April 2024 advising they would respond to CAPL. No response from MCH on the information provided by CAPL was received	No objection or claim raised		
				Summary: • CAPL commenced consultation with MCH on 22 August 2023 when they self-identified as a relevant person. CAPL provided information sheets and a link to its consultation page on 2 February 2024. . • CAPL has met with MCH representatives in multiple face-to-face meetings including multiday trip on Barrow Island on the 20-22 of November 2023 (for another activity, not within the scope of this EP). In addition, CAPL maintained contact through email and telephone correspondence. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. CAPL has responded to a request for information by providing specific sections of the EP on 13 March 2024. • CAPL has considered feedback provided by MCH during consultation for this EP as well as other CAPL EPs, including information on Mardathoonera people functions, interests and activities within the EMBA and all claims raised have been addressed. • CAPL has informed MCH that they may request information provided during consultation not to be published (Regulation 25(4)) during consultation co-design, in opening consultation emails and activity information sheets. CAPL has also provided MCH with a copy of NOPSEMA's consultation guideline, which further describes their right to request information not to be published. • As CAPL has provided a reasonable period and sufficient information to representatives of the MCH to make an informed assessment of the possible			

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				consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL will continue to engage with representatives of the MCH as part of its ongoing consultation as outlined in Section 8.3.4 of the EP.			
Murujuga Aboriginal Corporation (MAC)	06/01/2023	OC-000277	Face-to-face	CAPL established contact with MAC to organise a time to provide an overview of upcoming projects and discuss preferred methods of communication.	No objection or claim raised.		
	09/01/2023	OC-000309	Email	CAPL thanked MAC for their time. CAPL organised another time to meet with the CEO of MAC and discuss CAPL's upcoming Environment Plans. A meeting was organised.	No objection or claim raised.		
	03/02/2023	CN-000251	Email	CAPL identified the MAC as a Traditional Owner group and provided an overview of upcoming activities and Environment Plans. MAC advised that they had no concerns or objections with respect to upcoming offshore activities.	No objection or claim raised.		
	01/03/2023	OC-000310	Face-to-face	CAPL met with the MAC to discuss current ongoing projects, developments and goals from both organisations. CAPL requested advice from the Board on whether there were cultural values and sensitivities within the EMBA that could be impacted in the case of an event. CAPL requested advice as to whether additional relevant persons not present at the meeting should be informed and consulted with. MAC did not identify any additional relevant persons to consult.	No objection or claim raised.		
	06/06/2023	OC-000777	Email	CAPL followed up with MAC regarding EP submission to NOPSEMA. CAPL emailed to confirm no further claims or objections with respect to the EPs had arisen to MAC. Additionally, CAPL informed them of another activity factsheet being sent out soon.	No objection or claim raised.		
	24/10/2023	OC-000860	Phone	MAC advised that the MAC board was currently preparing a letter to provide to proponents with respect to cultural authority. MAC also intending to provide members with information and protocol on sharing cultural information publicly.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with MAC on 6 January 2023 with an introductory email and link to the Consultation Hub on CAPL's website • CAPL has met with MAC representatives in face-to-face meetings and maintained contact through email and telephone correspondence • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures • CAPL has considered feedback provided by MAC during consultation, including information on MAC's functions, interests and activities within the EMBA and all claims raised have been addressed • CAPL has informed MAC that they may request information provided during consultation not to be published (Regulation 25(4)) during consultation co-design, in opening consultation emails and activity information sheets. CAPL has also provided MAC with a copy of NOPSEMA's consultation guideline, which further describes their right to request information not to be published. • MAC has not raised any further objections or claims relating to the activity as CAPL has provided a reasonable period and sufficient information to MAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25 CAPL will continue to engage MAC as part of its ongoing consultation as outlined in Section 8.3.4.1 of the EP			
Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)	03/02/2023	CN-000319	Email	CAPL advised that the Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified NTGAC that they welcome meaningful feedback. A representative for NTGAC contacted CAPL to identify prerequisites to consultation prior to the board meeting with NTGAC. CAPL responded to the request and outlined the overview of CAPL's goals for continued future consultation.	No objection or claim raised.		
	28/02/2023	OC-000320	Email	CAPL originally engaged NTGAC regarding the Gorgon and Jansz wellhead decommissioning activity.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				NTGAC contacted CAPL to request additional information. NTGAC offered CAPL to present an overview of their upcoming activities to their board. CAPL engaged with NTGAC with information responding to NTGACs queries and confirmed that they would present to the NTGAC board of Directors. A confirmation of meeting date and attendance ensued.			
	09/03/2023	OC-000563	Face-to-face	CAPL met with NTGAC Board in Carnarvon to present on its Environment Plans and discuss unplanned risks and impacts and identify feedback on areas of significance and cultural values including sea country and underwater cultural heritage. CAPL spent considerable time explaining the approvals process and offered support to NTGAC to engage an independent environmental specialist to review the information sheets for our activities. CAPL requested advice as to whether additional relevant persons not present at the meeting should be informed and consulted with. NTGAC did not identify any additional relevant persons to consult. CAPL requested advice from NTGAC Board on whether there were cultural values and sensitivities within the EMBA that could be impacted in the case of an event. CAPL also requested advice from NTGAC Board as to whether there were other Relevant Persons that CAPL should contact as part of this process. CAPL offered to spend more time with NTGAC Board if necessary to both help to build the relationship but to also understand values and sensitivities.	No objection or claim raised.		
	13/03/2023	OC-000564	Email	CAPL emailed NTGAC thanking them for their time and opportunity to present at the NTGAC Board Meeting in Carnarvon on 9 March 2023 (Record ID OC-000563). CAPL reiterated the NOPSEMA process and key timeframes for submission, as well as information that CAPL required as part of the consultation process, including • Comments and advice on our upcoming activities, particularly with respect to values and sensitivities in the EMBA that could be impacted. • Understanding if there are others that the Board believes CAPL should be sharing activity information with at this stage.	No objection or claim raised.		
	03/04/2023- 17/04/2023	OC-000317	Email	CAPL contacted NTGAC to discuss if any objections or claims were raised after their presentation to the Board. CAPL welcomed the opportunity to discuss any further queries and attend future board meetings. NTGAC advised that the board were agreeable to future consultation and meetings with CAPL. CAPL accepted invitation from the NTGAC board to meet with the board on 5 September in Exmouth.	No objection or claim raised.		
	12/04/2023- 20/04/2024	OC-000318	Email	NTGAC contacted CAPL to request further information about the Environment Plans and upcoming activities. CAPL responded and provided the requested information.	No objection or claim raised.		
	09/05/2023	OC-000419	Phone	CAPL attempted to call NTGAC.	No objection or claim raised.		
	09/05/2023	OB-000541	Email	CAPL advised NTGAC that they had tried to contact them by phone and left a voicemail regarding their last communication in April. CAPL informed NTGAC that they are looking to finalise the Environment plans and noted that they had not received any feedback from NTGAC. CAPL acknowledged the heavy workload NTGAC is facing and wanted to reiterate their intentions to develop a communication protocol with NTGAC moving forward at NTGAC's convenience. CAPL acknowledged the importance of coastal areas, sea country and adjacent Islands as highly valuable to the NTGAC and other Aboriginal Corporations and understand the impact on these areas from planned or unplanned events which may cause harm to the cultural landscape, individuals, and community. CAPL informed NTGAC of their commitment to developing a relationship and participating in ongoing consultations with NTGAC about the activities that are completed offshore. CAPL informed NTGAC that no planned activities will impact the Native Title. CAPL confirmed their attendance for the Board meeting scheduled in September and reiterated their intentions to further discuss and update the Board on the status of the submitted Environment Plans and commencement of activities. CAPL offered to discuss any issues further at NTGACs convenience.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
	12/06/2023- 22/06/2023	OC-000576	Email	NTGAC representative presented their draft consultation framework to CAPL. CAPL thanked NTGAC representative /NTGAC for their time and acknowledged that CAPL are currently collaborating with a number of other PBC's to develop a plan around developing and managing our relationship and opportunities for collaboration so look forward to being able to do this with NTGAC as well. These plans are progressing well and CAPL provided initial thoughts and feedback regarding consultation framework.	No objection or claim raised.		
	13/06/2023- 27/06/2023	OC-000575	Email	CAPL reached out to NTGAC to confirm when they are expecting to engage an environmental specialist to review CAPL's offshore activity information sheet. NTGAC confirmed they have engaged an environmental specialist and NTGAC representatives confirmed the proposed consultation framework will be placed on hold pending the outcome of the review from the environmental specialist. CAPL reiterated they would like to build a relationship with NTGAC based on co-design that shapes how CAPL present information to NTGAC going forward and would be grateful if the proceed with the environmental specialist could continue in parallel with CAPL's continued consultation.	No objection or claim raised.		
	21/06/2023	OC-000565	Phone	CAPL contacted NTGAC via their representatives, responding to correspondence received from them in relation to the development of a framework for ongoing consultation. NTGAC representatives requested CAPL provide initial feedback on the draft provided. CAPL confirmed desire to meet with NTGAC and their representatives to develop a framework for consultation.	NTGAC representatives requested CAPL provide initial feedback on the draft provided.	**Claim has merit:** As a relevant stakeholder, CAPL has a responsibility to engage with relevant persons in a manner that allows meaningful two way communication.	Ongoing engagement with NTGAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and NTGAC, and once finalised will be implemented.
	30/06/2023	OC-000572	Phone	CAPL had phone discussion with NTGAC with respect to developing engagement framework for ongoing consultation and relationship development.	No objection or claim raised.		
	06/07/2023	OC-000578	Face-to-face	CAPL and NTGAC discussed the engagement plan for continued consultation. CAPL also requested to engage more broadly than just at the NTGAC board meeting.	No objection or claim raised.		
	21/07/2023	OC-000585	Email	NTGAC (via their Representatives) wrote to CAPL to advise that the NTGAC board do not wish to be consulted EP to EP and wish to develop a consultation framework with CAPL.	No objection or claim raised.		
	31/07/2023	OC-000587	Email	NTGAC advised that the board do not wish to be consulted EP by EP, and as such the independent environmental specialist has not been engaged. CAPL acknowledged this confirmation.	No objection or claim raised.		
	21/08/2023	OC-000621	Email	NTGAC advised CAPL that it had scheduled a half day workshop to discuss engagement plan with the NTGAC board on 28 September 2023 in Perth. CAPL accepted invitation. NTGAC reiterated that the Board has advised that EP by EP consultation is not working.	NTGAC representatives raised need to discuss and finalise the consultation framework to ensure meaningful feedback can be provided.	**Claim has merit:** The NTGAC are relevant persons, and as such it is reasonable and appropriate to facilitate meaningful feedback through the consultation framework.	Ongoing engagement with NTGAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and NTGAC, and once finalised will be implemented.
	11/09/2023	OC-000641	Face-to-face	CAPL met with NTGAC representatives on behalf of NTGAC. Focused discussion on draft engagement plan in preparation for meeting with NTGAC board on 28 September 2023. CAPL confirmed with NTGAC that this workshop was for the purposes of co-designing future consultation and the development of the relationship, not consultation. NTGAC confirmed that they are not comfortable with complete reporting of all correspondence within the body of the EP. NTGAC advised that they want to be able to stipulate the information that is available to the public and what remains accessible only to NOPSEMA in the sensitive information report. CAPL confirmed that any information NTGAC did not want to be made publicly available will only be provided to NOPSEMA in the sensitive information report.	NTGAC representatives advised CAPL they are not comfortable with all correspondence being presented in the EP and want to be able to stipulate the information that is available to the public and what remains accessible only to NOPSEMA in the sensitive information report	**Claim has merit:** Relevant persons may request information provided during consultation not to be published in accordance with Regulation 25(4)	CAPL will comply with NTGACs request for any information they specify to not be made public.
	12/09/2023	OC-000642	Email	CAPL provided with a copy of the draft engagement plan to NTGAC which had been discussed at the meeting on 11 September 2023. CAPL requested copy of draft agenda for 28 September 2023 workshop focused on co-designing future consultation and the development of the relationship with the NTGAC board.	No objection or claim raised.		
	18/09/2023	OC-000663	Email	NTGAC provided a proposed agenda for workshop on 28 September to co-design engagement plan for developing the relationship with CAPL. NTGAC provided a copy of NTGAC's strategic plan for CAPL's review and preparation.	No objection or claim raised.		
	28/09/2023	OC-000760	Face-to-face	CAPL met with representatives and discussed key terms of the consultation agreement. NTGAC provided feedback on: • Key terms of our consultation agreement • General report which NTGAC would like for the phase or project • Feedback from the board on what will help them going forward with consultation	The need to finalise consultation framework was raised to ensure meaningful feedback can be provided.	**Claim has merit:** As a relevant stakeholder, CAPL has a responsibility to engage with relevant persons in a manner that allows meaningful two way communication.	Ongoing engagement with NTGAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and NTGAC, and once finalised will be implemented.

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• Engagement Plan • Partnership / Benefits discussion. CAPL and NTGAC agreed next steps include: • Finalise terms for consultation • NTGAC to provide draft engagement/consultation letter Board to finalise what ongoing consultation looks like.			
	28/09/2023	OC-000762	Email	CAPL thanked NTGAC for the opportunity to meet with the NTGAC Board and provided copies of information shared at the meeting, including draft engagement plan, NOPSEMA Consultation Guidelines and proposed next step for formalising an agreement for ongoing consultation.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with NTGAC on 30 February 2023 with an introductory email and link to the Consultation Hub on CAPL's website. • CAPL has met with NTGAC representatives in face-to-face meetings and maintained contact through email and telephone correspondence • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures • CAPL has considered feedback provided by NTGAC during consultation, including information on NTGAC's functions, interests and activities within the EMBA and all claims raised have been addressed. • CAPL has informed NTGAC that they may request information provided during consultation not to be published (Regulation 25(4)) during consultation co-design, in opening consultation emails and activity information sheets. CAPL has also provided NTGAC with a copy of NOPSEMA's consultation guideline, which further describes their right to request information not to be published. • On 15 May 2023, CAPL emailed NTGAC with a summary of the outcomes of consultation undertaken to date. NTGAC has not raised any further objections or claims relating to the activity as CAPL has provided a reasonable period and sufficient information to NTGAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25 CAPL will continue to engage NTGAC as part of its ongoing consultation as outlined in Section 8.3.4.1 of the EP			
Ngarluma Aboriginal Corporation RNTBC	14/12/2022	OC-000342	Email	CAPL engaged with Ngarluma Aboriginal Corporation (NAC) as an opportunity to consult on upcoming activities as a relevant person. NAC and CAPL organised a meeting to discuss and gather a more in depth understanding of the activities.	No objection or claim raised.		
	02/02/2023	OC-000340	Face-to-face	CAPL met with NAC CEO and provided an overview of their activities. NAC suggested CAPL present to their board in February and to reconnect when they are next back in the region.	No objection or claim raised.		
	03/02/2023	CN-000343	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	10/02/2023	OC-000345	Email	CAPL engaged with NAC to set up a meeting to present activities to the NAC board.	No objection or claim raised.		
	10/03/2023	OC-000344	Email	CAPL attempted to contact NAC and receive feedback from previous meeting.	No objection or claim raised.		
	29/03/2023	OC-000346	Email	CAPL informed NAC of their travel plans and presentation to the board. NAC confirmed time and date and gave CAPL additional information for CAPLs process and procedures.	No objection or claim raised.		
	04/04/2023	OC-000241	Phone	CAPL contacted NAC to confirm attendance at the Board Meeting scheduled in April to discuss CAPL's upcoming activity. CAPL requested NAC to provide names of meeting attendees.	No objection or claim raised.		
	26/04/2023	OC-000355	Face-to-face	CAPL presented to NAC on upcoming EP development. CAPL sought feedback on areas of significance and cultural values including sea country and underwater cultural heritage. CAPL requested advice as to whether additional relevant persons not present at the meeting should be informed and consulted with. NAC did not identify any additional relevant persons to consult.	No objection or claim raised.		
	27/04/2023	OC-000530	Email	CAPL contacted NAC regarding feedback following the board meeting. CAPL identified the importance of NAC values and sensitivities and thanked the board for the opportunity to	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				engage. CAPL listed and outlined the important take aways from the meeting and informed NAC to identify any missing information. CAPL requested another meeting to discuss other opportunities.			
	19/06/2023- 12/07/2023	OC-000782	Email	CAPL and NAC organised a meeting to discuss programs, its EPs and OPP.	No objection or claim raised.		
	04/08/2023	OC-000591	Face-to-face	CAPL met with NAC to provide an update on current EP's, OPP and relationships development. NAC proposed the formation of a working group to discuss consultations in the future. NAC stated that offshore islands are significant to NAC.	NAC raised the significance of offshore islands.	**Claim has merit:** As a relevant person, NAC have provided an understanding of the values that are important to their functions, interests and activities. These must be considered to understand values and sensitivities potentially impacted by the activity.	EP was revised to include Table 4-14, which includes specific responses from First Nations consultation in regards to cultural values or features.
	04/08/2023	OC-000609	Email	NAC provided a hard copy of a letter from NAC CEO to CAPL CEO requesting opportunity to consult over CAPL's decommissioning plans.	NAC requested opportunity to consult over Chevron's decommissioning plans.	**Claim doesn't have merit:** The EP is not a decommissioning activity. As such this request has no merit (for this EP).	
	08/08/2023	OC-000611	Phone	NAC contacted CAPL following meeting in Karratha on 4 August 2023 to discuss the creation of a NAC-CAPL working group. NAC advised that they would be sending a draft budget for CAPL to incorporate into the draft engagement plan. NAC would like to provide this to the NAC board at the August 2023 meeting.	No objection or claim raised.		
	08/08/2023	OC-000783	Email	CAPL followed up with an email outlining notes from the face to face meeting (Record ID: OC-000591). CAPL advised that they would like to confirm board meeting for attendance.	No objection or claim raised.		
	12/09/2023	OC-000643	Email	CAPL provided NAC with draft engagement plan as requested and sought confirmation on presentation at October board meeting.	No objection or claim raised.		
	18/09/2023- 12/10/2023	OB-000842	Email	CAPL and NAC discussed the draft engagement plan and discussed the potential for a workshop to discuss future activities.	No objection or claim raised.		
	21/09/2023	OC-000720	Email	CAPL confirmed receipt of email from NAC providing budget for ongoing consultation and dates for the CAPL NAC working group to meet to consult on CAPL activities. CAPL requested confirmation of date in October 2023. CAPL advised that it would review the budget and revert as soon as possible.	No objection or claim raised.		
	19/10/2023	OC-000845	Phone	NAC contacted CAPL to thank CAPL for provision of draft engagement agreement. They will provide comments and further opportunity to meet in Karratha. CAPL advised that they would like to spend time with working group as part of a scene setting exercise before meeting to discuss new EP's in 2024.	No objection or claim raised.		
	22/10/2023	OC-000862	Email	CAPL enquired to set up some time with NAC to meet.	No objection or claim raised.		
	30/10/2023	OC-000875	Email	NAC emailed CAPL with comments attached to draft Consultation Meeting Protocol. NAC advised that details for next meeting will be available shortly.	No objection or claim raised.		
	03/11/2023	OC-000896	Phone	NAC contacted CAPL to invite to meeting with NAC board in KTA on 13 November. CAPL accepted invitation.	No objection or claim raised.		
	17/11/2023	OC-000929	Email	CAPL emailed NAC working group to provide copies of documents provided at in person meeting in Karratha on 13 November 2023. CAPL requested opportunity to meet with the NAC working group in March 2024 to consult on other CAPL EPs..	No objection or claim raised.		
				Summary: • CAPL commenced consultation with NAC on 14 December 2022 with an introductory email and link to the Consultation Hub on CAPL's website. An information sheet was provided on 3 February 2023. • CAPL has met with NAC representatives in face-to-face meetings and maintained contact through email and telephone correspondence • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL has considered feedback provided by NAC during consultation, including information on NAC's functions, interests and activities within the EMBA and all claims raised have been addressed. • CAPL has informed NAC that they may request information provided during consultation not to be published (Regulation 25(4)) during consultation co-design, in opening consultation emails and activity information sheets. CAPL has also provided NAC with a copy of NOPSEMA's consultation guideline, which further describes their right to request information not to be published. • On 27 April 2023, CAPL emailed NAC with a summary of the outcomes of consultation undertaken to date. • NAC has not raised any further objections or claims relating to the activity as CAPL has provided a reasonable period and sufficient information to NAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25 CAPL will continue to engage NAC as part of its ongoing consultation as outlined in Section 8.3.4.1.			
Ngarluma Yindjibarndi Foundation Ltd	12/12/2022	OC-000331	Email	CAPL advised that the NYFL had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activities and NYFL was interested in connecting with CAPL and setting up a meeting.	No objection or claim raised.		
	12/12/2022	OC-000651	Phone	CAPL contacted NYFL to discuss upcoming EPs that would require consultation. CAPL requested opportunity to meet with NYFL to co-design how it consults with NFYL and can start to form a relationship. NYFL requested that CAPL provide further details via email.	No objection or claim raised.		
	11/01/2023	OC-000333	Email	CAPL engaged with NYFL to organise a meeting with the board to discuss CAPL's activities and answer any questions NYFL may have.	No objection or claim raised.		
	25/01/2023	OC-000335	Phone	NYFL advised CAPL that they were interested in CAPL spending time in the region and experience what industry contributions and funding can achieve. NYFL requested a more basic information sheet outlining CAPLs activities for their board meeting.	NYFL requested a more basic information sheet outlining CAPLs activities.	**Claim has merit:** As a relevant person, this request for information to be presented in a particular format is reasonable and appropriate.	No changes made to the EP. This request was addressed (Record ID: CN-000332)
	25/01/2023	OC-000422	Phone	CAPL attempted to contact NYFL	No objection or claim raised.		
	03/02/2023	CN-000332	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided information sheets and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	15/02/2023	OC-000334	Email	CAPL communicated their planned agenda for the meeting. NYFL responded with additional requests to be added to the agenda which were included.	No objection or claim raised.		
	08/03/2023	OC-000535	Face-to-face / Email	CAPL met with NYFL to discuss the upcoming activities, including this EP, and to further understand areas of significance and cultural values including sea country and underwater cultural heritage. The following aspects were discussed: • NYFL Directors noted that "People from the land speak for and care about the marine animals", even if they are far out to sea • Discussed the nature of many traditional narratives have origins and connection to the seascape, and that impacts to the seascape can have cultural repercussions. • Discussed that TO communities are rarely able to verify proponent management approaches to the seascape environment, including marine fauna, given it's not an observable environment • Discussed the interconnectedness of the cultural landscape, whereby TOs from the western Pilbara are held to account by other Nyambali (Cultural bosses) when proponents impact land and sea. The cultural responsibilities transcend Native Title and other boundaries. • Query about how Chevron is looking to understand the intangible values offshore • Concern raised about the cumulative environmental impacts (emissions etc) • Query about when these EP activities will start and how Chevron will engage in future • Note that Chevron are interested in contributing to Law and Cultural solutions that may mitigate the impacts of proponent activity • Discussed the opportunity for Chevron to advocate for NYFL on social and economic issues	1. Directors noted concerns around marine fauna, specifically whales, dugongs and turtles as species of importance. Concerns about whether activities may have immediate and cascading impact on ecosystems 2. Directors noted that "People from the land speak for and care about the marine animals", even if they are far out to sea 3. Discussed the nature of many traditional narratives have origins and connection to the seascape, and that impacts to the seascape can have cultural repercussions 4. Discussed that TO communities are rarely able to verify proponent management approaches to the seascape environment, including marine fauna, given it's not an observable environment (as would be the case on a terrestrial landscape)	**Claims have merit:** NYFL is a Traditional Owner representative organisation, who on their website identify as a 'relevant person' for oil and gas projects in areas that relate to Traditional Owner values in the North West of Australia. As the activity occurs in the North West of Australia, and has the potential to impact TO values that were identified during consultation, NYFL are considered relevant. Although specific claim or objections were not raised, values and concerns were discussed this must be acknowledged and considered in the EP: 1. CAPL acknowledge that marine fauna and ecosystems are of concern, and must be considered in the EP 2. CAPL acknowledge that NYFL speak for and care for marine animals, and this cultural	Ongoing engagement with NYFL is taking place. A formal Engagement Plan is also being co-designed by CAPL and NYFL, and once finalised will be implemented. Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with First Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which further describes ongoing engagement. Table 4-14 was added to the EP, which includes specific responses from First Nations consultation in regards to cultural values or features.

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				CAPL requested advice as to whether additional relevant persons not present at the meeting should be informed and consulted with. NYFL did not identify any additional relevant persons to consult. CAPL provided a summary of issues from the meeting. CAPL asked NYFL whether they had any additional comments, and expressed interest in further face to face engagement. NYFL acknowledged the summary and provided comment. CAPL expressed intention of further engagement.	5. Discussed the interconnectedness of the cultural landscape, whereby TOs from the western Pilbara are held to account by other Nyambali (Cultural bosses) when proponents impact land and sea. The cultural responsibilities transcend Native Title and other boundaries. Lorice Douglas gave the example of her father, Tim Douglas, being held to account at Law Time by Desert mob, when proponents impact the land a seascape in Ngarluma Country 6. Query about how Chevron is looking to understand the intangible values offshore 7. Concern raised about the cumulative environmental impacts (emissions etc) by proponent activity. Ricky Smith noted that environmental impacts are observed on the terrestrial landscape “You can see the impact out on the Burrup. Used to be kangaroos everywhere, now there's nothing” 8. Query about when these EP activities will start and how Chevron will engage in future 9. Note that Chevron are interested in contributing to Law and Cultural solutions that may mitigate the impacts of proponent activity 10. Discussed the opportunity for Chevron to advocate for NYFL on social and economic issues	significance should be captured in the EP 3. CAPL acknowledge the cultural significance communicated regarding the seascape, and that this cultural significance should be captured in the EP 4. CAPL acknowledge that TO communities communicated that they are rarely able to verify proponent management approaches to the seascape environment. This indicates a need for CAPL to consider how to managed/enable ongoing engagement, and ensure it is captured in EP. 5.CAPL acknowledge the interconnectedness of the cultural landscape communicated by TO, that should be considered in the EP. 6. CAPL note that NYFL queried how CAPL is looking to understand the intangible values offshore (such as the presence and importance off shore). This question raises a value of the NYFL, and should be captured in the EP and considered in ongoing engagement. 7. CAPL acknowledge that NYFL raised the issue of cumulative impacts. As the activity is one of many oil and gas operations, this is a valid concern, and the impacts considered in the EP. 8. NYFL raised a query regarding when activities will start and ongoing engagement. As a relevant stakeholder, CAPL has a responsibility to engage with relevant persons in a manner that allows meaningful two way communication. 9. and 10. As a relevant stakeholder, CAPL has a responsibility to engage with relevant persons in a manner that allows meaningful two way communication, and provide the opportunity for advocacy and support.	
	06/04/2023	OC-000252	Email	CAPL met with NYFL to discuss the upcoming activities and to further understand areas of significance and cultural values including sea country and underwater cultural heritage. CAPL provided a summary of issues from the meeting. CAPL asked NYFL whether they had any additional comments, and expressed interest in further face to face engagement. NYFL acknowledged the summary and provided comment.	No objection or claim raised.		-
	09/05/2023	OC-000420	Phone	CAPL left as message for NYFL to call back in regard to its EPs.	No objection or claim raised.		
	12/05/2023	OC-000429	Phone	NYFL confirmed that there were no further comments to add to their response to CAPL's submission.	No objection or claim raised.		
	15/05/2023	OC-000524	Email	CAPL thanked NYFL for their time and consultation. CAPL summarised NYFL’s feedback that they have shared the last few months for NYFL’s information.	No objection or claim raised.		

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				NYFL thanked CAPL for their time and advised CAPL of their initiative on social impact capabilities.			
				Summary: • CAPL commenced consultation with NYFL on 12 December 2022 with an introductory email and link to the Consultation Hub on CAPL's website. An information sheet was provided to NYFL on 3 February 2024. • CAPL has met with NYFL representatives face-to-face meetings and maintained contact through email and telephone correspondence. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures • CAPL has considered feedback provided by NYFL during consultation, including information on NYFL's functions, interests and activities within the EMBA and all claims raised have been addressed • CAPL has informed NYFL that they may request information provided during consultation not to be published (Regulation 25(4)) during consultation co-design, in opening consultation emails and activity information sheets. CAPL has also provided NYFL with a copy of NOPSEMA's consultation guideline, which further describes their right to request information not to be published. • On 15 May 2023, CAPL emailed NYFL with a summary of the outcomes of consultation undertaken to date • NYFL has not raised any further objections or claims relating to the activity as CAPL has provided a reasonable period and sufficient information to NYFL to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25 CAPL will continue to engage NYFL as part of its ongoing consultation as outlined in Section 8.3.4.1.			
Robe River Kuruma Aboriginal Corporation (RRKAC)	19/01/2023	OC-000737	Email	CAPL organised to meet with RRKAC and discuss upcoming Environment Plans.	No objection or claim raised.		
	31/01/2023	OC-000543	Face-to-face	CAPL met with representatives from RRKAC to discuss CAPL's upcoming Environment Plan activities. CAPL sought feedback on areas of significance and cultural values including sea country and underwater cultural heritage. CAPL requested advice as to whether additional relevant persons not present at the meeting should be informed and consulted with. RRKAC did not identify any additional relevant persons to consult. RRKAC advised the information will be presented to their heritage advisory committee and will revert back to CAPL with any comments, questions, queries they may have. RRKAC confirmed they had no further comments upon presenting to the heritage advisory committee.	No objection or claim raised.		
	03/02/2023	CN-000378	Email	CAPL emailed RRKAC and thanked them for their time to discuss their Environmental Plan consultation process (Record ID: OC-000543). CAPL provided an overview of the consultation process as well as the activity and provided a link to their website for further information. CAPL noted the key action from the meeting (Record ID: OC-000543) was for the activity information to be tabled at the next RRKAC Heritage Advisory Committee scheduled for the 23 February. CAPL requested RRKAC to advise if they need anything further to support their meeting. RRKAC acknowledged CAPLs email and informed them that they had downloaded the maps provided and would advise CAPL if there were any issues.	No objection or claim raised.		
	04/05/2023	OC-000725	Email	CAPL sent a follow up email asking RRKAC if they had any feedback about the Environment plans from Heritage Advisory Committee or from the community. CAPL informed RRKAC that should they have any questions on the proposed activities, CAPL would appreciate if they could be provided before the 12 May to be considered in the development of the Environment Plans.	No objection or claim raised.		
	06/05/2023- 08/05/2023	OB-000726	Email	RRKAC email CAPL in response to their follow up email and advised them that the HAC met in February 2023 and considered the maps and proposed activities. RRKAC advised that the Heritage Advisory Committee only want to be consulted for activities that were a perceived possible impact to their native claim area that could directly impact the environmental integrity of Jahjiwurra (Robe River).	1. Ask to be consulted only when activities were within the Kuruma Marthudunera native title claim area or if a possible environmental	**Claim has merit:** As a relevant person, the request for ongoing engagement is considered fair and reasonable.	Ongoing engagement with RRKAC is taking place. Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with First

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				RRKAC requested that they would appreciate future notification of activities. CAPL responded to RRKAC and thanked them for the feedback and acknowledged their time. CAPL informed RRKAC that they would continue engagement with them regarding activities as requested.	incident could directly impact their claim area. 2. RRKAC request notification (including maps) on commencement (only if within area of significance identified) 3. Raised the Kuruma Marthudunera native title claim area and the Robe River mouth (as an important value/sensitivity.	However, as the EMBA is outside the area of concern, therefore further engagement on interaction with the sensitivities raised is not expected.	Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which further describes ongoing engagement.
				Summary: • CAPL commenced consultation with RRKAC on 23 September 2022 with an introductory email and link to the Consultation Hub on CAPL's website. A link to Consultation Hub was also provided again on 3 February 2024. • CAPL has met with RRKAC representatives in face-to-face meetings and maintained contact through email and telephone correspondence. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures • CAPL has considered feedback provided by RRKAC during consultation, including information on RRKAC's functions, interests and activities within the EMBA and all claims raised have been addressed • CAPL has informed RRKAC that they may request information provided during consultation not to be published (Regulation 25(4)) during consultation co-design, in opening consultation emails and activity information sheets. CAPL has also provided RRKAC with a copy of NOPSEMA's consultation guideline, which further describes their right to request information not to be published. • RRKAC has not raised any further objections or claims relating to the activity as CAPL has provided a reasonable period and sufficient information to RRKAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25 CAPL will continue to engage RRKAC as part of its ongoing consultation as outlined in Section 8.3.4.1.			
Wirrawandi Aboriginal Corporation RNTBC (WAC)	24/11/2022	OC-000371	Email	CAPL contacted the WAC to provide an overview of their current approach to consultation and Environment Plans for upcoming activities. A meeting was organised.	No objection or claim raised.		
	30/11/2022	OC-000372	Virtual Meeting	CAPL advised WAC of the new NOPSEMA consultation requirements, CAPL's Environment Plans and what the best course of action is to consult with the WAC members and community. WAC suggested the best course of action was to focus on developing a communication plan between CAPL and WAC to commence rebuilding the relationship prior to discussions around CAPL's upcoming project activities (environmental plans). Both parties agreed to identify a suitable meeting date before the end of the year via email correspondence.	WAC suggested the best course of action was to focus on developing a communication plan between CAPL and WAC to commence rebuilding the relationship prior to discussions around CAPL's upcoming	**Claim has merit.** As a relevant person, CAPL has the responsibility to identify the correct engagement mechanism to ensure all appropriate information is disseminated in an appropriate fashion.	Ongoing engagement with WAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and WAC, and once finalised will be implemented. The Engagement Plan will capture opportunities for collaboration and knowledge sharing, and the type and frequency of interactions. Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with First Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which further describes ongoing engagement.
	06/12/2022	OC-000546	Email	CAPL engaged with WAC to confirm possible dates to meet the WAC board and Elders and develop a relationship. CAPL presented WAC with some questions regarding expectations to discuss when CAPL meet with the WAC board and Elders, including co-design, drafting up an agreement and the CAPL representation WAC would expect to see. WAC and CAPL organised to have an informal meeting prior to the Board meeting.	No objection or claim raised.		

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	22/12/2022	OC-000476	Face-to-face	A CAPL representative and the WAC General Manager met to discuss the draft agenda for the upcoming meeting between CAPL and the WAC Board and Elders, scheduled in January 2023.	No objection or claim raised.		
	05/01/2023	OC-000375	Email	CAPL and WAC exchanged emails discussing meeting quotes, agenda, and scheduling a meeting to socialise the agenda with the WAC Board prior to the meeting in January. The Board meeting did not go ahead as CAPL met with WAC Chair on the 10th of January instead.	No objection or claim raised.		
	10/01/2023	OC-000376	Face-to-face	CAPL met with WAC to discuss the upcoming WAC/CAPL meeting planned for 17-18 January. A discussion about the CAPL and WAC relationship, past, present and future was had; and the agenda for the upcoming WAC/CAPL meeting.	No objection or claim raised.		
	17/01/2023	OB-000274	Face-to-face	CAPL met with the board of directors, Elders' council and staff of WAC to present an overview of their upcoming offshore activities and to discuss the re-building of the relationship between CAPL and Wirrawandi. CAPL sought feedback on areas of significance and cultural values including sea country and underwater cultural heritage. The key items discussed; CAPL explained its facilities and projects, and activities covered by upcoming Environment Plans and answered questions from Wirriwandi regarding seismic, whales and environmental monitoring on Barrow Island. CAPL requested advice as to whether additional relevant persons not present at the meeting should be informed and consulted with. WAC did not identify any additional relevant persons to consult.	WAC raised questions relating to CAPLs activities.	**Claim has merit:** As a relevant person, request for information regarding the activities is reasonable and appropriate.	No changes made to the EP. Claims raised during the meeting were addressed.
	03/02/2023	CN-000426	Email	CAPL thanked WAC for their time in regard to the January meeting (Record ID: OB-000274) and expressed the intent to continue to rebuild the CAPL/WAC relationship in parallel to EP consultation. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified WAC that they welcome meaningful feedback.	No objection or claim raised.		
	07/02/2023	OC-000650	Face-to-face	CAPL met with representatives of WAC to discuss actions arising from the initial meeting in January with the board of directors and Elders council of WAC.	No objection or claim raised.		
	07/02/2023	OC-000275	Email	CAPL emailed WAC to summarise their face-to-face meeting from earlier in the day. CAPL outlined actions arising from the initial meeting in January with the board of directors and elders council of WAC.	No objection or claim raised		
	15/02/2023	OC-000338	Face-to-face	CAPL met with WAC rangers. WAC informed CAPL of their connection and history to country and shared their history and story.	WAC informed CAPL of their connection and history to country and shared their history and story.	**Claim has merit:** As a relevant person, WAC have provided an understanding of their connection and history to country and associated values and sensitivities.	Refer to Table 4-14 in the EP, which includes specific responses from First Nations consultation in regards to cultural values or features.
	16/02/2023	OC-000349	Email	CAPL informed WAC of their travel plans to Karratha and confirmed time and date to meet with CEO and Chair of the Board of Directors while in Karratha.	No objection or claim raised.		
	22/02/2023	OC-000347	Face-to-face	CAPL engaged with representatives from WAC and continued discussions from previous board meeting in January.	No objection or claim raised.		
	16/03/2023	OC-000350	Email	CAPL advised WAC of its proposed agenda for the board meeting in Perth.	No objection or claim raised.		
	22/03/2023	OC-000273	Face-to-face	CAPL met with the board of directors, Elders council and staff of the WAC to provide a follow up presentation of their upcoming offshore activities and to review draft terms of reference for joint working group to further develop governance of relationship.	WAC raised the following: • What species of turtles on Barrow Island. • When describing the environmental impacts of scenarios and emergency response process. A question was raised regarding if foam is used to reduce a hydrocarbons in a spill situation. • What does the inside of a gas reserve look like? And if the gas is in the form of water?	Some of the points raised were clarifying questions or in regards to activities outside of the activity. CAPL has reviewed all points and assessed the merits individually. What species of turtles on Barrow Island. Not an objection of claim - information only. However it is noted that turtles are raised as a value, and should be considered in the EP. • When describing the environmental impacts of scenarios and emergency response process. A question was raised regarding if foam is used to reduce a	CAPL provided an informational response, and no further questions or claims were raised. No change made to the EP. Threatened and/or migratory marine turtles with the potential to be present within the EMBA are discussed in Section 4.3.3.2 of the EP, and are considered in the Risk Assessment (Section 7).

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					• Is drilling process and if it is similar to the process in the deep-water horizon event? • Question was raised on if there are gas leaks when transporting gas. Comparation to the Iron Ore industry and the effect on environment when iron ore is transport through the loss of mineral cause by wind. • What is the purpose of CO_2 injection? • Concerns were raised the process of drilling into the sea floor, that it would cause a tidal wave. Participant reflected on an example of small village being wiped out in Indonesia from a tidal wave believed to be caused by drilling. • Concerns were raised during the meeting about the Mercury content in the gas being extracted. As Mercury stays around for generations through the consummation of contaminated marine life. • Questions around the flaring at gas plants and the emissions produced by these flares – concerned when there is black smoke produced of the flare at North-west Shelf. CAPL responded to all questions raised during the meeting and encouraged WAC to get in contact should they have any further questions.	hydrocarbons in a spill situation. CAPL acknowledge that a request for information regarding spill response was raised. CAPL provided an informational response, and no further questions or claims were raised. • What does the inside of a gas reserve look like? And if the gas is in the form of water? Not an objection or claim - information only . • Is drilling process and if it is similar to the process in the deep-water horizon event? Not an objection or claim - information only • Question was raised on if there are gas leaks when transporting gas. Comparation to the Iron Ore industry and the effect on environment when iron ore is transport through the loss of mineral cause by wind. Not an objection or claim - information only • What is the purpose of Co2 injection? Not an objection or claim - information only • Concerns were raised the process of drilling into the sea floor, that it would cause a tidal wave. Participant reflected on an example of small village being wiped out in Indonesia from a tidal wave believed to be caused by drilling. As drilling is within scope of this activity, this claim has merit. CAPL provided an informational response, and no further questions or claims were raised. • Concerns were raised during the meeting about the Mercury content in the gas being extracted. As Mercury stays around for generations through the consummation of contaminated marine life. As drilling is within scope of this activity, this claim has merit. CAPL provided an informational response, and no further questions or claims were raised. • Questions around the flaring at gas plants and the emissions produced by these flares – concerned when there is black smoke produced of the flare at North-west Shelf. CAPL provided an informational response, and	

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						no further questions or claims were raised.	
	06/04/2023	OC-000351	Email	CAPL sent through minutes of previous meeting with the WAC board of directors which occurred on the 22nd of March and additional documents requested during the meeting. CAPL also requested permission of WAC members to display pictures in internal presentation for educational purposes.	No objection or claim raised.		
	7/04/2023	OC-000275	Face-to-face	CAPL met with representative of WAC to discuss actions arising from the initial meeting in January with the board of directors and Elders council of WAC.	No objection or claim raised.		
	26/04/2023	OC-000354	Face-to-face	CAPL met WAC representatives to discuss and agree on ongoing communications between CAPL and WAC and provide a summary of CAPL's consultations with WAC in respect to CAPL's current Environment Plans in development for WAC's approval. CAPL sent an email thanking WAC for their time, and outlining the actions that come out of the meeting for CAPL and WAC to complete.	No objection or claim raised.		
	01/05/2023	OC-000348	Email	WAC requested an update on the outcomes, communications plan and support from Chevron further to the meeting held 18,19 January 2023. CAPL confirmed time and date of meeting with the CEO of WAC.	No objection or claim raised.		
	15/05/2023	OC-000528	Email	CAPL advised WAC of the draft documents it has prepared in preparation for the board meeting in the following week. CAPL informed WAC that they would be happy to discuss any of the documents. CAPL provided an overview of the Draft Consultation Response and Statement and the Draft Engagement Plan. Within the Draft Consultation Response and Statement, CAPL summarised an understanding of the values and sensitivities raised by WAC. : CAPL committed to continue engagement with WAC and to ensure emergency response plans are well informed.	WAC raised the following: • The coastal area, sea country, and adjacent islands are highly valuable to the Yaburara & Mardudhunera people. Impact on these areas from a planned or unplanned event may cause harm to the cultural landscape, individuals, and the community. • WAC requests Chevron continues engaging to gain a deeper understanding of the values and sensitivities, so emergency response plans are well informed.	**Claim has merit:** • As a relevant person, WAC have provided an understanding of the values that are important to their functions, interests and activities. These must be considered to understand values and sensitivities potentially impacted by activity. • As a relevant stakeholder, the WACs request for continued engagement has merit.	EP was revised to include Table 4-14, which includes specific responses from First Nations consultation in regards to cultural values or features. Table 8-5 of the EP has been revised to include an additional row for ongoing engagement with First Nations people and/or representative bodies in regards to identification and understanding of cultural values or features within the EMBA. This has not been restricted to just WAC.
	26/06/2023	OC-000807	Email	CAPL sent through a list of discussion points for the meeting the following day.	No objection or claim raised.		
	30/06/2023	OC-000808	Email	CAPL sent through an action and opportunities list following the meeting from the 27 June.	No objection or claim raised.		
	11/07/2023	OC-000608	Email	CAPL and WAC email discussion around draft terms of agreement with respect to CAPL supporting the employment of a WAC Ranger Coordinator	No objection or claim raised.		
	13/07/2023	OC-000809	Email	CAPL sent an update on their actions to let WAC know how they are progressing. CAPL asked about how they would like to advance the draft document and mentioned turtle monitoring opportunities, and ranger program update and the northern seed initiative. CAPL enquired as to WAC availability to set up a meeting.	No objection or claim raised.		
	14/07/2023	OC-000607	Email	CAPL and WAC discussion relating to ongoing activities and opportunities for consultation. WAC provided copies of NT Consultation Costs and Agreement.	No objection or claim raised.		
	26/07/2023	OC-000810	Email	CAPL sent an email following a meeting outlining the actions from their meeting with WAC.	No objection or claim raised.		
	03/08/2023	OC-000606	Face-to-face	CAPL met with the board of directors, Elders council and staff of the WAC to provide a follow up presentation of their upcoming offshore activities and to review draft terms of reference for joint working group to further develop governance of relationship.	No objection or claim raised.		
	09/08/2023	OC-000812	Email	WAC enquired as to the finalisation of the engagement plan between WAC and CAPL. CAPL responded advising that the plan was ready if WAC had no further comments.	No objection or claim raised.		
	18/08/2023	OC-000813	Email	CAPL enquired regarding an individual member that came forward requesting to speak with CAPL. CAPL advised they were happy to speak with the individual and if WAC could make introductions. WAC responded advising they would not be engaging with the individual nor wanting to make introductions to CAPL. WAC specified that the individual was a separate entity to WAC. CAPL thanked WAC for the clarification.	No objection or claim raised.		

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	18/08/2023- 29/08/2023	OC-000811	Email	CAPL requested confirmation on the Sponsorship Agreement between CAPL and WAC.	No objection or claim raised.		
	23/08/2023	OC-000627	Email	CAPL contacted WAC to confirm that a Member of WAC had contacted CAPL to nominate as a Relevant Person. CAPL confirmed that it understood that while the individual was a Member of WAC, they did not represent WAC in an official capacity and that they would be treated as a separate Relevant Person for the purposes of consultation.	No objection or claim raised.		
	18/10/2023	OC-000851	Email	CAPL sent off an email regarding a media article in the paper regarding CAPL's environmental performance on Barrow Island. CAPL assured that all environmental obligations are taken seriously and that rigorous measures are in place to protect biodiversity. CAPL offered WAC the opportunity to meet in order to be further briefed on our environmental management of Barrow Island.	No objection or claim raised.		
	22/10/2023	OC-000861	Email	CAPL organised to meet with WAC members and new CEO.	No objection or claim raised.		
	01/11/2023	OC-000897	Face-to-face	CAPL met WAC Chair and new CEO in Perth. CAPL provided update to new CEO about progress on the relationship and requested opportunity to meet with the new CAPL WAC Working Group on the 21st of November	No objection or claim raised.		
	02/11/2023	OC-000888	Email	CAPL send out further information to WAC regarding CAPL movements before the end of the year. CAPL advised they would like to meet the working group before EOY and suggested 21st Nov. CAPL provided a draft agenda.	No objection or claim raised.		
	29/11/2023	OC-000966	Email	CAPL contacted WAC to enquire about a possible catch up and information sharing regarding 2024 consultation and environment plans. CAPL asked for possible dates to meet.	No objection or claim raised.		
	07/12/2023	OC-000982	Email	WAC and CAPL discussed talking points for an upcoming meeting.	No objection or claim raised.		
	08/12/2023	OC-000988	Email	CAPL wrote to WAC to provide confirmation of interactions in relation to requests for facilitation and introduction to potential relevant persons for the purpose of consultation; in response to previous advice about the identification of a person wishing to be consulted separately to WAC.	No objection or claim raised.		
	08/12/2023	OC-000989	Face-to-face	CAPL met with WAC to discuss CAPL WAC working group meeting in 2024. WAC advised of meeting with BTAC to discuss Cultural Heritage Management on BWI CAPL and WAC discussed support for NNSI program	No objection or claim raised.		
	06/02/2024	001503	Email	CAPL emailed WAC to determine when the WAC Chief Executive Officer finishes in their position.	No objection or claim raised.		
	15/02/2024	001508	Email	CAPL emailed WAC to request meeting to discuss: • CAPL EP Revision • 2024 planning • Meeting with the WAC Board in March • Survey schedule • Consultations for 2024 • Northern Native Seed Initiative • Barrow Island decommissioning • Ranger Coordinator position.	No objection or claim raised.		
	22/02/2024	001515	Email	CAPL emailed WAC to follow up on the email sent requesting a meeting while CAPL are in Karratha.	No objection or claim raised.		
	29/02/2024	001512	Email	CAPL emailed WAC to arrange a meeting for 15 Feb 2024.	No objection or claim raised.		
	06/03/2024	001496	Email	CAPL requested WAC to respond to CAPL with available times to meet to discuss moving forward.	No objection or claim raised.		
	08/04/2024	001458	Email	CAPL emailed WAC regarding their engagement and several ongoing projects. CAPL offered to present to the WAC board on another CAPL EP to increase their understanding of offshore activities. CAPL agreed to wait until WAC appoints a new CEO before refreshing the engagement plan and mentions that the opportunity to contribute to the Northern Native Seed Initiative has been missed.	No objection or claim raised.		

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				CAPL requested WAC to confirm the status of the Ranger program assistance and whether WAC has received information on the Barrow Island Decommissioning.. CAPL requested clarification on the preferred communication method and offers to speak over the phone, teams, or in person in Karratha			
	09/07/2024	001645	Email	CAPL responded to email from WAC Advisor on their statement that the WAC Board was not previously consulted on the EP. CAPL provided evidence and detail of all consultations in 2023 with WAC including visit to Barrow Island.	Raised concern about quality of consultation	**Claims have merit:** As a relevant person, CAPL acknowledges the concerns raised.	No change made to the EP. CAPL provided evidence and detail of all consultations in 2023 with WAC including visit to Barrow Island to address their objection and claims raised. Ongoing engagement with WAC is taking place.
				Summary: • CAPL commenced consultation with WAC on 23 September 2022 with an introductory email and link to the Consultation Hub on CAPL's website. An information sheet and additional link to Consultation Hub was provided on 3 February 2023. • CAPL has met with WAC representatives in face-to-face meetings and maintained contact through email and telephone correspondence • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures • CAPL has considered feedback provided by WAC during consultation, including information on WAC's functions, interests and activities within the EMBA and all claims raised have been addressed. • CAPL has informed WAC that they may request information provided during consultation not to be published (Regulation 25(4)) during consultation co-design, in opening consultation emails and activity information sheets. CAPL has also provided WAC with a copy of NOPSEMA's consultation guideline, which further describes their right to request information not to be published. • On 15 May 2023, CAPL emailed WAC with a summary of the outcomes of consultation undertaken to date. • WAC has not raised any further objections or claims relating to the activity as CAPL has provided a reasonable period and sufficient information to WAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25 CAPL will continue to engage WAC as part of its ongoing consultation as outlined in Section 8.3.4.1.			
Yinggarda Aboriginal Corporation (YAC)	03/02/2023	CN-000324	Email	CAPL advised that the YAC had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL advised that they are interested in speaking to a representative of YAC about CAPL's activities. CAPL advised that they welcome meaningful feedback. CAPL acknowledged the workloads and pressures Traditional Owner Corporations are under and advised they would be available to discuss further at YAC's convenience.	No objection or claim raised.		
	07/03/2023	OC-000327	Email	YAC contacted CAPL to confirm that they consider themselves a relevant person and to welcome consultation with CAPL. YAC requested some additional information on the Environment plans outlined in CAPL's previous correspondence as they were of a highly technical nature. YAC expressed that to ensure fully informed engagement and consultation CAPL should attend a half or full day Board meeting to present the activities and if necessary, assist in engaging an environmental scientist to advise the Board about the impact of proposed activities. This will allow the Board to draft an appropriate response to include in CAPL's EP. CAPL and YAC confirmed a meeting with its members for CAPL to present upcoming activities and answer any queries. CAPL also suggested an initial phone call to discuss details.	YAC expressed that to ensure fully informed engagement and consultation CAPL should attend a half or full day Board meeting to present the activities and if necessary, assist in engaging an environmental scientist to advise the Board about the impact of proposed activities. This will allow the Board to draft an appropriate response to include in CAPL's EP.	**Claim has merit:** As a relevant person, CAPL has the responsibility to identify the correct engagement mechanism to ensure all appropriate information is disseminated in an appropriate fashion.	Ongoing engagement with YAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and YAC, and once finalised will be implemented. The Engagement Plan will capture opportunities for collaboration and knowledge sharing, and the type and frequency of interactions. Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with First Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which

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							further describes ongoing engagement.
	07/03/2023	OC-000337	Phone	CAPL spoke with representatives of YAC and were advised of a meeting time and date.	No objection or claim raised.		
	23/03/2023	OC-000149	Face-to-face	CAPL presented to the Board of the YAC on the upcoming offshore activities, including this EP, utilizing its Consultation Hub and sought feedback on areas of significance and cultural values including sea country and underwater cultural heritage. YAC identified Bernier and Dorre Island as being significant but that they had no access. CAPL provided clarification on its EP and OPP processes and advised YAC that they would be consulting with them soon regarding other activities. CAPL requested advice as to whether additional relevant persons not present at the meeting should be informed and consulted with. YAC did not identify any additional relevant persons to consult.	YAC identified Bernier and Dorre Island as being significant.	**Claim has merit:** CAPL acknowledge the values and sensitivities raised by the relevant person. These must be considered to understand values and sensitivities potentially impacted by the activity.	EP was revised to include Table 4-14 , which includes specific responses from First Nations consultation in regards to cultural values or features.
	23/03/2023	OC-000379	Email	CAPL contacted YAC to thank them for their time (Record ID OC-000149) and to discuss the possibility of organising another meeting in May or June to answer any follow up queries. CAPL also mentioned their intention to expand their social investment framework beyond Onslow. CAPL requested any feedback YAC may have. CAPL followed up with YAC's representative to ask if there had been any comments or feedback from the community with respect to CAPL's activities. YAC representative contacted CAPL to advise that they were no longer acting on behalf of Yinggarda. CAPL thanked them for the new contact representative and their assistance.	No objection or claim raised.		
	04/05/2023	OC-000517	Email	CAPL contacted YAC via Gumala Aboriginal Corporation. CAPL requested advice from the YAC regarding feedback from the meeting in March and the opportunity to meet with the board again. YAC indicated that CAPLs request for feedback was to be reviewed at the YAC board meeting in June.	No objection or claim raised.		
	08/05/2023	OC-000544	Phone	Gumala Aboriginal Corporation advised CAPL that Yinggarda's Executive services were being transferred to Gumala Aboriginal Corporation which includes responsibility for governance and cultural heritage. Gumala Aboriginal Corporation provided CAPL with the updated contact details for consultation with Yinggarda.	No objection or claim raised.		
	08/06/2023	OC-000548	Email	YAC requested further information from CAPL regarding CAPL's activity so it can be presented to the YAC board YAC raised issues regarding providing useful feedback on environmental and cultural concerns, in the absence of obtaining specialist advice. YAC queried CAPL's Engagement framework and Potential partnership opportunities for YAC. CAPL provided a response, addressing the points raised.	1. YAC stated that it will be difficult for YAC to provide any useful feedback on environmental and cultural concerns, in the absence of obtaining specialist advice. 2. YAC queried CAPL's Engagement framework and potential partnership opportunities for YAC	**Claims have merit:** 1. As a relevant person, CAPL has a responsibility to provide the information in a manner that enables Stakeholders to providing meaningful feedback. 2. As a relevant person, CAPL has the responsibility to identify the correct engagement mechanism to ensure all appropriate information is disseminated in an appropriate fashion.	Ongoing engagement with YAC is taking place. A formal Engagement Plan is also being co-designed by CAPL and YAC, and once finalised will be implemented. The Engagement Plan will capture opportunities for collaboration and knowledge sharing, and the type and frequency of interactions. Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with First Nations people and/or representative bodies. An additional section has been added (Section 8.3.4.3 Ongoing engagement with First Nations representative bodies) which further describes ongoing engagement.
	06/07/2023	OC-000574	Face-to-face	CAPL gave presentation to Yinggarda Board Meeting and provided the following: • OPP Information Sheet • EP update with activity map. • Chevron Community Spirit Fund Information. CAPL requested advice from the YAC Board as to how they would like to approach the development of the engagement plan for ongoing consultation and development of relationship.	No objection or claim raised.		
	13/10/2023- 03/11/2023	OC-000898	Email	CAPL replied to YAC via their Solicitors requesting meeting to discuss and finalise consultation agreement in November 2023	YAC Solicitors communicated that the YAC board stated that CAPL	**Claim has merit:**	Ongoing engagement with YAC is taking place. A formal Engagement

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
					has not consulted with YAC about any matter which might be regarded as related to a NOPSEMA regulatory process, and raised that if CAPL remains interested in consulting with this PBC in accordance with the law, then CAPL will need to first enter into a consultation agreement.	CAPL acknowledge the requirement to enter into a consultation agreement in order to facilitate	Plan is also being co-designed by CAPL and YAC, and once finalised will be implemented.
	27/11/2023-04/12/2023	OC-000968	Email	CAPL and YAC Solicitors discussed meeting with the deputy chair of YAC to talk about an engagement plan and consultation with YAC for the future. A meeting was organised.	No objection or claim raised.		
	08/12/2023	OC-000990	Email	YAC sent an email to CAPL welcoming CAPL's commitment to developing relationship with YAC and advised that they would be in touch to confirm board meeting in February.	No objection or claim raised.		
	08/02/2024	001466	Email	CAPL emailed YAC confirming that the YAC board wishes to be consulted for activities where there is an intersection of the EMBA on Yinggarda country, including Bernier and Dorre Islands. CAPL discussed another EP and confirmed that given the distance from the operational area and that there is no shoreline contact to Yinggarda country, there were no objections and claims. In relation to other CAPL EPs, the YAC Board raised claims regarding oiled wildlife response and monitoring of marine fauna during drilling were discussed. The YAC board advised it wants to be notified in the case of an emergency as well as be a part of training and any preparations for future emergency responses CAPL acknowledged the board requested more information about social investment partnerships with YAC that will benefit the YAC community.	YAC advised it wants to be consulted on activities where there is an intersection between the EMBA and Yinggarda country	**Claims have merit:** CAPL acknowledge the feedback provided by YAC and their request to be consulted with where the EMBA overlaps with their country.	No changes to the EP. Ongoing engagement with YAC is taking place.
				Summary: • CAPL commenced consultation with YAC on 3 February 2023 with an introductory email and link to the Consultation Hub on CAPL's website • CAPL has met with YAC representatives in face-to-face meetings and maintained contact through email and telephone correspondence • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures • CAPL has considered feedback provided by YAC during consultation, including information on YAC's functions, interests and activities within the EMBA and all claims raised have been addressed. • CAPL has informed YAC that they may request information provided during consultation not to be published (Regulation 25(4)) during consultation co-design, in opening consultation emails and activity information sheets. CAPL has also provided YAC with a copy of NOPSEMA's consultation guideline, which further describes their right to request information not to be published. • CAPL is progressing a consultation agreement with YAC to facilitate future engagement. • YAC has not raised any further objections or claims relating to the activity as CAPL has provided a reasonable period and sufficient information to YAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25 CAPL will continue to engage YAC as part of its ongoing consultation as outlined in Section 8.3.4.1.			

1.3.2 Commercial fishery licence holders and/or representative bodies

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Aquaculture Council of WA (ACWA)	10/01/2023	CN-000106	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. CAPL suggested to coordinate a phone call to discuss and agree on the communication protocols and to consult on the current Environment Plans. ACWA advised it would be pleased to meet with CAPL, and a meeting was organised.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
	09/02/2023	OC-000296	Virtual Meeting	CAPL spoke with a representative from the ACWA to provide an overview of CAPL's new approach to consultation along with an update on CAPL's Environment Plans. CAPL were asked to present the same information to the ACWA board.	No objection or claim raised.		
	21/04/2023	OC-000307	Face-to-face	CAPL presented on the current activities and consultation process to the ACWA board. ACWA mentioned various areas that their members may be interested and concerned about. ACWA was appreciative of CAPL's approach and will revert back to CAPL with any questions they may have.	No objection or claim raised.		
	01/05/2023	OC-000424	Email	CAPL thanked the ACWA for their support and engagement in the preparation of the Environment Plan. CAPL advised that if the ACWA had any objections or questions about the activity before CAPL submitted the Environment Plan to NOPSEMA, CAPL welcomed them. ACWA confirmed CAPL's activity information was presented at the board meeting and there were no concerns raised but noted there are some operators in the vicinity that may be relevant and asked what licences CAPL has engaged directly. CAPL confirmed it had engaged with relevant operators within the EMBA via WAFIC and asked ACWA to identify any additional contacts CAPL should contact.	ACWA noted the potential presence of some operators in the vicinity that may be relevant and requested further information on what licences CAPL has engaged directly.	**Claim has merit**: CAPL activities do have the potential to impact aquaculture operations, and therefore it is fair and reasonable to engage operators within the EMBA.	No change made to the EP.
	04/05/2023	OC-000455	Email	ACWA identified additional relevant persons CAPL should engage with regarding their Environment Plans. CAPL acknowledged their intentions to contact the referenced relevant persons and thanked ACWA for their assistance. ACWA shared CAPLs written notice on the activity to Maxima Pearling on CAPL's behalf for introduction.	ACWA recommended CAPL contact: • Paspaley Pearls • Cygnet Bay Pearls • Mackerel Islands • Maxima Pearling • Coral Futures Corporation	**Claim has merit**: CAPL activities do have the potential to impact aquaculture operations, and therefore it is fair and reasonable to engage operators within the EMBA.	No change made to the EP. The additional relevant persons were engaged with.
				Summary: • CAPL commenced consultation with ACWA on 10 January 2023 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity, information sheet and link to the Consultation Hub on CAPL's website. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. CAPL also provided additional information on relevant persons. • ACWA has not raised any objections or claims relating to the activity. However ACWA identified additional relevant persons CAPL should engage with regarding the activities. CAPL has engaged with the additional relevant persons identified. • CAPL has provided a reasonable period and sufficient information to ACWA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Australian Southern Bluefin Tuna Industry Association (ASBTIA)	19/05/2022	OC-000071	Email	CAPL advised that it has 6 upcoming EPs (including this EP) requiring consultation with Relevant Persons. CAPL requested the organisation to confirm contact details for its correspondence. ASBTIA requested that they be removed from the ongoing consultation due to them not having a direct interest in the location of the activity. ASBTIA raised importance of appropriate and timely response in a spill scenario. ASBTIA identified Tuna Australia as a potential relevant person.	1. ASBTIA raised importance of appropriate and timely response in a spill scenario. 2. Identified Tuna Australia as a potential relevant person, on the basis that members/fishers in that association are potentially active on the North West shelf.	**Claims has merit:** 1. The EMBA overlaps with the Southern Blue Tuna spawning area, and a spill event has the potential to impact this receptor. As such, this is considered a reasonable claim. 2. the identified stakeholder Tuna Australia has the potential to be impacted by CAPL activities on the North West Shelf, therefore it is reasonable and appropriate to conduct engagement.	No change made to the EP. The spawning area of Southern Blue Tuna is included in the EP in Section 4.4.1.1, and considered as a receptor in Section 7. The additional relevant person identified (Tuna Australia) was engaged with.
	10/03/2023	CN-000404	Email	CAPL re-engaged ASBTIA with the updated and additional information regarding the activity and sought confirmation that ASBTIA would still like to be removed from the consultation list. No response was received.	No objection or claim raised.		
				Summary:			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL commenced consultation with ASBTIA on 19 May 2022 via email and provided an overview of the activity and information sheet. CAPL provided further information regarding the activity on 10 March 2023. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • ASBTIA did not raise any objections or claims relating to the activity. ASBTIA provided feedback on the importance of appropriate and timely response in a spill scenario and identified an additional relevant person. • CAPL has provided a reasonable period and sufficient information to ASBTIA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Commonwealth Fisheries Association (CFA)	14/03/2023	CN-000192	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	07/11/2023	OB-000917	Phone	CFA advised they were consulted "out" and were not responding to consultation emails. They recommended that a hub to protect fishers interests be created as they don't have the capacity. CFA sated that they believe industry should find a better way to consult.	CFA raised the need to protect fisher's interests, and that industry consultation practices could be improved.	**Claim has merit:** CAPL activities do have the potential to impact fishers, and acknowledge CFA's comment on the consultation process.	No change made to the EP. The presence of fishing activities within the region are described in Section 4, and potential impacts and risks to fishing activities are assessed in Section 7.
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with CFA on 13 March 2023 via formal written notification advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity, information sheet and link to the Consultation Hub on CAPL's website. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • CFA did not raise any objections or claims relating to the activity. CFA did provided broad feedback to CAPL on industry consultation practices that could be improved. • CAPL has provided a reasonable period and sufficient information to CFA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Tuna Australia (TA)	17/06/2022-11/08/2022	OB-000491	Email	TA contacted CAPL in relation to the consultation dates for Exploration Drilling EPs noting they were waiting for on feedback from licence holders in the Western Tuna and Billfish Fishery (WTBF). TA noted it would respond to CAPL by end June 2022. TA provided CAPL a written response to activity information. TA acknowledged that there has been no recent fishing effort in the proposed operational area however, noted that any of the 94 boat fishery holders can choose to fish or lease their rights to fish in these areas at any time. TA confirmed they are assisting a fisher to access the WTBF licences and quotas to commence fishing operations out of Exmouth in 2023. TA requested clarification on: 1. The downstream effects of the activities and impacts of tuna quality. 2. How would Chevron's contracted vessels deconflict themselves from drifting longline gear should it enter the Operational areas 3. Any undue acoustic or frequency disturbances from the activities CAPL provided TA a written response to their queries.	TA requested clarification on 1. The downstream effects of the activities and impacts of tuna quality. 2. How would CAPLs contracted vessels deconflict themselves from drifting longline gear should it enter the Operational areas 3. Any undue acoustic or frequency disturbances from the activities	**Claims have merit:** As a relevant person, the request for clarification and further information is considered fair and reasonable. CAPL addressed Tuna Australia's concerns as outlined below: 1. Potential impacts on fish from planned and routine discharges associated with the proposed exploration wells have been assessed. EP provides for control measures to manage the risks that are well defined via legislative requirements and considered standard industry practice. The implementation of these controls will mean any potential effects on	No change made to the EP. CAPL provided a response to Tuna Australia addressing the points raised and closed out engagement.

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
						water quality will be temporary and localised to discharge area and therefore will not impact on tuna quality. 2. CAPL understands fishers use advanced technology (e.g. satellite, GPS) to predict the drift of their longlines prior to setting and also proactively track their longline to avoid accidental drift into areas, facilities or other commercial activities. Should fishers be active in the area during the period of drilling activity, CAPL would expect them to predict the drift and then set the longlines to avoid the Operational Area (OA). After the setting of a longline, should a change in the ocean conditions result in the longline be moved towards the OA, then CAPL would request the longline to be retrieved by the fisher before any conflict could occur, reducing the risk to all parties. 3. Acoustic modelling was undertaken by CAPL to assess the underwater sound exposure from the drilling exploration activity. This assists in understanding the distances from the activity at which underwater sound levels reached noise effect thresholds for marine mammals, sea turtles and fish. For pelagic fish species transiting through the OA (close to the MODU / vessels), the increase in noise may result in the fish demonstrating limited temporary 'avoidance behaviours'; that is, they may slightly change swimming direction and or depth until they have passed the noise sources.	
	09/08/2022	001786	Email	TA contacted CAPL in relation to an invoice for professional fees associated with their consultation submission for the EP.	No objection or claim raised.		
	10/08/2022	001787	Email	CAPL emailed TA regarding its invoice for professional fees and outlined its expectations relating to services and payment.	No objection or claim raised.		
	20/09/2022	001788	Email	TA provided a receipt to CAP following payment of its invoice.	No objection or claim raised.		
	13/12/2022	001789	Email	TA provided feedback to CAPL in relation to another EP. No further comments or responses received in relation to the EP.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Tuna Australia in June 2022. • CAPL has contacted Tuna Australia via email correspondence. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Tuna Australia has not raised any objections or claims relating to the activity. Tuna Australia requested clarification on downstream effects of the activities and impacts of tuna quality, interactions between CAPL vessels and fishing gear and acoustic or frequency disturbances. CAPL addressed all queries. No response to CAPLs comments was received from TA. • CAPL has provided a reasonable period and sufficient information to Tuna Australia to make an informed assessment of the possible consequences of the activity on its			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Western Australian Fishing Industry Council (WAFIC)	26/05/2022 – 20/09/2022	CN-000079	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet. CAPL requested comments or feedback. WAFIC requested confirmation from CAPL that in the event of an unplanned release that WAFIC and relevant commercial fishers will be notified immediately. CAPL confirmed that WAFIC and relevant fishers will be notified within 24hrs or earlier, in the event of a loss of well containment event or an unplanned event. WAFIC thanked CAPL for the clarification.	WAFIC requested confirmation from CAPL that in the event of an unplanned release that WAFIC and relevant commercial fishers will be notified immediately.	**Claim has merit:** As relevant persons with sensitivities within the EMBA, it is fair and reasonable to request notification in the instance of an unplanned release event.	No action required. Notification to WAFIC and relevant commercial fishers in the event of a spill event is already captured in Section 8.3.4.2 of the EP.
	10/01/2023	OC-000085	Email	CAPL reached out to WAFIC and a meeting was organised to discuss and agree the communication protocols for consultation. A meeting was organised.	No objection or claim raised.		
	12/01/2023	OC-000278	Phone	CAPL and WAFIC discussed arrangements for CAPL to provide an overview of upcoming activities. WAFIC spoke to having concerns regarding seismic and decommissioning activities, and that they would be very eager to come together and work out the best model to communicate with fishers.	WAFIC expressed concerns regarding decommissioning and seismic activities.	**Claim does not have merit:** Seismic and decommissioning are outside of the activity for this EP.	
	03/02/2023	OC-000291	Face-to-face	CAPL met with WAFIC at their office to provide an overview of their new approach to consultation along with an update on their Environment Plans. WAFIC provided an overview of their current concerns and there were discussions on how CAPL could support/assist with these concerns.	No objection or claim raised.		
	03/02/2023	CN-000086	Email	CAPL thanked WAFIC for their time and providing further information for CAPL to understand more about their challenges as an industry and organisation. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL noted WAFICs challenges with dealing with large volumes of proponent activity and the burdens that this places on them as an organisation. CAPL notified WAFIC that they will discuss some options internally and revert back. CAPL requested as an interim measure, for WAFIC to advise on ways it can engage directly with their industry.	No objection or claim raised.		
	06/02/2023	OC-000087	Email	WAFIC thanked CAPL for meaningful discussions and provided a link to their consultation approach along with their February newsletter advising their members of CAPL's new online interaction hub for feedback.	No objection or claim raised.		
	10/02/2023	OC-000549	Email	WAFIC provided a link to CAPL's consultation hub in their monthly newsletter for the activity that was sent out to WAFIC's email list for fishery groups within the Operational Area.	No objection or claim raised.		
	28/02/2023	OC-000263	Virtual Meeting	CAPL spoke with representative from WAFIC. WAFIC responded with positive feedback on CAPL's consultation process and advised looking into the Bluefin Tuna spawning area.	WAFIC identified Bluefin Tuna spawning area as a potential receptor.	**Claim has merit:** The Bluefin Tuna spawning area does occur within the region, and should be considered within the EP.	The overlap between the approximate spawning ground for Southern Bluefin Tuna (SBT) and the OA was captured in Section 4.4.1.1. SBT have been included within relevant impact and risks assessments in Section 7 of the EP.
	01/05/2023-23/05/2023	OC-000358	Email	CAPL contacted WAFIC to confirm that there were no concerns or objections to the planned activities discussed in the consultation process. CAPL requested that if WAFIC, or any of its members, does have any further input on the proposed activities, to provide by 5 May 2023 so that it can be considered during the development of its EPs. WAFIC requested confirmation that feedback for specific activities were received by CAPL. CAPL provided a summary of feedback to date, and sent to WAFIC for review. WAFIC provided comments on CAPLs consultation notes. A meeting was arranged to discuss the ongoing relationship and future approvals.	No objection or claim raised.		
				Summary:			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL commenced consultation with WAFIC on 26 May 2023 via email providing an overview of the activity and information sheet. On 3 February 2023, CAPL provided an overview of the activity and provided a link to their website for further information. • In accordance with CAPLs "Fee for Service Agreement" with WAFIC and WAFIC's 'Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector' WAFIC engaged the licence holders of the North West Slope Trawl Fishery, Pilbara Line Fishery and Pilbara Trap Managed Fishery on behalf of CAPL as their fishing area intersects the OA and there has been fishing effort in the last 10 years. • CAPL has maintained contact with WAFIC via multiple emails, meetings and telephone correspondence. This includes the establishment of a consultation framework between WAFIC and CAPL. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • WAFIC or fishing licence holders have not raised any objections or claims relating to the activity. WAFIC provided feedback to CAPL of the Bluefin Tuna spawning area as a potential receptor., which has been addressed in Section 7 of the EP. • CAPL has provided a reasonable period and sufficient information to WAFIC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.3.3 Tourism and recreation operators

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Apache Fishing Charters	4/05/2023	CN-000383	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	07/11/2023	OB-000910	Phone	CAPL called Apache Fishing Charters to follow up on information relating to the activity and if they had any feedback. Apache Fishing Charters stated that they had never received notification of activities.	Engagement materials to be provided.	**Claim has merit:** CAPL acknowledge that further engagement is required.	No change made to the EP. CAPL resent the written notice.
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Apache Fishing Charters on 4 May 2023 via email providing an overview of the activity and information sheet. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Apache Fishing Charters has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Apache Fishing Charters to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Archipelago Adventures	04/05/2023	CN-000384	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.			
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Archipelago Adventures on 4 May 2023 via email providing an overview of the activity and link to their website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Archipelago Adventures has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Archipelago Adventures to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Ashburton Anglers	08/05/2023	CN-000400	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	07/11/2023	OC-000911	Phone	CAPL attempted to contact Ashburton Anglers. A message was left, explained this was a follow up via phone regarding CAPL activities and informed Ashburton Anglers we would send a follow up email.	No objection or claim raised.		
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Ashburton Anglers on 8 May 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Ashburton Anglers has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Archipelago Adventures to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Blue Horizon Charters	04/05/2023	CN-000386	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	07/11/2023	OB-000912	Phone	CAPL called to close out consultation. Blue Horizon Charters advised it was not aware of CAPL activity overview email and asked for it to be resent.	Engagement materials to be provided.	**Claim has merit:** CAPL acknowledge that further engagement is required.	No change made to the EP. CAPL resent the written notice.

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Blue Horizon Charters on 4 May 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Blue Horizon Charters has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Blue Horizon Charters to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Blue Juice Charters	04/05/2023	CN-000389	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	07/11/2023	OC-000913	Phone	CAPL called to close out consultation. No answer or voicemail provided.	No objection or claim raised.		
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Blue Juice Charters on 4 May 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Blue Juice Charters has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Blue Juice Charters to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Blue Lightning Fishing Charters	04/05/2023	CN-000390	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	07/11/2023	OB-000914	Phone	CAPL called to close out consultation. Blue Lightning Fishing Charters was not aware of any emails and asked for the email to be resent.	Engagement materials to be provided.	**Claim has merit:** CAPL acknowledge that further engagement is required.	No change made to the EP. CAPL resent the written notice.
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				Summary: • CAPL commenced consultation with Blue Lightning Fishing Charters on 26 May 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Blue Lightning Fishing Charters has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Blue Lightning Fishing Charters to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Bluesun2 Boat Charters	04/05/2023	CN-000391	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Bluesun2 Boat Charters on 4 May 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Bluesun2 Boat Charters has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Bluesun2 Boat Charters to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Boating Industry Association WA (BIAWA)	04/05/2023	CN-000392	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	07/11/2023	OB-000915	Phone	CAPL called to close out consultation. BIAWA was not aware of any emails and asked for the email to be resent.	Engagement materials to be provided.	**Claim has merit:** CAPL acknowledge that further engagement is required.	No change made to the EP. CAPL resent the written notice.
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with BIAWA on 4 May 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures.			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• BIAWA has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to BIAWA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Cape Immersion Tours	20/02/2023	CN-000208	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP.	No objection or claim raised.		
	07/11/2023	OB-000916	Phone	CAPL called to close out consultation. Cape Immersion Tours was not aware of any emails and asked for the email to be resent.	Engagement materials to be provided.	**Claim has merit:** CAPL acknowledge that further engagement is required.	No change made to the EP. CAPL resent the written notice.
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Cape Immersion Tours on 20 February 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Cape Immersion Tours has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Cape Immersion Tours to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Cruise Lines International Association	29/09/2023	CN-000800	Email	CAPL emailed Cruise Lines International Association as a potentially relevant person, as suggested by Tourism WA. CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Cruise Lines International Association on 29 September 2023 via email advising they had been identified as a potentially relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 5.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Cruise Lines International Association has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Cruise Lines International Association to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 7.3.3.1).			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Exmouth Dive & Whalesharks Ningaloo	09/01/2023	OC-000173	Email	CAPL advised that it has 6 upcoming EPs requiring consultation with Relevant Persons. CAPL requested the organisation to confirm contact details for its correspondence. Exmouth Dive & Whaleshark Ningaloo confirmed its contact details.	No objection or claim raised.		
	20/02/2023	CN-000204	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP.	No objection or claim raised.		
	08/11/2023	OC-000921	Phone	CAPL called to follow up on consultation. A representative requested the email to be resent.	No objection or claim raised.		
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Exmouth Dive & Whalesharks Ningaloo on 9 January 2023 and on 20 February 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Exmouth Dive & Whalesharks Ningaloo has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Exmouth Dive & Whalesharks Ningaloo to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Image Dive and Charters	04/05/2023	CN-000393	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP.	No objection or claim raised.		
	08/11/2023	OC-000925	Phone	CAPL called the stakeholder to close out consultation regarding CAPL activities. Image Dive and charters stated they did not have any comments and would prefer email notifications for future correspondence.	No objection or claim raised.		
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Image Dive and Charters on 4 May 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Image Dive and Charters has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Image Dive and Charters to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25.			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Live Ningaloo	09/01/2023	OC-000181	Email	CAPL advised that it has 6 upcoming EPs requiring consultation with Relevant Persons. CAPL requested the organisation to confirm contact details for its correspondence. Live Ningaloo confirmed its contact details.	No objection or claim raised.		
	20/02/2023	CN-000201	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	11/05/2023	OC-000444	Email	CAPL sent a follow up email requesting feedback on the EP. CAPL advised the opportunity to provide feedback on the EP will be closing on 26 May 2023. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Live Ningaloo on 9 January 2023 and 20 February 2024 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Live Ningaloo has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Live Ningaloo to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Mackerel Islands & Onslow Beach Resort	26/05/2022	CN-000074	Email	CAPL provided details of the activity along with the activity information sheet. Mackerel Islands & Onslow Beach Resort sent an automated email response, stating that they have limited opportunity to respond to emails.	No objection or claim raised.		
	20/02/2023	CN-000207	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Mackerel Islands & Onslow Beach Resort on 26 May 2022 via email providing an overview of the activity and an information sheet. CAPL sent additional email on 20 February 2023 providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Mackerel Islands & Onslow Beach Resort has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Mackerel Islands & Onslow Beach Resort to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Mahi Mahi Charters	04/05/2023	CN-000394	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	08/11/2023	OC-000923	Phone	CAPL called to follow up on consultation. CAPL left voicemail advising that it would send an email summary.	No objection or claim raised.		
	29/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.			
				Summary: • CAPL commenced consultation with Mahi Mahi Charters on 4 May 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Mahi Mahi Charters has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Mahi Mahi Charters to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Montebello Island Safaris	04/05/2023	CN-000395	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	08/11/2023	OC-000921	Phone	CAPL called to follow up on consultation. A representative requested the email to be resent.	Engagement materials to be provided.	**Claim has merit:** CAPL acknowledge that further engagement is required.	No change made to the EP.
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Montebello Island Safaris on 4 May 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Montebello Island Safaris has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Montebello Island Safaris to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Ningaloo Blue Dive	20/02/2023	CN-000205	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	11/05/2023	OC-000446	Email	CAPL sent a follow up email requesting feedback on the EP. CAPL confirmed that Ningaloo Blue Dive has not expressed specific concerns or objections to the planned activity.	No objection or claim raised.		
	08/11/2023	OC-000921	Phone	CAPL called to close out consultation. The stakeholder was not aware of any emails and asked for the email to be resent. CAPL confirmed they would send out a close out email and would welcome feedback for future engagement but specified the EP consultation window was closed.	No objection or claim raised.		
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.			
				Summary: • CAPL commenced consultation with Ningaloo Blue Dive on 20 February 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Ningaloo Blue Dive has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Ningaloo Blue Dive to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Ningaloo Glass Bottom Boat	20/02/2023	CN-000414	Email	CAPL provided written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	11/05/2023	OC-000445	Email	CAPL followed up with Ningaloo Glass Bottom Boats to provide any feedback they may have on the activity. CAPL confirmed that Ningaloo Glass Bottom Boats has not expressed specific concerns or objections to the planned activity.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Ningaloo Glass Bottom Boat on 20 February 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Ningaloo Glass Bottom Boat has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Ningaloo Glass Bottom Boat to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Ningaloo Visitor Centre	09/01/2023	OC-000176	Email	CAPL advised that the Ningaloo Visitors Centre had been identified as a relevant person with functions, interests or activities that may be affected by the activity and ensure CAPL have the correct contact.	No objection or claim raised.		
	20/02/2023	CN-000179	Email	CAPL advised that the Ningaloo Visitors Centre had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the Ningaloo Visitors Centre that they welcome meaningful feedback.	No objection or claim raised.		
	11/05/2023	OC-000447	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				No response received.			
				Summary: • CAPL commenced consultation with Ningaloo Visitors Centre on 9 January 2023 via email and on 20 February 2023 provided an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Ningaloo Visitors Centre has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Ningaloo Visitors Centre to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Ningaloo Whaleshark n Dive	20/02/2023	CN-000203	Email	CAPL advised that Ningaloo Whale Shark n Dive had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Ningaloo Whale shark n Dive that they welcome meaningful feedback.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.	No objection or claim raised.		
	08/11/2023	OC-000921	Phone	CAPL called to close out consultation. The stakeholder was not aware of any emails and asked for the email to be resent. CAPL confirmed they would send out a close out email and would welcome feedback for future engagement but specified the EP consultation window was closed.	No objection or claim raised.		
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Ningaloo Whaleshark n Dive on 20 February 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Ningaloo Whaleshark n Dive has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Ningaloo Whaleshark n Dive to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Ningaloo Whaleshark Swim	20/02/2023	CN-000202	Email	CAPL advised that Ningaloo Whaleshark Swim had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Ningaloo Whaleshark Swim that they welcome meaningful feedback.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.			
	08/11/2023	OC-000921	Phone	CAPL called to close out consultation. The stakeholder was not aware of any emails and asked for the email to be resent. CAPL confirmed they would send out a close out email and would welcome feedback for future engagement but specified the EP consultation window was closed.	No objection or claim raised.		
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Ningaloo Whaleshark Swim on 20 February 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Ningaloo Whaleshark Swim has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Ningaloo Whaleshark Swim to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Recfishwest (WA)	17/06/2022	CN-000077	Email	CAPL provided details of the activity along with the activity information sheet. Recfishwest acknowledged receipt of the information received from CAPL and provided a response. They raised the economic and community importance of recreational fishing, and that Recfishwest places the highest priority on preserving the marine environment and safeguarding habitats and fish stocks. Recfishwest asked to be consulted with on any upcoming offshore exploration activities. CAPL thanked Recfishwest for their reply and noted that we would keep Recfishwest updated on any existing or new activities that CAPL undertakes.	Recfishwest raised: 1. recreational fishers access the activity area. 2 marine environment and safeguarding habitats and fish stocks were significant to them. 3 to be consulted on any upcoming offshore exploration activities.	**Claims have merit:** 1. CAPL acknowledge that the activity has the potential to result in impacts to fisheries, which should be captured within the EP 2 CAPL acknowledge the activity has the potential to impact fish and the marine environment, which should be captured and risk assessed within the EP. 3. As a relevant person, it is considered fair and reasonable for CAPL to facilitate ongoing engagement with Recfishwest.	Section 8.3.4.1 of the EP (specifically Table 8-5) has been revised to describe the ongoing consultation with Recfishwest. No additional action required. Fisheries are already identified in Section 4 of the EP and included in the risk assessment (Section 7) where applicable.
	24/02/2023	OC-000125	Email	CAPL advised that Recfishwest had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Recfishwest that they welcome meaningful feedback. Recfishwest acknowledged receipt of email and requested to be included in consultations and advised the appropriate contact for all correspondence in the future. A meeting was arranged.	Recfishwest asked that they could be included in consultations.	**Claims have merit:** As a relevant person, it is considered fair and reasonable for CAPL to facilitate ongoing engagement with Recfishwest.	No change made to the EP.
	28/02/2023	OC-000264	Virtual Meeting	CAPL spoke with representatives from Recfishwest. CAPL provided an overview of their new online interaction hub and update on their Environment Plans. Recfishwest advised that continued consultation is encouraged. CAPL offered to present current activities to the board and provide an EDM for Recfishwest.	No objection or claim raised.		
	10/03/2023	OC-000185	Email	CAPL provided details of the activity and discussed the best method to circulate information about activities with Recfishwest and their members. Recfishwest enquired into CAPL's consultation process, to which CAPL responded.	No objection or claim raised.		
	23/03/2023	OC-000165	Phone	CAPL contacted Recfishwest to request that CAPL's EP identification information be published in the Recfishwest EDM.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				Recfishwest advised that the content is inappropriate for the newsletter.			
				Summary: • CAPL commenced consultation with Recfishwest on 17 June 2022 via email providing an overview of the activity and an information sheet. CAPL sent additional email on 24 February 2023 providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Recfishwest has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Recfishwest to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Sail Ningaloo	20/02/2023	CN-000199	Email	CAPL advised that Sail Ningaloo had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Sail Ningaloo that they welcome meaningful feedback.	No objection or claim raised.		
	10/05/2023	OC-000434	Email	CAPL sent a follow up email requesting feedback on the EP. CAPL confirmed that Sail Ningaloo has not expressed specific concerns or objections to the planned activity.	No objection or claim raised.		
	08/11/2023	OC-000921	Phone	CAPL called to close out consultation. The stakeholder was not aware of any emails and asked for the email to be resent. CAPL confirmed they would send out a close out email and would welcome feedback for future engagement but specified the EP consultation window was closed.	No objection or claim raised.		
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Sail Ningaloo on 20 February 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Sail Ningaloo has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Sail Ningaloo to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Top Gun Charters	04/05/2023	CN-000396	Email	CAPL advised that Top Gun Charters had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Top Gun Charters that they welcome meaningful feedback.	No objection or claim raised.		
	08/11/2023	OC-000920	Phone	CAPL called stakeholders to confirm close out of consultation regarding Environment Plans for current CAPL activities. There was no answer.	No objection or claim raised.		
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.			
				Summary: • CAPL commenced consultation with Top Gun Charters on 4 May 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Top Gun Charters has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Top Gun Charters to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
View Ningaloo	20/02/2023	CN-000200	Email	CAPL advised that View Ningaloo had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the View Ningaloo that they welcome meaningful feedback.	No objection or claim raised.		
	11/05/2023	OC-000449	Email	CAPL sent a follow up email requesting feedback on the EP. CAPL confirmed that View Ningaloo has not expressed specific concerns or objections to the planned activity.	No objection or claim raised.		
	08/11/2023	OC-000920	Phone	CAPL called stakeholders to confirm close out of consultation regarding Environment Plans for current CAPL activities. There was no answer.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with View Ningaloo on 20 February 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • View Ningaloo has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to View Ningaloo to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Wilderness Island	23/02/2023	CN-000198	Email	CAPL advised that Wilderness Island had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Wilderness Island that they welcome meaningful feedback.	No objection or claim raised.		
	11/05/2023	OC-000443	Email	CAPL followed up with Wilderness Island to provide any feedback they may have on the activity. CAPL confirmed that Wilderness Island has not expressed specific concerns or objections to the planned activity.	No objection or claim raised.		
	08/11/2023	OC-000920	Phone	CAPL called stakeholders to confirm close out of consultation regarding Environment Plans for current CAPL activities. There was no answer.	No objection or claim raised.		
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary:			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL commenced consultation with Wilderness Island on 23 February 2023 via email providing an overview of the activity and link to the website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Wilderness Island has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Wilderness Island to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.3.4 Local government departments or agencies

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Exmouth Chamber of Commerce and Industry (ECCI)	20/12/2022	OC-000174	Email	CAPL advised the ECCI had been identified as a relevant person with functions, interests or activities that may be affected by the activity. ECCI were pleased to hear from CAPL for early consultation and relationship building. A meeting was arranged.	No objection or claim raised.		
	05/01/2023	OC-000542	Virtual Meeting	CAPL discussed the upcoming Environment Plan consultation for the activity and CAPL's membership with ECCI had been identified as a relevant person.	No objection or claim raised.		
	05/01/2023	OC-000172	Email	CAPL thanked the ECCI for their time. CAPL requested community engagement group contacts for continued consultation and funding opportunities. ECCI provided details as requested.	No objection or claim raised.		
	24/01/2023	OC-000171	Email	ECCI referred CAPL to sponsorship opportunities to support the Exmouth community. ECCI also referred to the opportunity for CAPL to present at upcoming Shire of Exmouth Council Meetings and directed CAPL to the relevant committee members.	No objection or claim raised.		
	24/01/2023	OC-000283	Face-to-face	CAPL met with representatives from ECCI in Exmouth. ECCI provided advice on local relevant persons that CAPL should be engaging.	ECCI recommended CAPL engage with local relevant persons	**Claim has merit**: CAPL activities do have the potential to impact Exmouth and therefore it is fair and reasonable to engage with those potentially impacted by its activities.	No change made to the EP.
	06/02/2023	CN-000110	Email	CAPL sent a follow up email providing an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the ECCI that they welcome meaningful feedback. ECCI organised for CAPL's activity information to be sent out via the Exmouth Chamber of Commerce EDM.	No objection or claim raised.		
	23/02/2023	OC-000261	Virtual Meeting	CAPL met with the ECCI to understand potential opportunities for engagement and support.	No objection or claim raised.		
	27/02/2023	OC-000299	Phone	CAPL spoke with ECCI about possible sponsorship and engagement opportunities.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with ECCI on 20 December 2022 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL met with ECCI on 5 January 2023 and provided information on the activity. A follow up email was sent on 6 February 2023 providing an overview of the activity and provided a link to their website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • ECCI has not raised any objections or claims relating to the activity. ECCI provided feedback to CAPL in relation to additional relevant persons.			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL has provided a reasonable period and sufficient information to ECCI to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Onslow Chamber of Commerce and Industry (OCCI)	17/01/2023	OC-000092	Email	CAPL advised the OCCI had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL suggested they coordinate a phone call to discuss and agree on the communication protocols and to consult on the current Environment Plans. A meeting was arranged.	No objection or claim raised.		
	23/01/2023	OC-000286	Virtual Meeting	CAPL met with the OCCI to provide an overview of their new approach to consultation along with an update on their Environment Plans.	No objection or claim raised.		
	07/02/2023	OC-000295	Virtual Meeting	CAPL spoke with a representative from OCCI to provide an overview of their new approach to consultation along with an update on their Environment Plans. CAPL provided guidance on how to find information regarding risks associated with the activities in CAPL's online consultation hub for upcoming activities.	No objection or claim raised.		
	08/02/2023	CN-000093	Email	CAPL notified the OCCI that the Environment Plans site on CAPL's website was live and CAPL had published in local, state and national newspaper to help identify additional relevant persons. CAPL also requested that the OCCI share the advert internally via their EDM to their members.	No objection or claim raised.		
	16/02/2023	OC-000094	Email	CAPL reached out to the OCCI to see if there were any questions that came through after the presentation and requested that if there were any questions, CAPL would be happy to have a chat. OCCI stated that at this point in time, no questions had been raised.	No objection or claim raised.		
	02/03/2023	OC-000147	Email	OCCI advised their community of CAPL's information briefing on their proposed offshore activities.	No objection or claim raised.		
	18/03/2023	OC-000095	Email	OCCI sent through their newsletter that had an advert from CAPL seeking relevant persons engagement.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with OCCI on 17 January 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL met with OCCI on 23 January 2023 and 7 February 2023 and provided information on the activity. A follow up email was sent on 8 February 2023 providing a link to their website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • OCCI has not raised any objections or claims relating to the activity. OCCI provided feedback to CAPL in relation to additional relevant persons. • CAPL has provided a reasonable period and sufficient information to OCCI to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Shire of Ashburton (Pilbara)	17/01/2023	OC-000096	Email	CAPL advised that the Shire of Ashburton had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL requested that at the next meeting to provide an overview of the activity. Shire of Ashburton advised that previously CAPL has firstly presented to council their activity and then to the community. A meeting was arranged.	No objection or claim raised.		
	25/01/2023	OC-000285	Phone	CAPL provided a follow up phone call regarding an email CAPL sent on the Environment Plan consultation process. CAPL provided an overview of their new approach to consultation along with an update on their Environment Plans.	No objection or claim raised.		
	07/02/2023	CN-000097	Email	CAPL advised that the Shire of Ashburton had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the Shire of Ashburton that they welcome meaningful feedback.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				The Shire of Ashburton stated that they would circulate with relevant parties internally.			
	07/02/2023	OC-000293	Virtual Meeting	The Shire of Ashburton shared their concerns regarding impacts on recreation and fishing and suggested CAPL present at an information session in Onslow.	The Shire of Ashburton shared their concerns regarding impacts on recreation and fishing and suggested CAPL present at an information session in Onslow.	**Claim has merit:** CAPL acknowledge that recreation and fishing activities have the potential to occur within the region. As such, it should be considered within the EP.	No changes made to the EP. The Description of the Environment identified Recreational fisheries (Section 4.4.2) and Tourism and recreation (Section 4.4.5) have described the receptors within the operational area and the EMBA. The impacts and risks to recreation and fishing has been assessed throughout the risk assessment.
	14/02/2023	OC-000098	Email	Shire of Ashburton thanked CAPL for presenting on their upcoming activities. The Shire of Ashburton noted that other titleholders have spoken to them about risk protocols in Commonwealth and State waters and possible contingencies in place for accidents in relation to a hydrocarbon incident. The Shire of Ashburton provided contact names and details for people within the Shire of Ashburton that assist in emergency management.	The Shire of Ashburton asked for information about risk protocols in Commonwealth and State waters and possible contingencies in place for accidents in relation to a hydrocarbon incident.	**Claim has merit:** Hydrocarbon incident has the potential to impact state waters. Therefore it is reasonable for this RP to request further information on risk management for potential hydrocarbon spill events.	No changes made to the EP. This claim was addressed in subsequent consultation.
	01/03/2023	OC-000128	Email	Shire of Ashburton thanked CAPL for presenting on their upcoming activities and provided contact details. CAPL provided the Shire of Ashburton with an overview of their new online consultation Hub and activities. The Shire of Ashburton was informed that if they had any further queries to contact CAPL.	No objection or claim raised.		
	01/03/2023	OC-000269	Virtual Meeting	CAPL met with representatives from Shire of Ashburton. CAPL provided an overview of their new online interaction hub. CAPL answered and discussed relevant questions and queries from the Shire of Ashburton and defined contacts and procedures in the event an emergency occurs. CAPL invited the Shire of Ashburton to attend the next oil spill response exercise at Wheatstone and local Emergency Management Committee in Onslow.	No objection or claim raised.		
	10/05/2023	OC-000438	Email	CAPL sent a follow up email requesting feedback on the EP. CAPL advised that consultation regarding the Environment plans was closing and that if any further feedback was received CAPL was happy to listen and discuss during ongoing engagement. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Shire of Ashburton on 17 January 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. A follow up email was sent on 7 February 2023 providing a link to their website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Shire of Ashburton has not raised any objections or claims relating to the activity. Feedback received in relation to recreation and fishing activities have been addressed in the EP. • CAPL has provided a reasonable period and sufficient information to Shire of Ashburton to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Shire of Exmouth (Gascoyne)	17/01/2023	OC-000279	Phone	CAPL attempted to make first initial contact with the Shire of Exmouth.	No objection or claim raised.		
	18/01/2023	OC-000107	Email	CAPL advised that the Shire of Exmouth had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL suggested they coordinate a phone call to discuss and agree on the communication protocols and to consult on the current Environment Plans. Shire of Exmouth would be pleased to meet with CAPL and a meeting was organised.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
	24/01/2023	OC-000284	Face-to-face	CAPL met with representatives from Shire of Exmouth in Exmouth. The Shire of Exmouth provided advice on local relevant persons that we should be engaging. CAPL provided an overview of their new approach to consultation along with an update on their Environment Plans. The Shire of Exmouth invited CAPL to present at the Council meeting.	No objection or claim raised.		
	01/02/2023	OC-000170	Email	CAPL reached out to the Shire of Exmouth to understand who they should contact locally from an environment/conservation perspective. The Shire of Exmouth provided CAPL with relevant persons to contact who may be affected by their activities.	Shire of Exmouth identified Cape Conservation Group and Protect Ningaloo as potential relevant people.	**Claim has merit:** CAPL acknowledge that Cape Conservation Group and Protect Ningaloo do have the potential to be relevant persons, and should be engaged with.	No change made to the EP. Additional engagement with stakeholders identified during consultation were engaged with.
	08/02/2023	CN-000540	Email	CAPL advised that the Shire of Exmouth had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the Shire of Exmouth that they welcome meaningful feedback.	No objection or claim raised.		
	24/02/2023	OC-000268	Virtual Meeting	CAPL met with representatives from the Shire of Exmouth. The Shire of Exmouth provided feedback from the Council and the current need for a waste management master plan due to high volumes of land fill or transport per week. CAPL provided possible alternatives and identified the Shire of Exmouth's main priorities.	The Shire of Exmouth provided feedback from the Council and the current need for a waste management master plan due to high volumes of land fill or transport per week.	**Claim does not have merit:** CAPL do not send waste to Exmouth and waste generated for the activity is not expected to be high volumes.	
	01/03/2023	OC-000276	Phone	The Shire of Exmouth advised that it would be good for CAPL to become a member of the Chamber and get involved with the community reference groups that will be able to support CAPL's consultation process. The Shire of Exmouth spoke to various issues that they are currently dealing with.	No objection or claim raised.		
	02/05/2023	OC-000356	Email	CAPL contacted Shire of Exmouth to confirm that there were no objections or further input required on upcoming offshore activities. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Shire of Exmouth on 17 & 18 January 2023 via telephone and email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. A follow up email was sent on 8 February 2023 providing a link to their website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Shire of Exmouth has not raised any objections or claims relating to the activity. Feedback received in relation to additional relevant persons. Additional engagement with stakeholders identified during consultation has been completed. • CAPL has provided a reasonable period and sufficient information to Shire of Exmouth to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.3.5 WA World Heritage advisory committees

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Ningaloo Coast World Heritage Advisory Committee (NCWHAC)	16/02/2023-08/05/2023	CN-000489	Email	CAPL advised that the NCWHAC had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL suggested they coordinate a phone call to discuss and agree on the communication protocols and to consult on the current Environment Plans. A NCWHAC representative acknowledged that the location of the activity is relevant to the committee and requested fact sheets of location maps that could be provided to the Committee for consideration.	Consultation materials requested.	**Claim has merit:** Request for additional information is fair and reasonable.	No change made to the EP. CAPL provided a link to their online consultation hub and a copy of newspaper advertisements.

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				CAPL provided the NCWHAC representative a link to the online consultation information as well as a copy of the advertisement CAPL ran in the local, state and national papers. The NCWHAC representative advised they added CAPL's activity information to the committee's agenda for the meeting scheduled on 2 May 2023. Post this meeting the representative will be in contact with CAPL. CAPL indicated their intention to continue to engage and requested to meet in person.			
	08/05/2023	OC-000638	Email	CAPL sent a follow up email to request if any feedback had been received from the Committee meeting. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with NCWHAC on 16 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. A follow up email was sent providing a link to the online consultation information as well as a copy of the advertisement CAPL ran in the local, state and national papers. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • NCWHAC has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to NCWHAC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.3.6 Other Petroleum Titleholders

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
BP	17/02/2023	CN-000209	Email	CAPL advised that BP had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified BP that they welcome meaningful feedback.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.	No objection or claim raised.		
	28/09/2023-03/10/2023	OC-000891	Email	BP requested all further engagements go through a different point of contact and provided an email. CAPL responded that they had updated the system. BP new point of contact identified themselves as the new focal point of consultation.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with BP on 17 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • BP has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to BP to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Carnarvon Energy	14/02/2023	CN-000217	Email	CAPL advised that Carnarvon Energy had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Carnarvon Energy that they welcome meaningful feedback.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.	No objection or claim raised.		
	28/09/2023-02/10/2023	OC-000785	Email	Carnarvon Energy thanked CAPL for providing information regarding their environment plans and stated that they have no further request for any information.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Carnarvon Energy on 14 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Carnarvon Energy has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Carnarvon Energy to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Eni Australia	14/02/2023	CN-000190	Email	CAPL advised that Eni Australia had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Eni Australia that they welcome meaningful feedback. Eni Australia responded that they have received the email and have no concerns regarding the activity at this stage.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Eni Australia on 14 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Eni Australia has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Eni Australia to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Exxon Mobil	14/02/2023	CN-000191	Email	CAPL advised that Exxon Mobil had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Exxon Mobil that they welcome meaningful feedback. CAPL sent a follow up email to confirm whether the email was received.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email. No response received.			
				Summary: • CAPL commenced consultation with Exxon Mobil on 14 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Exxon Mobil has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Exxon Mobil to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Jadestone Energy	14/02/2023	CN-000189	Email	CAPL advised that Jadestone Energy had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Jadestone Energy that they welcome meaningful feedback. CAPL sent a follow up email to confirm whether the email was received.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.	No objection or claim raised.		
	08/11/2023	OC-000919	Phone	CAPL called to close out consultation. Jadestone did not answer and no voicemail option was available.	No objection or claim raised.		
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Jadestone on 14 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Jadestone has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Jadestone to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Kato Energy / Kato NWS Pty Ltd	14/02/2023	CN-000216	Email	CAPL advised that Kato Energy had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				the activity and provided a link to their website for further information regarding the activity. CAPL notified Kato Energy that they welcome meaningful feedback.			
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.	No objection or claim raised.		
	08/11/2023	OC-000921	Phone	CAPL called to close out consultation. The stakeholder was not aware of any emails and asked for the email to be resent. CAPL confirmed they would send out a close out email and would welcome feedback for future engagement but specified the EP consultation window was closed.	No objection or claim raised.		
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Kato Energy on 14 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Kato Energy has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Kato Energy to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Kufpec	14/02/2023	CN-000417	Email	CAPL advised that Kufpec had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Kufpec that they welcome meaningful feedback.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Kufpec on 14 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Kufpec has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Kufpec to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
PGS Australia Pty Ltd	15/02/2023	CN-000213	Email	CAPL advised that PGS had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified PGS that they welcome meaningful feedback.	No objection or claim raised.		
	10/05/2023	OC-000436	Email	CAPL reached out to PGS to provide any feedback they may have on the activity. CAPL confirmed that PGS has not expressed specific concerns or objections to the planned activity	No objection or claim raised.		
	08/11/2023	OC-000920	Phone	CAPL called stakeholders to confirm close out of consultation regarding Environment Plans for current CAPL activities. There was no answer.	No objection or claim raised.		
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with PGS Australia Pty Ltd on 15 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • PGS Australia Pty Ltd has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to PGS Australia Pty Ltd to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Santos	20/03/2023	CN-000186	Email	CAPL advised that Santos had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Santos that they welcome meaningful feedback. Santos confirmed the receipt of this email, and requested to be included in consultation.	No objection or claim raised.		
	10/05/2023	OC-000432	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Santos on 20 March 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Santos has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Santos to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
SapuraOMVUpstream	14/02/2023	CN-000218	Email	CAPL advised that Sapura OMV had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				the activity and provided a link to their website for further information regarding the activity. CAPL notified Sapura OMV that they welcome meaningful feedback.			
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.	No objection or claim raised.		
	08/11/2023	OC-000920	Phone	CAPL called stakeholders to confirm close out of consultation regarding Environment Plans for current CAPL activities. There was no answer.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Sapura OMV on 14 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Sapura OMV has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Sapura OMV to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Terrafirma Offshore Pty Ltd	09/01/2023	OC-000175	Email	CAPL advised that the Terrafirma Offshore had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL contacted Terrafirma to confirm contact details for future consultation.	No objection or claim raised.		
	01/05/2023	CN-000405	Email	CAPL advised Terrafirma Offshore that they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Terrafirma Offshore that they welcome meaningful feedback	No objection or claim raised.		
	15/05/2023	OC-000448	Email	CAPL reached out to Terrafirma Offshore to provide any feedback they may have on the activity. CAPL confirmed that Terrafirma Offshore has not expressed specific concerns or objections to the planned activity. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Terrafirma Offshore on 9 January 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. A follow up email was sent on 1 May 2023 providing an overview of the activity and a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Terrafirma Offshore has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Terrafirma Offshore to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
TGS NOPEC Geophysical Company Pty Ltd (TGS NO0PEC)	15/02/2023	CN-000212	Email	CAPL advised that TGS NOPEC had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified TGS NOPEC that they welcome meaningful feedback.	No objection or claim raised.		
	10/05/2023	OC-000437	Email	CAPL reached out to TGS NOPEC to provide any feedback they may have on the activity.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				No response received.			
				Summary: • CAPL commenced consultation with TGS NOPEC on 15 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • TGS NOPEC has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to TGS NOPEC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Vermilion Oil & Gas	14/02/2023-20/03/2023	CN-000187	Email	CAPL advised that Vermillion had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Vermillion that they welcome meaningful feedback. CAPL sent a follow up to confirm whether Vermilion Oil & Gas received this email.	No objection or claim raised.		
	08/11/2023	OC-000921	Phone	CAPL called to close out consultation. The stakeholder was not aware of any emails and asked for the email to be resent. CAPL confirmed they would send out a close out email and would welcome feedback for future engagement but specified the EP consultation window was closed.	No objection or claim raised.		
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Vermilion on 14 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Vermilion has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Vermilion to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Western Gas	14/02/2023	CN-000219	Email	CAPL advised that Western Gas had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Western Gas that they welcome meaningful feedback.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
	28/09/2023	OC-000787	Email	Western Gas advised they may be considered a relevant person and would like to participate in the consultation process.	No objection or claim raised.		
	29/11/2023	OC-000962	Email	CAPL thanked Western Gas for their email and informed them that the Environment Plans were currently under assessment by NOPSEMA. CAPL advised they would still welcome consultation relating to the Environment plans in the future.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Western Gas on 14 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Western Gas has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Western Gas to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Woodside	14/02/2023	CN-000118	Email	CAPL advised that Woodside had been identified as a relevant organisation with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Woodside that they welcome meaningful feedback. Woodside acknowledged receipt of email.	No objection or claim raised.		
	10/05/2023	OC-000433	Email	CAPL reached out to Woodside to provide any feedback they may have on the activity. CAPL confirmed that Woodside has not expressed specific concerns or objections to the planned activity. Woodside confirmed receipt of email and forwarded the email onto appropriate representatives that will reach out to CAPL if they have any feedback. Woodside responded stating they had no feedback regarding the activities.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Woodside on 14 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Woodside has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Woodside to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.3.7 ENGOs

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Australian Marine Conservation Society (AMCS)	10/02/2023	CN-000226	Email	CAPL advised the AMCS had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the AMCS that they welcome meaningful feedback.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				CAPL followed up with AMCS to ensure they received the formal notification regarding CAPL's activity.			
	27/03/2023	OC-000160	Phone	CAPL called AMCS to confirm receipt of formal notifications for CAPL's Environment Plan and proposed activity. AMCS confirmed they will reach out to CAPL if they have any comments or concerns.	No objection or claim raised.		
	04/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with AMCS on 10 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • AMCS has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to AMCS to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Cape Conservation Group	10/02/2023	CN-000158	Email	CAPL advised the Cape Conservation Group had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Cape Conservation Group that they welcome meaningful feedback.	No objection or claim raised.		
	17/02/2023	OC-000306	Phone	CAPL spoke with Cape Conservation Group about CAPL's want to engage with them in Exmouth and discuss preferred methods of communication. Cape Conservation group confirmed they would share CAPL's details.	No objection or claim raised.		
	11/05/2023	OC-000527	Email	CAPL reached out to the Cape Conservation Group to see if they had any feedback on the activity and confirmed that the Cape Conservation Group has not expressed specific concerns or objections to the planned activity. The Cape Conservation Group advised CAPL of their views, expressed their concern of CAPL's activities regarding fossil fuel extraction and global scientific advice, and informed CAPL of their decision not to participate in the consultation process. CAPL responded to Cape Conservation Group acknowledging their views and that CAPL will be happy to arrange a meeting to discuss CAPL's activities at any time.	Broad objection to continued extraction of oil and gas resources	**Claim has merit:** Although not a specific claim or objective, the project does support oil and gas activities, and Cape Conservation Group are entitled to express their opinion as a relevant person.	No change made to the EP.
				Summary: • CAPL commenced consultation with Cape Conservation Group on 10 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Cape Conservation Group has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Cape Conservation Group to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Protect Ningaloo	10/02/2023	CN-000223	Email	CAPL advised that Protect Ningaloo had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Protect Ningaloo that they welcome meaningful feedback.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				CAPL sent a follow up to confirm the email was received.			
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Protect Ningaloo on 10 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Protect Ningaloo has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Protect Ningaloo to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.3.8 Other

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Australian Institute of Marine Science (AIMS)	04/05/2023	CN-000387	Email	CAPL sent a formal written notification advising AIMS that they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified AIMS that they welcome meaningful feedback.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with AIMS on 4 May 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • AIMS has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to AIMS to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Care For Hedland Environmental Association	08/02/2023	CN-000100	Email	Upon Care for Hedland (CFH) self-identifying themselves, CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the CFH that they welcome meaningful feedback. CFH requested to be included in the consultation process. CAPL notified CFH that further engagement would commence shortly.	No objection or claim raised.		
	08/02/2023	OC-000140	Email	CAPL organised a meeting with CFH to provide information about upcoming activities.	No objection or claim raised.		
	22/02/2023	OC-000259	Virtual Meeting	CAPL spoke with CFH and provided an overview of their current consultation hub and update on their Environment Plan. CFH nominated themselves as Relevant Person. CFH have been undergoing a turtle monitoring program over the past 20 years, CFH would be interested in a collaboration with CAPL with marine turtles being their primary interest. CFH confirmed they will meet with the committee and revert back with any additional questions they may have for CAPL.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
	11/05/2023	OB-000508	Email	CFH advised CAPL that they did not have any specific concerns regarding the activities. CFH advised that they did however, have general concerns around the potential and need to mitigate impacts to marine turtles as Port Hedland's Flatback Turtle population is genetically linked to Barrow Island/North West Shelf population.	No specific concerns, just general concerns around potential and need to mitigate impacts to marine turtles. Port Hedland's Flatback turtles are genetically linked to the Barrow Island/North West Shelf population.	**Claim has merit:** Marine turtles identified as a particular value or sensitivity and may be impacted by the activities. Given their interest in monitoring of turtle populations, Chevron must consider if the activities impact on their monitoring program.	No change made to the EP. Threatened and/or migratory marine turtles with the potential to be present within the EMBA are discussed in Section 4.3.3.2 of the EP, and are considered in the Risk Assessment (Section 7). This engagement was closed out with CFH.
				Summary: • CAPL commenced consultation with CFH on 8 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • CFH has not raised any objections or claims relating to the activity. CFH did provide feedback around potential and need to mitigate impacts to marine turtles. • CAPL has provided a reasonable period and sufficient information to CFH to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Vocus Communications	04/05/2023	CN-000397	Email	CAPL advised that Vocus Communications had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Vocus Communications that they welcome meaningful feedback. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Vocus on 4 May 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Vocus has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to ACPF to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.4 Regulation 25(1)(e) - Any other person or organisation that the titleholder considers relevant

1.4.1 Commercial fishery licence holders and/or representative bodies

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Australian Council of Prawn Fisheries (ACPF) Ltd	04/05/2023	CN-000388	Email	CAPL advised the ACPF had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the ACPF that they welcome meaningful feedback.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP. No response received.	No objection or claim raised.		
				Summary:			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL commenced consultation with ACPF on 4 May 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • ACPF has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to ACPF to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Cygnet Bay Pearl Farm	10/05/2023	CN-000441	Email	CAPL advised the Cygnet Bay Pearl Farm had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the Cygnet Bay Pearl Farm that they welcome meaningful feedback.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP.	No objection or claim raised.		
	08/11/2023	OC-000921	Phone	CAPL called to close out consultation. The stakeholder was not aware of any emails and asked for the email to be resent. CAPL confirmed they would send out a close out email and would welcome feedback for future engagement but specified the EP consultation window was closed.	No objection or claim raised.		
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Cygnet Bay Pearl Farm on 10 May 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Cygnet Bay Pearl Farm has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Cygnet Bay Pearl Farm to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Maxima Pearling Company	04/05/2023	CN-000430	Email	CAPL advised that Maxima Pearling Company had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the Maxima Pearling Company that they welcome meaningful feedback. Maxima Pearling Company stated that pearling leases and holding sites occur within the identified area. A phone call was organised.	No objection or claim raised.		
	09/05/2023	OC-000425	Virtual Meeting	CAPL presented to Maxima Pearling in relation to upcoming offshore activities. Maxima Pearling have Edible Rock Oyster Aquaculture sites at West Lewis Islands, Flying Foam Passage, Withnell Bay and Cossack. Maxima Pearling had no objections to the activities proposed, but they would like to be notified in the event of an emergency. Maxima Pearling suggested CAPL to contact Paspaley Pearls, Cygnet Bay and McGowans as potential relevant persons.	1. Maxima Pearling have no objections to the activities proposed, but they would like to be notified in the event of an emergency. 2. Suggested engaging with Paspaley Pearls, Cygnet Bay and McGowan.	**Claim has merit:** Pearling Company has leases within the region thus are considered relevant and their request for a notification in the event of an emergency is appropriate.	Table 8-5 and Section 8.3.4.2 in the EP have been revised to include incident notifications to relevant persons. Additional engagement with stakeholders identified during consultation were engaged with. Engagement with

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
							McGowan's was not undertaken as they are no longer operating.
				Summary: • CAPL commenced consultation with Maxima Pearling Company on 4 May 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Maxima Pearling Company has not raised any objections or claims relating to the activity. Maxima Pearling Company did provide feedback on additional relevant persons and requested to be notified in the event of an emergency. This feedback has been addressed by CAPL. • CAPL has provided a reasonable period and sufficient information to Maxima Pearling Company to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Northern Prawn Fishery (NPF)	14/03/2023	CN-000193	Email	CAPL advised that the NPF had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the NPF that they welcome meaningful feedback.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP.	No objection or claim raised.		
	08/11/2023	OC-000920	Phone	CAPL called to follow up on consultation. There was no answer.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with NPF on 14 March 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • NPF has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to NPF to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Paspaley Pearls	10/05/2023	CN-000442	Email	CAPL advised that Paspaley Pearls had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified that Paspaley Pearls that they welcome meaningful feedback.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP.	No objection or claim raised.		
	08/11/2023	OC-000921	Phone	CAPL called to close out consultation. The stakeholder was not aware of any emails and asked for the email to be resent. CAPL confirmed they would send out a close out email and would welcome feedback for future engagement but specified the EP consultation window was closed.	No objection or claim raised.		
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary:			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL commenced consultation with Paspaley Pearls on 10 May 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Paspaley Pearls has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Paspaley Pearls to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Pearl Producers Association (PPA)	08/02/2023	CN-000234	Email	CAPL advised that the PPA had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the PPA that they welcome meaningful feedback.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP.	No objection or claim raised.		
	08/11/2023	OC-000924	Phone	CAPL called to close out consultation with Stakeholder. Phone mailbox was full, CAPL were unable to leave message.	No objection or claim raised.		
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with PPA on 8 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • PPA has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to PPA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Western Rock Lobster Council	19/01/2023	OC-000280	Phone	CAPL established contact with Western Rock Lobster Council to organise a time to provide an overview of upcoming projects. Western Rock Lobster Council confirmed their fishing areas and also shared their concerns about seismic impacts on lobsters. CAPL agreed to providing further information regarding the operational areas and providing the information sheet.	Western Rock Lobster Council confirmed their fishing areas and also shared their concerns about seismic impacts on lobsters.	The claim does not have merit: The EP is not a seismic EP thus the concern has no merit for this EP.	No changes made to the EP
	08/02/2023	CN-000411	Email	CAPL thanked the Western Rock Lobster Council for their time on the phone and provided a link to its seismic activity (outside the scope of this activity) information. CAPL advised that the Western Rock Lobster Council had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the Western Rock Lobster Council that they welcome meaningful feedback. No response received.	No objection or claim raised.		
				Summary: • CAPL contacted Western Rock Lobster Council on 19 January 2023 via telephone to confirm their fishing areas. CAPL commenced consultation with Western Rock Lobster Council on 8 February 2023 with a follow up email advising they had been identified as a			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Western Rock Lobster Council has not raised any objections or claims relating to the activity. Feedback received has been in relation to other CAPL activities. • CAPL has provided a reasonable period and sufficient information to Western Rock Lobster Council to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.4.2 Tourism and recreation operators

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Karratha Tourism and Visitor Centre	08/02/2023	CN-000231	Email	CAPL advised that the Karratha Visitor Centre had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the Karratha Visitor Centre that they welcome meaningful feedback.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.	No objection or claim raised.		
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Karratha Visitor Centre on 8 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Karratha Visitor Centre has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Karratha Visitor Centre to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Tourism Western Australia	09/01/2023	OC-000230	Email	CAPL advised that TWA had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL suggested they coordinate a phone call to discuss and agree on the communication protocols and to consult on the current Environment Plans. Tourism Western Australia would be pleased to meet with CAPL and a meeting was organised.	No objection or claim raised.		
	27/02/2023	OC-000266	Virtual Meeting	CAPL met with TWA to discuss CAPL environment plans. During the meeting TWA suggested CAPL should speak with tourism operators and cruise ship operators.	Tourism WA identified potential relevant persons to engage with.	**Claim has merit:** CAPL activities have the potential to interact with tourism operators, therefore	No change made to the EP. Additional engagement took place.

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				TWA provided advice on potential investment opportunities with local tourism operators and showed interested in partnering with CAPL to develop tourism capacity.		it is reasonable to consider the identified people as relevant persons.	
	27/02/2023	CN-000370	Email	CAPL emailed following the meeting with TWA. CAPL provided a link to their website for further information regarding upcoming activities together with a copy of the advertisement for local, state and national papers. CAPL thanked TWA for assisting with reaching licensed operators in the area.	No objection or claim raised.		
	27/09/2023	OC-000736	Email	CAPL followed up with TWA regarding their offer of providing a list of ship operators and possible relevant people for consultation. CAPL also confirmed they were consulting with AMSA about vessel and shipping channels so further details may not be necessary but that CAPL were happy to listen to Tourism WA advice.	No objection or claim raised.		
	29/09/2023	CN-000800	Email	TWA responded to CAPLs email and suggested CAPL contact the Cruise Lines International Association.	TWA identified Cruise Lines International Association as a potential relevant person.	**Claim has merit:** CAPL activities have the potential to interact with tourism operators, therefore it is reasonable to consider the identified people as relevant persons.	No change made to the EP. Additional engagement took place.
				Summary: • CAPL commenced consultation with TWA on 9 January 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • TWA has not raised any objections or claims relating to the activity. TWA provided feedback on additional relevant persons. • CAPL has provided a reasonable period and sufficient information to TWA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.4.3 Local government departments or agencies

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Carnarvon Chamber of Commerce Inc.(CCCI)	10/01/2023	CN-000882	Email	CAPL advised the Carnarvon Chamber of Commerce of CAPLs intentions of releasing information regarding their upcoming activities and identified CCCI as a possibly relevant stakeholder. CCCI advised CAPL they were happy to have a meeting or meet in person. CAPL offered to have a conversation over the phone in the first instance.	No objection or claim raised.		
	08/02/2023	CN-000229	Email	CAPL advised the CCCI had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the Carnarvon Chamber of Commerce that they welcome meaningful feedback.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with CCCI on 10 January 2023 via email advising CAPLs intention of upcoming consultation. CAPL further engaged with CCCI via email on 8 February 2023 advising CCCI had been identified as a relevant person with functions,			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • CCCI has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to CCCI to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
City of Karratha (Pilbara)	19/12/2022	OC-000131	Email	CAPL advised the City of Karratha had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL suggested they coordinate a phone call to discuss and agree on the communication protocols and to consult on the current Environment Plans. CAPL organised to present to Council.	No objection or claim raised.		
	31/01/2023	OC-000290	Face-to-face	CAPL met with the City of Karratha to provide an overview of their new approach to consultation along with an update on their Environment Plans. CAPL requested time to speak to the City of Karratha council on their Environment Plans.	No objection or claim raised.		
	01/02/2023	OC-000130	Email	CAPL thanked the City of Karratha for their time and participation regarding CAPL's consultation process. CAPL confirmed they would like the opportunity to present to the Council Briefing. CAPL provided a list of other organisations they are currently consulting and asked if the City of Karratha could provide relevant ENGOs CAPL should proactively engage.	No objection or claim raised.		
	06/02/2023	CN-000369	Email	CAPL advised the City of Karratha had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified City of Karratha that they welcome meaningful feedback. CAPL requested that this activity overview be shared at the EDM, and would be in Karratha/Roebourne in the future and would be available for further discussion.	No objection or claim raised.		
	15/02/2023	OC-000135	Email	CAPL engaged with the City of Karratha to discuss the most efficient method to inform the community of CAPL's activities.	No objection or claim raised.		
	20/02/2023	OC-000258	Virtual Meeting	CAPL met with the City of Karratha Council. CAPL provided an overview of their new online consultation hub and update on their Environment Plans. The City of Karratha Council complemented the level of detail by CAPL and posed a question on well decommissioning and seismic activities. CAPL informed the City of Karratha Council of the preventative measures that are in place as safeguards. CAPL offered to answer any further questions that may arise.	No objection or claim raised.		
	20/02/2023	OC-000301	Email	CAPL reached out to the City of Karratha to thank them for their hospitality and to communicate their ongoing commitment to consultation.	No objection or claim raised.		
	04/05/2023	OC-000454	Email	CAPL reached out to the City of Karratha to provide any feedback they may have on the activity. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with City of Karratha on 19 December 2022 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL sent a follow up email on 6 February 2023 providing an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • City of Karratha has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to City of Karratha to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25.			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Karratha & Districts Chamber of Commerce and Industry (KDCCI)	22/12/2022	OC-000115	Email	CAPL advised the KDCCI had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL suggested they coordinate a phone call to discuss and agree on the communication protocols and to consult on the current Environment Plans. KDCCI acknowledged and appreciated CAPL reaching out and a meeting was organised. CAPL provided a link to their website for further information regarding the activity.	No objection or claim raised.		
	31/01/2023	OC-000288	Face-to-face	CAPL met with KDCCI in Karratha. CAPL provided an overview of their new approach to consultation along with an update on their Environment Plans. KDCCI offered to share CAPL's information sheet with their members.	No objection or claim raised.		
	13/02/2023	OC-000304	Phone	CAPL spoke with KDCCI regarding details of CAPL's advert to include in the KDCCI newsletter.	No objection or claim raised.		
	22/02/2023	OC-000117	Email	KDCCI advertised CAPL's Environment Plan information sheet in their newsletter.	No objection or claim raised.		
	03/03/2023	OC-000520	Email	KDCCI offered the opportunity for CAPL to present to their board regarding the upcoming activities. A time was organised.	No objection or claim raised.		
	16/05/2023	OC-000534	Virtual Meeting	CAPL presented to the KDCCI board on CAPL's upcoming activities. The KDDCI board confirmed CAPL's Environment Plan information was shared via email to their membership on CAPL's behalf in February. No feedback, objections or claims were raised.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with KDCCI on 22 December 2022 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL sent a follow up email on 13 February 2023 providing an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • KDCCI has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to KDCCI to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Shire of Carnarvon (Gascoyne)	09/03/2023-09/03/2023	OC-000637	Face-to-face	CAPL met with Shire of Carnarvon representatives in Carnarvon to discuss Environment Plans. Shire of Carnarvon advised that there were no concerns or objections. CAPL and Shire of Carnarvon representatives discussed opportunities for future partnerships and collaboration including training for rangers.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Shire of Carnarvon on 9 March2023 via face to face meeting. CAPL provided an overview of the activity. • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Shire of Carnarvon has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Shire of Carnarvon to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

1.4.4 Other

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
Australian Conservation Foundation (ACF)	31/03/2023	CN-000163	Email	CAPL used webform to supply Environment Plan information to the ACF. CAPL advised that the ACF had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified ACF that they welcome meaningful feedback	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP.	No objection or claim raised.		
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with ACF on 31 March 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • ACF has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to ACF to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Centre for Whale Research Western Australia (CWR)	10/02/2023	CN-000409	Email	CAPL advised the CWR had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the Centre for Whale Research that they welcome meaningful feedback. CAPL followed up to ensure that they received the formal notification regarding CAPL's activities.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with CWR on 10 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • CWR has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to CWR to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Conservation Council of WA (CCWA)	10/02/2023	CN-000225	Email	CAPL advised that the CCWA had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the CCWA that they welcome meaningful feedback. CAPL followed up to confirm if email was received.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
	27/03/2023	OC-000159	Phone	CAPL contacted CCWA to confirm receipt of formal notification. CCWA confirmed that they would forward on to the appropriate representatives.	No objection or claim raised.		
	11/05/2023	OC-000532	Email	CAPL reached out to the CCWA to provide any feedback they may have on the activity. CAPL confirmed that the CCWA has not expressed specific concerns or objections to the planned activity. CCWA advised CAPL of their intention and interest in providing feedback on the Environment Plans and activities. CAPL informed CCWA that consultation had been finalised but, if they could provide their feedback as soon as possible, CAPL would possibly be able to consider the feedback and include it in the Environment Plans. CAPL welcomed the opportunity to meet with CCWA to discuss ongoing consultation for future activities.	CCWA advised CAPL of their intention and interest in providing feedback on the Environment Plans and activities.	**Claim has merit:** CCWA has been identified as a relevant person, and have indicated their intention to provide feedback. As such, they should have an opportunity to provide feedback.	No change made to the EP. Additional engagement with CCWA took place.
	9/08/2023	OC-000612	Virtual Meeting	CAPL met with CCWA on Teams following requested for engagement and discussion on Environment Plans. CCWA advised that they have been overwhelmed for consultation requests and requested that early engagement would support them to be able to provide meaningful feedback. CAPL and CCWA agreed that it was important to focus on opportunities for positive engagement and collaboration around data and research gaps. CCWA advised that they would follow up with any further questions but are interested in meeting in person in Perth in a few week's time.	No objection or claim raised.		
	15/08/2023	OC-000617	Email	CAPL wrote to CCWA to capture notes and discussions following the recent meeting with reiteration of a desire to meet in person and build a relationship.	No objection or claim raised.		
	31/08/2023	OC-000630	Phone	CAPL contacted CCWA via phone and left a voicemail in order to arrange a meeting.	No objection or claim raised.		
	18/09/2023	OC-000660	Email	CAPL contacted CCWA to reiterate its interest in meeting in person following the virtual meeting held in August.	No objection or claim raised.		
	20/09/2023	OC-000714	Email	CAPL responded to CCWA and requested to meet online in order to suit CCWA team members. CAPL proposed a meeting in the week commencing the 2nd of October 2023.	No objection or claim raised.		
	19/10/2023	OC-000847	Email	CAPL wrote to CCWA in response to comments made in an online article regarding Barrow Island. CAPL offered CCWA opportunity to meet in order to be further briefed on our environmental management of Barrow Island and the issues raised.	No objection or claim raised.		
	19/10/2023	OC-000848	Email	CCWA responded to CAPL email seeking clarification around quarantine incursions on Barrow Island and whether CAPL has details on the species of scale insects and earwigs that have been detected. CCWA said they were keen to know about the changes CAPL will be making to improve its biosecurity management and the measures it will apply to control any pest species that have been released into the Barrow Island environment.	1. CCWA requested further information regarding quarantine incursions on Barrow Island and biosecurity management. 1. CCWA queried CAPL on the species of scale insects and earwigs that have been detected.	**Claim has merit** 1. Biosecurity risks are relevant to offshore activities, and as a relevant person it is fair and reasonable to provide CCWA with further information. **Claim does not have merit.** 2. This activity is limited to an offshore location, and insects and earwigs are not relevant to the Operational Area or EMBA.	No change made to the EP. Additional engagement with CCWA took place.
	19/10/2023	OC-000849	Email	CAPL provided CCWA a link to the Gorgon Environment Performance Report highlighting the page which included the information she requested. CAPL again extended offer to arrange a meeting with our Environment and Quarantine team to provide a briefing on biosecurity management.	No objection or claim raised.		
	19/10/2023	OC-000850	Email	CCWA advised that they would review the Gorgon Environmental Report and will revert next week.	No objection or claim raised.		
	19/10/2023- 27/11/2023	OB-000959	Email	CCWA thanked CAPL for their response, and raised additional questions regarding onshore invasive species, quarantine procedures and baseline studies on Barrow Island.	CCWA raised multiple queries in regard to onshore invasive species, quarantine procedures and baseline studies on Barrow Island.	**Claims do not have merit:** While CAPL acknowledge the significance and merit of the claims raised, this activity is limited to an offshore location. As such, the claims are not relevant to this activity.	
				Summary:			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL commenced consultation with CCWA on 10 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • CCWA has not raised any objections or claims relating to the activity. CCWA provided feedback in relation to onshore invasive species, quarantine procedures and baseline studies on Barrow Island. • CAPL has provided a reasonable period and sufficient information to CCWA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Coral Bay Progress Association	03/01/2023	OC-000113	Email	CAPL advised the Coral Bay Progress Association had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL suggested they coordinate a phone call to discuss and agree on the communication protocols and to consult on the current Environment Plans. A meeting was organised.	No objection or claim raised.		
	06/02/2023	CN-000114	Email	CAPL advised the Coral Bay Progress Association had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Coral Bay Progress Association that they welcome meaningful feedback.	No objection or claim raised.		
	27/02/2023	OC-000265	Phone	CAPL spoke with the representatives from the Coral Bay Progress Association. Coral Bay Progress Association advised that they would discuss the Environment Plans during an internal meeting and revert back to CAPL with any comments or questions.	No objection or claim raised.		
	02/03/2023	OC-000292	Virtual Meeting	CAPL met with the Coral Bay Progress Association to provide an overview of their new approach to consultation along with an update on their Environment Plans.	No objection or claim raised.		
	10/05/2023	OC-000439	Email	CAPL reached out to the Coral Bay Progress Association to provide any feedback they may have on the activity. CAPL confirmed that the Coral Bay Progress Association has not expressed specific concerns or objections to the planned activity.	No objection or claim raised.		
	07/08/2023	OC-000068	Phone	CAPL called to follow up their recent meeting to understand whether there was interest in meeting up. Coral Bay Progress Association confirmed that CAPL's Environment Plan information had been shared but there has been no interest in engaging further at this point.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Coral Bay Progress Association on 3 January 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL sent a follow up email on 6 February 2023 providing an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Coral Bay Progress Association has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Coral Bay Progress Association to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Coral Futures Corporation	04/05/2023	CN-000399	Email	CAPL advised that Coral Futures Corporation had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Coral Futures Corporation that they welcome meaningful feedback.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				Coral Futures Corporation responded to CAPL and wish to be included in the continuing consultation process regarding the activity. Coral Futures has planned an aquaculture project in the zone of the CAPL's planned activity and seek to understand the potential impacts (if any) and risks that may arise and have potential for impact from CAPL's proposed activity, including air and water quality, seabed habitat, and marine fauna. A meeting was organised.			
	11/05/2023	OB-000428	Virtual Meeting & Email	CAPL presented to Coral Futures Corporation who have an aquaculture license in state waters near Dampier to grow coral. Coral Futures Corporation would like to be advised of ongoing activities from CAPL and be included in emergency notifications. Coral Features Corporation sent a follow up email thanking CAPL for their time and expressed interest in further engagement.	Coral Futures Corporation requested ongoing engagement and notification in the event of an emergency.	**Claim has merit:** Coral Futures Corporation have planned activities within the region, given their location (and the nature of emergency conditions), their request to be notified in the event of an emergency and receive ongoing consultation has merit.	Table 8-5 and Section 8.3.4.2 in the EP have been revised to include incident notifications to relevant persons. Notification in the event of an emergency is covered under existing ongoing consultation requirements for 'potentially affected persons' in Table 8-5 of the Implementation Strategy.
				Summary: • CAPL commenced consultation with Coral Futures Corporation on 4 May 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Coral Futures Corporation has not raised any objections or claims relating to the activity. Coral Futures Corporation requested ongoing engagement and notification in the event of an emergency. • CAPL has provided a reasonable period and sufficient information to Coral Futures Corporation to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Exmouth Gulf Task Force - DWER	13/02/2023	CN-000069	Email	CAPL advised that the Exmouth Gulf Task Force had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the Exmouth Gulf Task Force that they welcome meaningful feedback. Exmouth Gulf Task Force acknowledged receipt of email and that the Exmouth Gulf Taskforce will consider this at the next meeting.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP.	No objection or claim raised.		
	06/09/2023	OC-000636	Email	CAPL contacted Exmouth Gulf Task Force to follow up on earlier correspondence to confirm whether there was an interest in meeting to discuss our EP and OPP information. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Exmouth Gulf Task Force on 13 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Exmouth Gulf Task Force has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Exmouth Gulf Task Force to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25.			

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				CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Gascoyne Junction Community Resource Centre (GJCRC)	08/02/2023	CN-000228	Email	CAPL advised that the Gascoyne Junction Community Resource Centre (GJCRC) had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the GJCRC that they welcome meaningful feedback.	No objection or claim raised.		
	28/09/2023	OC-000633	Email	CAPL advised Stakeholders that had not responded to previous communications on whether they would like to be consulted in relation to the development of offshore Environment Plans. CAPL gave the option to receive further information or have a discussion with a Chevron Australia representative to respond directly to the email. CAPL advised that if the Stakeholder does not wish to receive emails from CAPL relating to Environments Plans in the future, please let CAPL know via return email.	No objection or claim raised.		
	08/11/2023	OB-000918	Phone	CAPL called to close out consultation. GJCRC was not aware of any emails and asked for the email to be resent.	Engagement materials to be provided.	**Claim has merit:** CAPL acknowledge that further engagement is required.	No change made to the EP. CAPL resent the written notice.
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with GJCRC on 8 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • GJCRC has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to GJCRC to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Greenpeace	10/02/2023	CN-000224	Email	CAPL advised that Greenpeace had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified Greenpeace that they welcome meaningful feedback. CAPL sent a follow up email to confirm whether the email was received.	No objection or claim raised.		
	03/07/2023- 21/08/2023	OC-000620	Email	Greenpeace provided confirmation via email to CAPL that emails concerning OPP and EP's had been forwarded to Greenpeace office of the CEO	No objection or claim raised.		
	31/08/2023	OC-000631	Phone	CAPL contacted Greenpeace by telephone in relation to its current EP's requesting an opportunity to engage with the office of the CEO. Greenpeace Operator advised that she would pass the message on.	No objection or claim raised.		
	06/09/2023	CN-000639	Email	CAPL contacted Greenpeace requesting opportunity to meet to discuss offshore activities and investments in net zero and lower carbon operations.	No objection or claim raised.		
	04/10/2023	OC-000816	Email	Greenpeace confirmed opportunity to speak with their CEO via email and offered virtual or in person meeting.	No objection or claim raised.		
	04/10/2023	OC-000817	Email	CAPL responded to Greenpeace to confirm availability to meet virtually and in person.	No objection or claim raised.		
	07/11/2023	OC-000905	Email	CAPL followed up asking if Greenpeace were available to meet next week.	No objection or claim raised.		
	23/11/2023	OB-000943	Email	Greenpeace provided feedback regarding CAPL activities. Greenpeace requested all consultation be conducted in writing but would like to have the CEO of Greenpeace and CAPL meet and discuss future business.	Greenpeace requested further engagement to discuss CAPL activities and further information.	**Claims have merit:**	No change made to the EP. Further engagement with Greenpeace has taken place, and

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				Greenpeace requested confirmation that Greenpeace is considered to be a 'relevant person' on the Plans, and requested further information regarding: • greenhouse gas emissions fit within state and national carbon budgets • mitigation measures of the greenhouse gas emissions emitted • full modelling reports commissioned for the EPs • information about worst case scenario hydrocarbon spill scenarios, including impacts to fauna and protected areas.		As a relevant person, the request for further information and engagement is considered fair and reasonable.	information was provided on all points raised. Engagement with Greenpeace is ongoing.
	04/12/2023	OC-000964	Email	CAPL provided a response to Greenpeace. CAPL confirmed that Greenpeace remains a 'relevant person', and provided further information on all points raised by Greenpeace. Greenpeace thanked CAPL for its email responding to GP's email from the 23 November 2023 and discussed reaching out in early 2024 to set up meeting with CAPL MD with GP CEO	No objection or claim raised.		
	11/04/2024	001261	Email	CAPL provided relevant sections of the Exploration EPs to Greenpeace to address their queries. CAPL noted that Greenpeace has had no comments on our previous Environment Plans but reserves the right to provide further comments. CAPL noted it would be happy to incorporate any comments Greenpeace may have on the Exploration EPs.	No objection or claim raised.		
	02/05/2024	001292	Email	CAPL contacted GP by email to confirm whether they had any further comments on the EP. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Greenpeace on 10 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Greenpeace has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Greenpeace to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
International Fund for Animal Welfare (IFAW) - Oceania	10/02/2023	CN-000377	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. CAPL sent a follow up email to confirm whether the email was received.	No objection or claim raised.		
	13/03/2023	OB-000380	Email	IFAW emailed CAPL regarding significant concerns about the impact of oil and gas exploration on the marine environment. IFAW objected to seismic surveying in Biologically Important Areas at times when whales are present in these areas. CAPL thanked IFAW for the email and for highlighting their concerns. CAPL provided a response to the concerns raised.	1 IFAW raised significant concerns about the impact of oil and gas exploration on the marine environment, 2 IFAW underwater noise pollution objected to seismic surveying in Biologically Important Areas at times when whales are present in these areas. 3 IFAW raised impact of seismic testing on fisheries and the marine environment	**Claim has merit:** 1. CAPL acknowledge concerns raised regarding the impact of oil and gas exploration to the marine environment. **Claims do not have merit:** **2/3.** While CAPL acknowledges the IFAW's objections and concerns regarding seismic activities, they are out of scope for this activity.	No change made to the EP. The EP includes a description of the existing environment (Section 4) and a risk assessment (Section 7) to address impacts and risks to the marine environment, including a demonstration that risks are of a defined acceptable level. CAPL provided a response to IFAW on the concerns raised.
				Summary: • CAPL commenced consultation with IFAW on 10 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity			

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				• CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • IFAW raised objections or claims relating to the impact of oil and gas exploration on the marine environment. CAPL acknowledge concerns raised regarding the impact of oil and gas exploration to the marine environment. CAPL provided a response to IFAW on the concerns raised. The EP demonstrates impacts and risks to the marine environment associated with the activity are of a defined acceptable level. • CAPL has provided a reasonable period and sufficient information to IFAW to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Member for Pilbara	08/02/2023- 23/02/2023	CN-000122	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. The Member for Pilbara responded requesting a meeting. A meeting was organised.	No objection or claim raised.		
	20/02/2023	OC-000257	Virtual Meeting	CAPL met with the Member of the Pilbara. The Member of the Pilbara showed support for CAPL's activities and a keen interest in employment opportunities in the Pilbara.	No objection or claim raised.		
	11/05/2023	OC-000506	Email	CAPL thanked the Member of Pilbara for their engagement and support in 2023. CAPL asked if there had been any comments or feedback from the community with respect to CAPL activities and reiterated the opportunity to catch up in the near future to provide the Member of Pilbara with an overview of the extent of CAPL's consultations and how CAPL will continue to build relationships in the Pilbara.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with the Member of the Pilbara on 8 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • The Member of the Pilbara has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to the Member of the Pilbara to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Member of Legislative Authority (MLA) - North West Central	08/02/2023	CN-000240	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	10/05/2023	OC-000513	Email	CAPL sent a follow up email to the MLA regarding CAPL's upcoming activities as a relevant person with interests and functions in the region. No response was received from the MLA. CAPL informed the MLA that if they have any input on the proposed activities to please contact CAPL.	No objection or claim raised.		
	23/11/2023	OC-000961	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary:			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL commenced consultation with MLA on 8 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • MLA has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to MLA to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Member of Mining and Pastoral Region	19/12/2022-06/02/2023	OC-000406	Email	CAPL advised that it has 6 upcoming EPs requiring consultation with Relevant Persons. CAPL requested an opportunity to engage and align on consultation approach. CAPL requested to organise a meeting to discuss the activity and agree on communication protocols for consultation. A meeting was arranged.	No objection or claim raised.		
	08/02/2023	CN-000408	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	09/02/2023	OC-000298	Virtual Meeting	CAPL met with the Members for Mining and Pastoral Region to provide an overview of CAPL's new approach to consultation along with an update on CAPL's Environment Plans. The Member for Mining and Pastoral Region provided advice on local relevant persons that CAPL should be engaging, including identification of the Exmouth Gulf Task Force as a potential relevant person.	The Member for Mining and Pastoral Region suggested engaging with the Exmouth Gulf Task Force.	**Claim has merit:** CAPL acknowledges the additional stakeholder identified are potential relevant persons, and that engagement with this stakeholder is required.	No change made to the EP. Additional engagement with stakeholders identified during consultation were engaged with.
	16/02/2023	OC-000407	Email	CAPL thanked the Member for Mining and Pastoral Region for the opportunity to speak about CAPL's Environment Plans and to contact CAPL if they have additional questions about the information shared.	No objection or claim raised.		
	11/05/2023	OC-000507	Email	CAPL thanked the Member of Mining and Pastoral Region for their engagement and support in 2023. CAPL asked if there had been any comments or feedback from the community with respect to CAPL activities and reiterated the opportunity to catch up in the near future to provide the Member of Pilbara with an overview of the extent of CAPL's consultations and how CAPL will continue to build relationships in the Pilbara.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Representative from the Member for Mining and Pastoral Region on 19 December 2022 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Representative from the Member for Mining and Pastoral Region has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Representative from the Member for Mining and Pastoral Region to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Member of the Public	24/02/2023	CN-000488	Phone	The member of the public called the CAPL 1800 phone number. CAPL returned the call in the afternoon of the 24 February 2023. The member of the public said the newspaper ad told her to call CAPL and the member of the public did not have any specific concerns related to CAPL's proposed activities.	No objection or claim raised.		

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				The member of the public did not wish to be a relevant person to the EP for consultation under regulation 25.			
				Summary: • The member of the Public contacted CAPL on 24 February 2023 in relation to the advertisement for the activity. • The member of Public did not raised any objections or claims relating to the activity or requested any further information. • The member of the public did not wish to be a relevant person to the EP for consultation under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Minister for Environment (WA)	13/02/2023	CN-000511	Email	CAPL advised that the Minister for Environment had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity. CAPL notified the Minister for Environment that they welcome meaningful feedback.	No objection or claim raised.		
	10/05/2023	OC-000514	Email	CAPL reached out to the Minister of Environment to provide any feedback they may have on the activity. CAPL informed the Minister of Environment that if they have any questions or would like further details on how CAPL has engaged Traditional Owners, Community and Industry through the consultation process to please reach out. The Minister of Environment responded that they request future consultation of planned activities is copied to DWER and DBCA.	Request that future consultation of planned activities is copied to the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions respectively at info@dwer.wa.gov.au and enquiries@dbca.wa.gov.au.	**Claims have merit:** In accordance with the activity Risk Assessment, Chevron acknowledge that emergency conditions or unplanned incidents pose a risk to Western Australia's environment and as such the request to notify DBCA or DWER for future activities is considered appropriate. As DWER and DBCA are considered relevant stakeholders, Chevron engaged with them accordingly.	No change made to the EP. Additional engagement with stakeholders identified during consultation were engaged with.
				Summary: • CAPL commenced consultation with Minister for Environment on 13 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Minister for Environment has not raised any objections or claims relating to the activity. The Minister for Environment requested that future consultation of planned activities is copied to DWER and DBCA. • CAPL has provided a reasonable period and sufficient information to Minister for Environment to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Pilbara Development Commission	19/12/2022	OC-000101	Email	CAPL advised that it has 6 upcoming EPs requiring consultation with Relevant Persons. CAPL requested an opportunity to engage and align on consultation approach. Pilbara Development Commission responded they would be pleased to meet with CAPL. A meeting was arranged.	No objection or claim raised.		
	01/02/2023	OC-000289	Face-to-face	CAPL met with the Pilbara Development Commission to provide an overview of their new approach to consultation along with an update on CAPL's Environment Plans.	No objection or claim raised.		
	08/02/2023	CN-000102	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Pilbara Development Commission on 19 December 2022 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL sent a follow up email on			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				8 February 2023 providing an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Pilbara Development Commission has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Pilbara Development Commission to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Port Hedland Chamber of Commerce Inc (PHCCI)	30/01/2023	OC-000182	Email	CAPL advised that it has 6 upcoming EPs requiring consultation with Relevant Persons. CAPL requested an opportunity to engage and align on consultation approach.	No objection or claim raised.		
	08/02/2023	CN-000235	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with PHCCI on 30 January 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL sent a follow up email on 8 February 2023 providing an overview of the activity and link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • PHCCI has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to PHCCI to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
WA Coastal and Marine Community Network	10/02/2023-22/03/2023	CN-000222	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. The WA Coastal and Marine Community Network confirmed they would like to be involved in engagement. A meeting was arranged. CAPL followed up with WA Coastal and Marine Community Network email after their Teams Meeting with links to CAPL's Interaction Hub.	No objection or claim raised.		
	21/03/2023	OC-000119	Virtual Meeting	CAPL provided WA Coastal and Marine Community Network information on upcoming activities via the Interaction Hub during a Teams meeting.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with WA Coastal and Marine Community Network on 10 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • WA Coastal and Marine Community Network has not raised any objections or claims relating to the activity.			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL has provided a reasonable period and sufficient information to WA Coastal and Marine Community Network to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
WA Marine Science Institute (WAMSI)	01/03/2023	CN-000196	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with WAMSI on 1 March 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • WAMSI has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to WAMSI to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Western Australian Museum (WAM)	24/04/2023	CN-000382	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. The Western Australian Museum acknowledged the email and indicated that they would reach out if a meeting was required.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with WAM on 24 April 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • WAM has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to WAM to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Whale and Dolphin Conservation Society	10/03/2023	CN-000221	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. CAPL sent a follow up to confirm whether they had received the email.	No objection or claim raised.		
	27/03/2023	OC-000161	Phone	CAPL called to follow up on consultation. The number was not connected.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Whale and Dolphin Conservation Society on 10 March 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL attempted to contact Whale and Dolphin Conservation Society but was unable to connect to the organisation.			

Relevant Person	Interaction Date	Record ID	Method	Summary	Objection or Claim	Assessment of Merit	Changes made to EP in response to consultation
				• CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Whale and Dolphin Conservation Society has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Whale and Dolphin Conservation Society to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			
Wilderness Society	10/02/2023	CN-000197	Email	CAPL provided a written notification advising of its proposed activities in this EP and provided an information sheet and a link to CAPLs consultation webpage. CAPL requested comments or feedback. CAPL sent a follow up to confirm whether they had received the email.	No objection or claim raised.		
	4/09/2023	OC-000715	Email	CAPL sent a follow up email requesting feedback on the EP.	No objection or claim raised.		
	08/11/2023	OC-000920	Phone	CAPL called to follow up on consultation. There was no answer.	No objection or claim raised.		
	23/11/2023	OC-000960	Email	CAPL sent an email advising it had attempted to contact their organisation and to date no response had been received. CAPL advised the consultation period for the EP has closed. CAPL noted it would welcome engagement for upcoming activities and feedback for future environmental plans. No response received.	No objection or claim raised.		
				Summary: • CAPL commenced consultation with Wilderness Society on 10 February 2023 via email advising they had been identified as a relevant person with functions, interests or activities that may be affected by the activity. CAPL provided an overview of the activity and provided a link to their website for further information regarding the activity • CAPL has presented sufficient information in accordance with Section 6.2.2 of the EP on the activity, including the activity description, EMBA, potential impacts and risks and control measures. • Wilderness Society has not raised any objections or claims relating to the activity. • CAPL has provided a reasonable period and sufficient information to Wilderness Society to make an informed assessment of the possible consequences of the activity on its functions, interests and activities, CAPL has discharged its obligations under regulation 25. CAPL notes that further feedback may be received as part of ongoing consultation. CAPL will consider any feedback provided in the future (Section 8.3.4.1).			

Appendix e. Description of listed threatened and migratory species

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listed threatened and migratory species within the EMBA

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exploration drilling

listed threatened and migratory species within the EMBA

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0	Issued for use	15/11/2024	T. Garnica	S. Bowes

Approvals

	Name	Signature	Date
Author:	Tatiana Garnica HSE Advisor		
Checked:	Stan Bowes HSE Specialist – Regulatory Affairs		
Approved:	Shane Waldeck HSE Regulatory Affairs Team Lead		

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1 Introduction

This document provides an overview of species listed as threatened and/or migratory under the *Environment Protection and Biodiversity Conservation Act 1999* that may be present in the environment that may be affected (EMBA) identified in the Wheatstone Deep-1 Exploration Drilling Environment Plan (EP) and Dino South-1 Exploration Drilling EP. Threatened and migratory species identified via the Protected Matters Search Tool (PMST) are listed in Section 4.3.3 of each EP, with the PMST search results included as attachments to these EPs. This document describes the habitat, ecology and behaviours of each species, with an emphasis on biologically significant behaviours—such as feeding, breeding, and migration patterns.

2 Marine mammals

2.1 Whales

2.1.1 Antarctic minke whale

The Antarctic minke whale (*Balaenoptera bonaerensis*) is known to occur from approximately 21° S off Australia's east coast (Ref. 1) to 65° S in the Australian Antarctic Territory (Ref. 2). Records show sightings off all Australian states, except the Northern Territory (NT) (Ref. 1). In high-latitude winter breeding grounds outside Australia, these whales are typically found along the continental shelf edge (Ref. 3; Ref. 4), which may suggest a similar winter distribution in Australian Antarctic waters.

Antarctic minke whales are generally solitary or found in pairs, though large feeding aggregations of up to 400 individuals may form in high-latitude feeding areas (Ref. 5). The distribution of newly weaned calves is unknown, but likely to be in lower latitudes (Ref. 6).

In winter breeding grounds, Antarctic minke whales appear to occupy pelagic waters exceeding 600 m depth (Ref. 4). During the summer, they migrate to higher latitudes for feeding, primarily on Antarctic krill (*Euphausia superba*), but also on smaller krill species (*E. spinifera and E. crystallorophias*) and occasional copedods (Ref. 7; Ref. 8). Krill are pelagic and tend to occur in the upper layers of Antarctic waters, suggesting that Antarctic minke whales do not require deep diving to forage (Ref. 6).

Whaling data suggest that mature male Antarctic minke whales arrive in high-latitude Antarctic waters earlier than mature females, indicating possible sexual segregation in feeding grounds (Ref. 7; Ref. 9; Ref. 10; Ref. 11). Calls of Antarctic minke whales have been recorded in the Perth Canyon in July–August and December (Ref. 12).

There are currently no population estimates for this species in Australian waters (Ref. 6), and information on their timing of presence, distribution, and behaviours, including migration and breeding patterns within Australian waters, is lacking. Additionally, no Biologically Important Areas (BIAs) have been identified in Australian waters.

2.1.2 Bryde's whale

Bryde's whale (*Balaenoptera edeni*) occur in temperate to tropical Australian waters, with two recognised provisional subspecies: the smaller coastal form, known as Eden's whale, and the larger oceanic form, the Bryde's whale (Ref. 13; Ref. 14). Both forms are typically distributed within latitudes of 40° N and 40° S, or the 20 °C isotherm (Ref. 1). The coastal form is generally limited to the 200 m depth isobar and moves along the coast based on prey availability (Ref. 15), while the offshore form resides in deeper waters (500 m to 1,000 m) (Ref. 16). Their relatively short dive times suggest that these whales use the ocean's upper layers (Ref. 16).

Bryde's whales have been recorded in all Australian states except the NT (Ref. 1). They are typically solitary or found in pairs, with occasional groupings likely related to shared activities such as feeding (Ref. 16; Ref. 17). Bryde's whales are known to be income breeders (i.e. feed year-round in less productive waters), using adaptable foraging capabilities to exploit abundant and time-sensitive resources (Ref. 18). Coastal Bryde's whales primarily feed on schooling fish, while

the offshore form consumes small crustaceans and cephalopods (Ref. 19; Ref. 20; Ref. 21).

The offshore Bryde's whale may migrate seasonally, moving to warmer tropical waters in winter (Ref. 16). Limited data suggest a possible preference for lower latitudes during breeding season (Ref. 22).

In Australian waters, data on the distribution, ecology, and behaviour of Bryde's whales remain limited (Ref. 18). Foraging behaviour has only been documented along the east coast of Australia, with Pirotta et al.(Ref. 18) observing feeding in both deep and shallow waters throughout all seasons, peaking in winter. Additionally, Paterson and Van Dyck (Ref. 23) have recorded feeding behaviour in shallow eastern Australian waters.

McCauley (Ref. 24) detected Bryde's whales through acoustic loggers around Scott Reef from 2006 to 2009, noting year-round presence in low numbers and a slight peak in calling density in April to May. Acoustic signals attributed to Bryde's whales have been recorded from north of Darwin to off Exmouth, showing consistent patterns without clear seasonality (Ref. 24).

No BIAs have been identified for Bryde's whales in Australian waters.

2.1.3 Fin whale

Fin whales (*Balaenoptera physalus*) occur globally, from polar to tropical waters, but rarely in inshore waters (Ref. 25). Their distribution spans both hemispheres between latitudes 20–75° S (Ref. 26), and they exhibit well-defined migratory patterns moving between polar, temperate, and tropical waters (Ref. 27). Fin whales may travel in groups of 6 to 10, though solitary individuals and pairs are more common (Ref. 28).

In Australian waters, fin whale distribution is primarily known through stranding events and historical whaling records, with occurrences reported in Western Australia (WA), South Australia (SA), Victoria, and Tasmania (Ref. 1). Migration likely involves movement between Australian waters, warm breeding grounds, and cold feeding grounds (Ref. 29). Group size and movement are thought to adapt to long-term food availability rather than short-term environmental changes (Ref. 30).

Migration times are not well-documented, but sightings in Australian waters have occurred during summer and autumn (Ref. 29). Fin whales have been observed inshore near the Bonney Upwelling, Victoria, in summer and autumn during aerial surveys (Ref. 31). Acoustic detections have also been reported off the Perth Canyon, WA, between January and April (Ref. 32) and at Cape Leeuwin in April (Ref. 33; Ref. 34). Fin whales typically are present in the Perth Canyon from May to late October, with peak activity in July, before returning to Antarctic waters (Ref. 34).

Passive acoustic monitoring (Ref. 33; Ref. 34) indicates that fin whales migrate northward along the Western Australian coast from Cape Leeuwin to the Perth Canyon, with some individuals reaching as far north as Dampier (19°S). However, no fin whale vocalisations have been detected at Scott Reef, Onslow, or Montebello Islands (Ref. 33).

Sightings of fin whales feeding in the Bonney Upwelling suggest it may be a significant feeding ground (Ref. 29). Additionally, the Perth Canyon is likely an important feeding area (Ref. 33) due to its high zooplankton density (Ref. 35).

The total abundance and population trends of fin whales in Australian waters remain unknown (Ref. 29; Ref. 25). There are no known mating or calving areas, nor any BIAs identified for fin whales in Australian waters.

2.1.4 Humpback whale

Humpback whales (*Megaptera novaeangliae*) (WA subpopulation) migrate annually between their feeding grounds in Antarctic waters and their calving grounds in Kimberley waters (Ref. 36). The exact timing of the migration period can vary from year-to-year, however in general the species are sighted in southern Australian waters in May, they then migrate northwards and southwards along the coast, with sightings rare after November (Ref. 37; Ref. 38).

Northbound humpback whales tend to remain around the 200 m water depth contour, while southbound humpback whales tend to travel closer to Barrow Island and generally occur between 50 m and 200 m water depths (Ref. 36). The migration (north and south) BIA corridor extends from the coast to out to ~100 km offshore in the Kimberley and Pilbara regions, reducing to ~50 km offshore south of North West Cape.

The humpback whale breeding and calving grounds in the southern Kimberley region extend from Broome to the northern end of Camden Sound, particularly between Lacepede Islands and Camden Sound (Ref. 36). Breeding and calving occur in the region between mid-August and early-September (Ref. 36), followed by the start of the southern migration. Exmouth Gulf and Shark Bay are both important resting areas for migrating humpback whales, particularly for cow-calf pairs on the southern migration (Ref. 36). The southerly migration, from around the Lacepede Islands (north of Broome) extends parallel to the coast on approximately the 20–30 m depth contour (Ref. 36; Ref. 39). Southbound migration is more diffuse and irregular, lacking an obvious peak. An increase in southerly migrating individuals may be observed between the North West Cape and the Montebello Islands between August to early September (Ref. 36). The predicted peaks in humpback whale migration in the Montebello Islands region are late-July (northern migration) and early-September (southern migration) (Ref. 36). Females and calves are known to stop and rest in Exmouth Gulf and Shark Bay (Ref. 36).

Calving, migration, nursing and resting BIAs for the humpback whale have been identified across WA.

2.1.5 Omura’s whale

Omura’s whale (*Balaenoptera omurai*) was first described in 2003 and is distributed globally in tropical waters, though there remains limited knowledge of the species’ behaviour and ecology, particularly in Australian waters (Ref. 40). The population of Omura’s whales studied off northwest Madagascar is understood to be resident and non-migratory, with movements confined to a restricted range (Ref. 40).

A higher presence of Omura’s whales has been identified in tropical to subtropical waters (Ref. 40; Ref. 41). Browne et. al. (Ref. 40) used passive acoustic monitoring from 2005 to 2023 in Australian waters to identify Omura’s presence. The findings include:

- the most southerly detection was at North West Cape, while the most northerly was in the Timor Sea

- vocalisations were detected year-round near Browse Island and Scott Reef in the Kimberley region
- around the Montebello islands, vocalisations were detected from October to June, and near Barrow Island, vocalisations were detected from December to May. In the Pilbara and Gascoyne regions, vocalisations mostly peaked from February to April but were not detected during austral winter (June–August) and early spring (September)
- in nearshore areas (e.g. Thevenard Island, Port Hedland, Onslow), vocalisations were low or not detected
- most detections were from the continental shelf, with some in deeper waters, aligning with global observations.

An offshore trial of Distributed Acoustic Sensing (DAS) from December 2023 to mid-January 2024 recorded Omura's whales along the outer edge of the North West Shelf (NWS) (Ref. 42).

No BIAs have been identified for Omura's whales in Australian waters.

2.1.6 Pygmy blue whale

Pygmy blue whales (*Balaenoptera musculus*) migrate along the west coast of Australia in the northern direction to their breeding grounds near the Indonesian Archipelago from mid-February to early-June, and in the southern direction to the feeding grounds in the Southern Ocean from mid-November to early-January (Ref. 43). Recent information collected from satellite tags shows that the Banda and Molucca seas in Indonesia are the likely destination for the northern migration of whales that feed off the Perth Canyon (Ref. 44; Ref. 45; Ref. 46). These seas are considered the northern terminus of the migration and potentially the breeding and calving ground, but may also act as a feeding area (Ref. 47; Ref. 48).

Acoustic monitoring conducted by McCauley and Jenner (Ref. 49) in the Exmouth and northern Montebello Islands region identified a peak period in the northern migration of pygmy blue whales from May to June, and from November through to late-December during the southern migration. It was estimated by McCauley and Jenner (Ref. 49) that between 700 and 1,500 pygmy blue whales migrated southward past Exmouth in 2004.

It is known the pygmy blue whales tend to follow the WA continental shelf edge between their feeding grounds at the Perth Canyon and the North West Cape. However, the migratory pathway of whales north of the North West Cape is less defined.

The migration BIA for pygmy blue whales has been historically described as occurring along the continental shelf edge between 500 m and 1,000 m water depths (Ref. 50; Ref. 51). However, more recent studies (e.g. Ref. 43; Ref. 44) suggest that pygmy blue whales are likely to transit through deeper and further offshore waters north of the North West Cape. Satellite tracking data showed pygmy blue whales on their northern migration travelled relatively near to the Australian coast (100±1.7 km) in water depths of 1,369.5±47.4 m, until reaching the North West Cape, after which they travelled further offshore (238±14 km) into progressively deeper water (2,617±143.5 m) (Ref. 44). Data from tagged pygmy blue whales also indicates that during their northern migration, the width of the migration path increases north of Montebello Islands, from ~175 km to ~690 km at its widest point (Ref. 52). Gavrilov et al. (Ref. 43) conducted a study using an array of ocean bottom seismographs to detect pygmy blue whales traversing the

area to the northwest of the North West Cape during their southern migration. This study found that pygmy blue whales migrated southward much further from the WA coast compared to the northbound migration, at distances of up to 400 km from shore (Ref. 43). Pygmy blue whales have demonstrated extensive use of continental slope habitat off WA and only limited use of shelf waters (Ref. 52). This contrasts with southern Australia, where use of the shelf and shelf break by pygmy blue whales is more common.

McCauley and Jenner (Ref. 49) recorded 24-hour average counts of pygmy blue whales along the WA coast during their migrations periods and found that the migratory habits are short and sharp pulses for the southbound pygmy blue whales and a more protracted pulse of northbound pygmy blue whales. This suggests that the southern migration pygmy blue whales are swimming purposefully through the area to reach their southern feeding grounds, thus resulting in the data collected for pygmy blue whales migrating through the area is not confounded by lingering pygmy blue whales but they are swimming steadily past. A difference in travel speed was also reported by Thums et al (Ref. 52), where median speed during northward migration was 2.4 km/h (<0.1–15.4 km/h, n=22), and southward migration was 4.0–5.0 km/h (n=2).

A recent study incorporating data collected from both passive acoustic monitoring and satellite telemetry data, was analysed and determined the ‘most important areas’ for migration[1] along the WA coast as an almost continuous stretch from southern WA to around the latitude of Rowley Shoals, and thereafter was more dispersed (Ref. 52).

Ferreira et. al (Ref. 53) compiled satellite tracking data for 38 pygmy blue whales and used movement models to distinguish between low and high move persistence and correlated the data with environmental variables. Typically, high move persistence is indicative of migration, while low move persistence is generally indicative of foraging or reproduction (Ref. 52). In alignment with other studies, the continental slope off the north-west Australian coast was predicted to be suitable habitat for migration (Ref. 53).Predictions from modelling based on passive acoustic data indicate greatest numbers of pygmy blue whales during April and June/July (northern migration), and November and December (southern migration) (Ref. 52). Monthly spatial predictions indicated higher densities around the Montebello Island region during May and June (northern migration) and November and December (southern migration) (Ref. 52; Ref. 53).

Pygmy blue whales aggregate in the Austral summer to feed at known locations on or adjacent to the continental shelf including the Perth Canyon, Great Southern Australian Coastal Upwelling System, and the sub-tropical convergence zone (Ref. 52). The areas around the Perth Canyon and Australian Coastal Upwelling System correspond to ‘Foraging Areas’ and ‘Known Foraging Areas’ within the *Conservation Management Plan for the Blue Whale* (Ref. 51). The C*onservation Management Plan for the Blue Whale* (Ref. 51) also identifies ‘Possible Foraging Areas’[2], including two in WA, one off the Ningaloo coast, and another around Scott Reef. These ‘Possible Foraging Areas’ have been characterised as foraging BIAs.

[1] Grid cells with overlap between two metrics: largest percentage of whales and high move persistence, were designated as the ‘most important areas’ for migration (Ref. 52)

[2] “Evidence of feeding is based on limited direct observations or through indirect evidence, such as occurrence of krill in close proximity to whales, or satellite tagged whales showing circling tracks. Blue whales travel through on a seasonal basis, possibly as part of their migratory route” (Ref. 51).

Thums et al (Ref. 52) determined that pygmy blue whale movement off northwest WA was predominantly relatively fast, directed travel (high move persistence) interspersed with relatively short (median 28 h) periods of low move persistence (Ref. 52).

The satellite tracking data reviewed in the recent study by Ferreira et. al., indicates 17 out of 38 tracked whales (~45%) displayed foraging movement behaviour in north-west WA (Ref. 53). Suitable foraging habitat was identified as a large semi-continuous area from the southern extent (28°S) to the northeastern edge of the modelled region (11.5°S) (Ref. 53). This area occurred almost exclusively on slope (91%), with a small amount of suitable habitat in deep ocean floor (7%) and on the shelf (2%) (Ref. 53).

Owen et. al. (Ref. 54) deployed a multi-sensor tag on a single pygmy blue whale, tracked its movement from the Perth Canyon region to Geraldton, and examined its dive behaviour. The whale completed a total of 1,677 dives over the duration the tag was attached (7.6 days). A total of 21 feeding dives were identified, with a mean maximum depth of 129 ± 183 m (range 13–505 m). Feeding behaviour appears to be largely a function of prey availability (krill) and their associated oceanographic drivers (i.e. surface currents, light attenuation, upwellings and seabed features) (Ref. 35; Ref. 55).

Data collected from both passive acoustic monitoring and satellite telemetry data, was analysed and determined the ‘most important areas’ for foraging along the WA coast included the Perth Canyon and vicinity, the shelf edge off Geraldton, and discontinuous use of the shelf edge from Ningaloo Reef to Rowley Shoals (Ref. 52). Although foraging areas are described as static, they are likely to be dynamic given their dependence on presence of prey (Ref. 52; Ref. 56). Studies (Ref. 35; Ref. 55; Ref. 57) have identified that variability in chlorophyll-a and oceanographic conditions (e.g. sea surface temperature, surface height anomaly) had a moderate to strong influence on probability of occurrence of whales suggesting suitable habitats and migratory occurrence may vary.

Data from a tagged pygmy blue whale off Exmouth (Ref. 58) suggests that pygmy blue whales within the waters off the North West Cape demonstrate preferential surface foraging in response to the vertical distribution of krill within these waters, primarily within the upper 100 m of the water column. Thums et al. (Ref. 52) states that ten of the 24 pygmy blue whales that were encountered during the 2020 field trip were observed to be surface feeding (implied by the visible baleen and pleats on the surface).

Biologically, surface feeding is an optimal behavioural response for pygmy blue whales, given the significantly reduced energetic costs associated with this strategy over lunge feeding at depth, which requires a significant oxygen and energetic demand (Ref. 54). Studies in several locations where pygmy blue whales are known to aggregate (New Zealand [Ref. 59]; California [Ref. 60], SA [Ref. 31]; Canada [Ref. 61]; Chile [Ref. 57]) have demonstrated evidence of surface or sub-surface (<100 m) foraging, determined through visual observations of lunge feeding and/or analysis of tagged data. In these instances, surface foraging was driven by the aggregation of Krill at the surface (or sub-surface). Torres et al. (Ref. 59) noted that surface foraging adheres to the principles of the ‘optimal foraging theory’, which states that to maximise fitness, an animal adopts a foraging strategy that provides the most benefit (i.e. energy) for the lowest cost, thereby maximising the net energy gained.

2.1.7 Sei whale

Sei whales (*Balaenoptera borealis*) are a cosmopolitan species, ranging from polar to tropical waters (Ref. 62; Ref. 63) and primarily inhabiting deep oceanic habitats. Their distribution, abundance and latitudinal migrations are largely determined by seasonal feeding and breeding cycles (Ref. 64). Generally, sei whales exhibit north-south migratory movements between polar, temperate, and tropical zones (Ref. 27). However, specific movement patterns and distributions within Australian waters remain largely undocumented (Ref. 62).

In Australian waters, sei whales are infrequently recorded (Ref. 1), with sightings reported off Tasmania, New South Wales (NSW), Queensland, the Great Australian Bight, NT and WA(Ref. 1; Ref. 65; Ref. 66; Ref. 67; Ref. 68). Sightings along the continental shelf in the Bonney Upwelling, SA, 20–60 km offshore (Ref. 69), suggest opportunistic feeding occurs between November and May (Ref. 62; Ref. 70). These whales typically feed on planktonic crustaceans, particularly copepods and amphipods (Ref. 62).

Sei whales are usually seen in small pods of three to five individuals, with group compositions sometimes influenced by age, sex, and reproductive status (Ref. 62). The diversity of habitat for sei whales may be influenced by varying physical conditions and prey availability (Ref. 62). Mating and calving occur mainly in winter, though specific breeding grounds in low latitudes have not been identified (Ref. 68; Ref. 64). Currently, there are no known mating or calving areas (Ref. 65), nor BIAs, identified for sei whales in Australian waters.

2.1.8 Southern right whale

The Southern right whale (*Eubalaena australis*) occurs seasonally in coastal waters of Australia, with a circumpolar distribution between latitudes 20°S and 65°S (Ref. 71). Two populations, the western and eastern, are present in Australian waters (Ref. 72). While there is evidence of population growth in the western group, Southern right whale numbers remain below historical estimates (Ref. 72). The western population primarily occupies coastal waters between Exmouth/Ningaloo Reef off WA (Ref. 1) and Ceduna in SA (Ref. 73; Ref. 74).

From May to October, Southern right whales inhabit calving and nursing grounds, with peak calving occurring in late July and August (Ref. 72). Female-calf pairs generally occupy these grounds for 2 to 3 months from June to September, while non-calf-bearing whales display more variability in their seasonal presence (Ref. 75; Ref. 76). Distribution is concentrated in shallow waters <10 meters deep, usually within 1 km of the coastline (Ref. 76; Ref. 77).

Female Southern right whales display strong site fidelity to specific areas for breeding and feeding, often preferring shallow, sloping sandy bays along the southern Australian coast (Ref. 72). Despite this site fidelity, a small percentage of breeding females occasionally shift their calving locations (Ref. 78). Female-calf pairs have an average calving interval of three years (Ref. 72).

As capital breeders, Southern right whale reproductive cycles are closely tied to their migratory behaviour (Ref. 72). Migration occurs between feeding and breeding grounds. Feeding whales are observed near the Subtropical Front (41–44°S) in January and December, where they consume copepods, while whales at higher latitudes (south of 50°S) primarily consume krill (Ref. 79; Ref. 80; Ref. 81). Coastal foraging in Australian waters has not been observed, and foraging ecology remains poorly understood (Ref. 72).

In Australia, migratory and reproductive BIAs have been identified for the Southern right whale. The migratory BIA in WA spans from Exmouth to the South Australian border. Reproductive BIAs cover Exmouth Gulf and stretches from Mandurah to the South Australian border. Critical habitats for the species' survival have been identified within all reproductive BIAs across the species range (Ref. 72).

2.1.9 Sperm whale

Sperm whales (*Physeter macrocephalus*) have been recorded in all Australian states (Ref. 1). Gregarious by nature, sperm whales live in groups of up to 50 individuals, although males are sometimes solitary at higher latitudes (above 40°N) (Ref. 82). Typically, they inhabit deep waters (>600 m) and are uncommon in shallow waters (<300 m) (Ref. 82).

Female and young male sperm whales tend to remain in warmer waters, while adult males migrate between warmer and colder waters, such as those near Antarctica (Ref. 1). In Australian waters, they concentrate along a narrow area on the shelf edge off Albany, WA, moving westward over the year (Ref. 1). Along the Western Australian coast, where the continental shelf is less steep, sperm whales appear more widely dispersed offshore (Ref. 1).

Sperm whales are seasonal breeders, with a prolonged mating season extending from late winter to early summer (Ref. 83). In the Southern Hemisphere, breeding occurs from July to March, peaking in September and December (Ref. 84).

Sperm whales feed regularly year-round, primarily on medium- to large-sized squids. Their diet also includes other cephalopods and demersal fishes (Ref. 85; Ref. 86; Ref. 87; Ref. 88). Sperm whales are known to coordinate foraging dives that often reach depths of over 500 m, spreading out underwater while hunting (Ref. 83; Ref. 89).

Currently, there are no population estimates for sperm whales in Australian waters (Ref. 82). During seismic surveys conducted from December 2016 to April 2017 off North West Cape (Ref. 90), marine mammal observers recorded 23 sightings of sperm whales, with pod sizes ranging from one to six animals. These whales were observed in deep waters over the Montebello Saddle (up to 90 km from North West Cape) and in waters above canyons connecting the Cuvier Abyssal Plain and the Cape Range Peninsula key ecological features (Ref. 90).

Foraging BIAs for sperm whales have been identified in southern WA (i.e. between Cape Leeuwin and Esperance) and across SA.

2.2 Dolphins

2.2.1 Australian humpback dolphin

Australian humpback dolphins (*Sousa sahulensis*) are found in tropical/subtropical waters (Ref. 91). In Australia, their range extends from Shark Bay in WA, northward and eastward to southern Queensland (Ref. 92). The North West Cape and Exmouth Gulf coastal waters report the highest density of Australian humpback dolphins within this range (Ref. 93). Observations of Australian humpback dolphins have been recorded near Barrow Island and the western Lowendal Islands(Ref. 94).

Australian humpback dolphins typically occur close to the coast (within 20 km from land) and in relatively sheltered offshore waters near shallow bays, inshore reefs, and coastal archipelagos or islands (Ref. 92). In the western Pilbara region,

Australian humpback dolphins frequent intertidal areas, with coral reef and shallow waters identified as highly suitable habitats (Ref. 95).

Observations suggest year-round dolphin presence in the Montebello Islands, indicating some site fidelity to these areas (Ref. 97).

Australian humpback dolphins feed across a wide range of inshore-estuarine coastal habitats in waters up to 40 m deep (Ref. 98). Their feeding behaviour varies, with dolphins sometimes dispersing over large areas or forming tight groups targeting localised prey. They are occasionally seen chasing fish into shallows and beaching themselves to catch their prey (Ref. 99). Reports also suggest they feed near fish farms and on baited drumlines (Ref. 92).

Australian humpback dolphins do not appear to undergo large-scale seasonal migrations, though seasonal fluctuations in abundance have been observed (Ref. 92). School sizes vary significantly based on behaviour, with larger groups observed while socialising compared to when foraging or traveling (Ref. 91).

Breeding, calving foraging and resting BIAs for Australian humpback dolphins have been identified in northern WA (from Broome to the NT border) and around Darwin, NT. The draft Conservation Advice for Australian humpback dolphin (Ref. 98) defines shallow (≤15 m depth) inshore coastal waters and estuarine habitats within sub-tropical and tropical zones of Australia, up to 20 km from a coastline or landmass, as habitat critical to the survival of the species. Areas with high densities of teleost fish, cephalopods, and bivalves are considered important potential foraging habitats (Ref. 98).

2.2.2 Australian snubfin dolphin

Australian snubfin dolphins (*Orcaella heinsohni*) occur in northern Australian waters, ranging from Broome in WA to the Brisbane River in Queensland (Ref. 100). This population is believed to be continuous with that of Papua New Guinea, though separate from populations in Asia (Ref. 101).

Within Australia, snubfin dolphins are primarily found in shallow coastal and estuarine waters, often near freshwater sources and at depths of <20 m (Ref. 100; Ref. 102; Ref. 103; Ref. 104). Surveys conducted by D'Cruz et al. (Ref. 105) from 2007 to 2019 in the Yawuru Nagulagun (Broome coast) region suggest this area supports one of the largest known populations of Australian snubfin dolphins. Results showed that 56% of the dolphins displayed some residency, while 44% appeared to lack site fidelity—though this may be due to data restrictions or limited sampling intensity. (Ref. 105).

The snubfin dolphin has also been recorded along the Kimberley coast in WA, including key areas such as Beagle and Pender Bays on the Dampier Peninsula and the tidal creeks between Kuri Bay and Cape Londonderry (Ref. 106). Group sizes vary from single individuals to 15 animals, typically forming small groups of 2–6 (Ref. 107) with an average school size of around five dolphins (Ref. 108).

Observations in Cleveland Bay, Queensland, indicate that Australian snubfin dolphins may mate and give birth year-round, as calves are seen throughout the year (Ref. 101; Ref. 103). These dolphins spend most of their time foraging and travelling, with less time devoted to socialising (Ref. 101). The prevalence of foraging in shallow coastal and estuarine waters (<20 m) suggests these areas are crucial feeding habitats (Ref. 103), where they prey primarily on fish, squid, cuttlefish, octopus, and shrimp (Ref. 109).

Breeding, calving foraging and resting BIAs for Australian humpback dolphins have been identified in northern WA (from Broome to the NT border) and around Darwin, NT.

2.2.3 Killer whale

Killer whales (*Orcinus orca*) are recorded in all Australian states, with notable concentrations around Tasmania (Ref. 110) and additional sightings in SA and Victoria (Ref. 111). Populations may be highly fragmented in Australian waters, though overall population numbers remain unknown (Ref. 110). While killer whales are typically associated with cold, deeper waters, they are most frequently sighted along the continental slope and shelf in Australia, particularly near seal colonies (Ref. 110). During summer, they are regularly observed along the ice edge in Australian territorial waters (Ref. 2).

No specific key localities are known for killer whales within continental Australian waters, but Macquarie Island (in the Australian subantarctic territory) is considered a key location, with regular sightings reported during the southern summer (Ref. 112). Additionally, the Bremer Canyon Sub-Basin, south of WA, hosts one of the largest congregation of killer whales in the southern hemisphere (Ref. 113).

Killer whales are known to make seasonal movements, likely following migratory routes of their prey, although little is documented about these movements within Australian waters (Ref. 110). While foraging, they are capable of traveling 125–200 km per day (Ref. 114). Group sizes vary, with some gatherings reaching several hundred individuals, though typical groups contain <30 animals (Ref. 110).

Killer whales mate year-round, though the calving season spans several months. Currently, no specific calving areas have been identified within Australian waters (Ref. 110). As top-level carnivores, killer whales have a varied diet. While their specific diet in Australia remains uncertain, they have been reported preying on dolphins, young whales, dugongs, and Australian sea lions (Ref. 1). Additionally, Pitman et al. (Ref. 115) noted that killer whales target calves of humpback whales off Ningaloo Reef during the southern migration season (June to November).

No BIAs have been identified for killer whales in Australian waters.

2.2.4 Spotted bottlenose dolphin (Arafura/Timor Sea populations)

In Australia, the spotted bottlenose dolphin (*Tursiops aduncus*) ranges from northern NSW near Port Macquarie, through Queensland and the NT, and extends south along the Western Australian coast to Perth (Ref. 1). However, the number and sizes of the Arafura/Timor Sea populations are unknown (Ref. 117).

The spotted bottlenose dolphin typically inhabits warmer, inshore waters in Australia, often at depths <10 m depth and potentially up to 10 km offshore (Ref. 1). Jefferson et al. (cited in Ref. 117) described this species as primarily found in coastal and inshore areas, with higher population densities near the shore. Haughey et al. (Ref. 118) also found that the probability of dolphin sightings was highest within 1–2 km of the coast, extending up to 7 km. The extent of migrations or seasonal movements by the spotted bottlenose dolphin in the Timor and Arafura Seas remains unknown (Ref. 117), though Bannister et al. (Ref. 1) suggest the spotted bottlenose dolphin species may be migratory in temperate waters.

Haughey et. al (Ref. 118) further identified that the coastal waters of the North West Cape host a relatively large population of spotted bottlenose dolphins, with sightings primarily during winter (June–August). In spring, sightings were more

frequent outside the Ningaloo Marine Park, though summer data was not included in this study (Ref. 118). This population includes 141 individuals with moderate site fidelity and 229 with low site fidelity (Ref. 118).

Bottlenose dolphins are described as catholic feeders, consuming a diverse diet of demersal, benthic, and reef-associated teleosts, cephalopods, elasmobranchs, and crustaceans (Ref. 1). Breeding, calving and foraging BIAs for spotted bottlenose dolphins in WA have been identified around Broome and Kimbolton.

2.3 Sirenians

2.3.1 Dugong

Dugong (*Dugong dugon*) occur in the tropical and subtropical waters of the Indo-West Pacific (Ref. 119) and inhabit seagrass meadows in coastal waters, estuarine creeks, and streams (Ref. 106). In Australia, dugongs are found in the shallow coastal waters of northern Australia. Specific areas supporting dugongs in WA include Shark Bay (which has the largest population), Ningaloo and Exmouth Gulf, the Pilbara coast (from Exmouth Gulf to De Grey River; Ref. 120), and Eighty Mile Beach and the Kimberley Coast Region, including Roebuck Bay (Ref. 121).

Population estimates are unavailable (Ref. 122); however, aerial surveys since the mid-1980s suggest that dugong populations are now stable at a regional scale in WA (Ref. 123). Dugong feeding aggregations are typically found in extensive seagrass meadows, mangrove channels, and sheltered areas behind large inshore islands (Ref. 124). They also feed in offshore seagrass areas on wide, shallow, and protected sections of the continental shelf (Ref. 122), with feeding occurring at depths of up to 33 m (Ref. 125).

Dugong migration is variable, ranging from <15 km (micro-scale), to 100–560 km (macroscale; Ref. 126). Males, females, and females with calves all undertake large-scale movements (Ref. 122). Although dugong migration patterns are not well known in WA, it is believed that water temperature and the presence of seagrass influence their movements (Ref. 127).

Mating herds of dugongs have been observed in Moreton Bay, Shark Bay, and the northern Great Barrier Reef region (Ref. 124; Ref. 128; Ref. 129). A female may have one calf every three to seven years (Ref. 130).

Several BIAs for dugongs in WA have been identified around Exmouth and Broome.

3 Reptiles

3.1 Crocodile

3.1.1 Salt-water crocodile

The salt-water crocodile (*Crocodylus porosus*) inhabits Australian coastal waters, estuaries, lakes, inland swamps, and marshes (Ref. 168), reaching up to 150 km inland from the coast (Ref. 169). Its range extends across northern Australia, from Rockhampton in Queensland (Ref. 170; Ref. 171) to King Sound near Broome in WA (Ref. 172; Ref. 173). Despite its common name, the salt-water crocodile can persist in freshwater habitats (Ref. 174).

In WA, the species is found in most major river systems of the Kimberley region and in Parrys Creek, with the largest population located in the northwest (Ref. 175). There are also isolated records in rivers of the Pilbara region, around Derby near Broome, and as far south as Carnarvon on the mid-west coast (Ref. 176). The distribution and behaviour of salt-water crocodiles are influenced by temperature; they frequently move in and out of water for thermoregulation (Ref. 174). Out of water, they commonly bask, seek shade, and gape their mouths to manage body temperature (Ref. 177).

Preferred nesting habitats include elevated, isolated freshwater swamps that are not affected by tidal movements, as well as floating vegetation rafts (Ref. 168). Nesting occurs during the wet season, from November to May, with a peak between January and February (Ref. 174).

The salt-water crocodile's diet varies by habitat and size. Primary food sources include crustaceans (in higher salinity waters), insects (in freshwater swamps and upper mangroves), and mammals (Ref. 174), though only larger individuals consume mammals. Their prey includes a wide range of species, such as mud crabs, birds, sea turtles, fish, flying foxes, dingoes, domestic animals, livestock, and occasionally, humans (Ref. 178).

No BIAs for salt-water crocodiles have been identified in Australian waters.

3.2 Turtles

3.2.1 Flatback turtle

The Montebello Islands and Barrow island support flatback turtle (*Natator depressus*) nesting, occurring from October to March, with a peak in November to January (Ref. 145). The Montebello Islands and Barrow Island are identified as important nesting habitat for the Pilbara stock, as is the associated 60 km internesting buffer (Ref. 131).

Typically, flatback turtle nesting on Barrow Island occurs between October and March, with peak nesting activity occurring between November and January. On Barrow Island, nesting activity is concentrated on the central east coast on sandy, low-sloped, low-energy beaches with wide, shallow intertidal zones (Ref. 132; Ref. 133). Limited nesting activity has also been recorded on the south-west, north, and north-east beaches of Barrow Island (Ref. 134).

During internesting, turtles remain close to the nesting beach or rookery (Ref. 131) The 60 km internesting buffer defined within the *Recovery Plan for Marine Turtles in Australia* (Ref. 131) is based primarily on the movements of tagged internesting flatback turtles in WA (Ref. 135). The study tracked 56 turtles from four different rookeries, which demonstrated varying internesting movements, with distances

ranging from 3–62 km, with some turtles at all four rookeries remaining within 10 km of their nesting beaches. However, tracking data showed these movements were largely longshore movements in nearshore coastal waters or travel between island rookeries and the adjacent mainland, which represent the greater distances (Ref. 135). There is little evidence to suggest that flatback turtles move to deep offshore waters during internesting periods.

A habitat suitability modelling study for internesting flatback turtles in the NWS region of WA (Ref. 136) was conducted to identify areas of suitable flatback turtle internesting habitat and determine overlap with identified industrial hazards. The study used a turtle tracking dataset of 47 nesting female turtles from five important rookeries in the NWS study area, including Barrow Island. The results showed internesting flatback turtles from all rookeries remained within water depths of <44 m, with a mean depth of <10 m (Ref. 136). Results also showed internesting turtles from all rookeries remained within <28 km of the nearest coast, with a mean distance from the coast of <6.1 km. The habitat suitability modelling study defined suitable flatback turtle internesting habitat as water depths of 0–16 m within 5–10 km of the coast. Unsuitable flatback turtle internesting habitat was defined as waters >25 m deep and >27 km from the coast (Ref. 136).

Another recent study involving satellite tracking data for 11 flatback turtles following nesting on the Lacepede Islands (Ref. 137) found that flatback turtles remained at an average distance of 15.75±12.25 km from the nesting beach in water depths of <20 m.

Other previous studies (e.g. Ref. 138; Ref. 139; Ref. 140) have also presented findings that internesting behaviour was only observed in water depths of <40 m. One of these studies (Ref. 140) further indicates that internesting flatback turtles have relatively shallow dives, with 85% of the time during spent in ≤20 m water depth, of which most was spent in 5–10 m (27±2.7%) and 10–15 m (22.3±3.5%) water depths.

Several BIAs for flatback turtles have been identified in WA, NT and Queensland. In WA, these BIAs extend from Exmouth to Broome.

3.2.2 Green turtle

The Montebello Islands and Barrow Island supports green turtle (*Chelonia mydas*) nesting, occurring from November to March. The Montebello Islands are identified as nesting habitat critical to the survival of the NSW stock, as is the 20 km internesting buffer around the Montebello Islands (Ref. 131).

The NWS stock is one of the largest green turtle stocks in the world and the largest in the Indian Ocean (Ref. 141). Nesting occurs over a large geographic range with nesting on offshore islands and the mainland. Green turtle nesting usually occurs on the south, west and north-east coasts of Barrow Island between September and March each year, with a remigration interval of approximately five years (Ref. 142) and peak nesting activity occurring between December and February (Ref. 143; Ref. 132).

During internesting, turtles remain close to the nesting beach or rookery (Ref. 131). Analysis of satellite tracking data for Barrow Island on green turtles suggests internesting habitat occurs throughout the rocky intertidal and subtidal platforms common on the west coast, around to the north-eastern beaches and waters (Ref. 143; Ref. 132).Satellite tracking of internesting green turtles on Barrow Island were recorded to remain in shallow water within 5 km of Barrow Island (Ref. 132).

Satellite tracking of post-nesting female green turtles has shown that green turtles nesting on Barrow Island and Sandy Island (Scott Reef, WA) feed between 200 km and 1,000 km from their nesting beaches (Ref. 132). Following nesting at Barrow Island, green turtles that were tracked migrating to foraging grounds extending from Legendre Island in the Dampier Archipelago to waters in the southern Kimberley (Ref. 132).

Several BIAs for green turtles have been identified in WA, NT and Queensland. In WA, these BIAs extend from Exmouth to the limit with NT.

3.2.3 Hawksbill Turtle

The Montebello Islands and Lowendal Islands are identified as nesting habitat critical to the survival of the WA stock, as is the 20 km internesting buffer around the Islands (Ref. 131). Hawksbill turtles (*Eretmochelys imbricata*) are expected to be present within these areas between October and February (Ref. 131).

The WA hawksbill turtle stock is one of the three stocks within Australia (Ref. 131). Most of the nesting for this stock is located in the Pilbara (Ref. 131). The key nesting and inter-nesting areas in Australia include the Dampier Archipelago, the Ningaloo and Jurabi Coasts, and Thevenard, Barrow, Lowendal and Montebello Islands (Ref. 144). The estimated size of the reproductive population of WA stock is small (Ref. 145). For example, it has been estimated as an overall reproductive population at Barrow Island of 100, an additional 1,000 in the Lowendal Islands, and 13,00 in the Montebello Islands (Ref. 145).

Monitoring of Barrow Island hawksbill turtle nesting has found that nesting activity is more temporally and spatially diffuse than flatback and green turtle nesting activity and occurs predominantly on small, rocky, east coast beaches. Nesting on Barrow Island peaks in October (Ref. 146) and hawksbill turtles typically have an internesting interval of 14.5 days and a remigration interval of approximately three years (Ref. 143; Ref. 144).

During internesting turtles remain close to the nesting beach or rookery (Ref. 131). Satellite tracking of hawksbill turtles found that they remained in shallow coastal waters (<10 m deep) post nesting (Ref. 132).

Although BIAs have been identified, hawksbill turtle mating, internesting, and foraging grounds have not been identified for Barrow Island (Ref. 145). However, data from hawksbill turtles tracked from nearby Varanus Island indicate potential internesting habitat in waters north-east of Barrow Island (Ref. 132).

Several BIAs for hawksbill turtles have been identified in WA, NT and Queensland. In WA, these BIAs extend from Coral Bay to Port Hedland, as well as around Scott and Ashmore Reefs.

3.2.4 Leatherback turtle

Leatherback turtle (*Dermochelys coriacea*) is a pelagic feeder found worldwide in tropical, subtropical, and temperate waters (Ref. 147). In Australia, they have been recorded in coastal waters offshore of all Australian States and NT (Ref. 148; Ref. 149; Ref. 150) inhabiting waters from coastal shallows to depths >5,000 m (Ref. 151).

A study by Hazel et. al (Ref. 151), suggests that leatherback turtles may be present year-round in Western Australian waters, with peak sightings in June and July. Swaminathan et al. (Ref. 152) also indicates that up to 50% of Andaman-nesting leatherbacks may reach Australia's northwestern waters mid-year.

Leatherbacks spend most of their lives in the open ocean, traveling vast distances while foraging (Ref. 165). Although generally solitary and pelagic, they may aggregate in areas with abundant food or near nesting beaches (Ref. 153).

Leatherback turtles typically approach shores during the nesting season, requiring sandy beaches for laying eggs (Ref. 154; Ref. 155). Although no major nesting sites have been recorded in Australia (Ref. 155; Ref. 153), isolated nesting occurred in southern Queensland (Ref. 149; Ref. 150; Ref. 156), the NT (Ref. 150; Ref. 157) and there have been unconfirmed accounts in WA (Ref. 131). Leatherbacks display site fidelity to broad nesting zones rather than specific beaches (Ref. 158).

Most leatherback turtles in Australian waters are likely foraging migrants from breeding populations in neighbouring countries (Ref. 159; Ref. 151). They are commonly observed foraging along the east coast and in Bass Strait (Ref. 131; Ref. 160; Ref. 161), and aerial surveys have recorded leatherbacks in NT waters (Ref. 162). Their diet mainly consists of pelagic soft-bodied prey like jellyfish and tunicates (Ref. 131; Ref. 153; Ref. 160).

Despite this, significant gaps remain in knowledge about leatherback turtle biology in Australia beyond nesting beaches (Ref. 155; Ref. 153). Internesting and nesting BIAs for leatherback turtles have been identified around Darwin, NT, and Gladstone, Queensland. Habitat critical to the survival of leatherback turtles have been defined as sandy beaches from Cobourg Peninsula to Cape Arnhem (Ref. 131).

Internesting and nesting BIAs for leatherback turtles have been identified in the NT and eastern Queensland. The *Recovery Plan for Marine Turtles in Australia* (Ref. 131) established a 20 km internesting buffer around all sandy beaches from Coburg Peninsula to Cape Arnhem in the NT for leatherback turtles, which is classified as habitat critical to the species' survival.

3.2.5 Loggerhead turtle

Loggerhead turtles (*Caretta caretta*) are globally distributed in tropical, sub-tropical waters and temperate waters. Loggerheads are carnivorous, feeding primarily on benthic invertebrates in habitat ranging from nearshore to 55 m depth (Ref. 163). Loggerhead turtles forage in all coastal states and the NT (Ref. 131).

The primary Australian breeding areas for loggerhead turtles are within southern Queensland and WA (Ref. 164). Loggerhead turtles will migrate over distances in excess of 1,000 km and show a strong fidelity to their feeding and breeding areas (Ref. 165).

In WA nesting occurs from Shark Bay (including on the mainland near Steep Point) to the North West Cape with major nesting at Dirk Hartog Island; Gnaraloo Bay; the Muiron Islands; and the beaches of the North West Cape (Ref. 166).

Occasional late summer nesting crawls have also been recorded as far north as Barrow Island, the Lowendal Islands and Dampier Archipelago (Ref. 167). During internesting, turtles remain close to the nesting beach or rookery (Ref. 131). Once breeding and nesting is complete, turtles return to their favoured foraging areas (Ref. 131).

Foraging, internesting, internesting buffer and nesting BIAs for loggerhead turtles have been identified in WA and eastern Queensland and NSW. In WA, these BIAs extend from Carnarvon to the limit with NT. The *Recovery Plan for Marine Turtles in Australia* (Ref. 131) established a 20 km internesting buffer around key nesting

and internesting areas for loggerhead turtles, which is classified as habitat critical to the species' survival.

3.3 Sea snakes

3.3.1 Dusky sea snake

The dusky sea snake (*Aipysurus fuscus*) is endemic to Australian waters (Commonwealth and WA) in the Timor Sea off northwest WA, within the North-west Marine Region (Ref. 179). It has been sparsely recorded across reefs and shoals on the outer margin and mid-shelf of the Australian continental shelf, particularly at the Scott Reef complex and nearby Seringapatam Reef, Heywood Shoal, Ashmore Reef, and Cartier Island (Ref. 209; Ref. 180; Ref. 189). However, since the late 1990s and early 2000s, the dusky sea snake has not been detected at Ashmore Reef, Cartier Island, or Hibernia Reef, coinciding with a notable decline in the sea snake community in these regions (Ref. 180; Ref. 181; Ref. 182; Ref. 205).

As a reef specialist, the dusky sea snake inhabits complex hard coral reefs and shoals, both emergent and subsurface, typically on seamounts that rise from depth >100 m (Ref. 180; Ref. 189; Ref. 183). It is primarily observed in shallow reef areas (0–20 m) (Ref. 189; Ref. 205), though it may occur in deeper areas that have had limited survey effort (Ref. 184). Observations at the Scott Reef complex in 2014 and Heywood Shoal in 2018 noted this species around coral reef-sand edges (Ref. 179; Ref. 185).

The dusky sea snake, an air-breathing marine reptile with toxic venom (Ref. 186), forages along reef-sand edges (Ref. 185) and open sandy substrates at low tide (Ref. 198). Observed behaviours include shifting small coral and shell fragments and probing the sand to locate prey (Ref. 198). Known prey species include long-finned goby, dartfish, threespot wrasse, and knife wrasse (Ref. 187; Ref. 200; Ref. 209).

The movement patterns and reproductive biology remain unknown (Ref. 179). No BIAs have been identified for this species in Australian waters. Habitat critical to the survival of the dusky sea snake includes shallow (<20 m), complex coral reef and shoal ecosystems with substantial coral cover, such as the Scott Reef complex and Seringapatam Reef. Deeper reef areas adjoining critical habitat may also be considered essential if deeper populations are confirmed (Ref. 179).

3.3.2 Leaf-scaled sea snake

The leaf-scaled sea snake (*Aipysurus foliosquama*) is primarily known from Ashmore and Hibernia Reefs off the north-west coast of WA (Ref. 188), though it has not been detected there since 2001 (Ref. 189; Ref. 190). Anecdotal records suggest this species may also inhabit other WA coastal areas, including Shark Bay, Exmouth Gulf, Barrow Island, and offshore near Port Hedland (Ref. 191; Ref. 192). Model predictions have identified Ashmore Reef, Shark Bay, Exmouth Gulf, Barrow and the Montebello Islands as potentially suitable habitats for the leaf-scaled sea snake (Ref. 189). Supporting these predictions, the leaf-scaled sea snake has been recorded as bycatch by the Shark Bay trawl fishery (Ref. 193). The exact area of occupancy of these WA coastal subpopulations remain unknown (Ref. 190).

This sea snake typically inhabits shallow waters (<10 m) in protected reef flats near living coral and coral substrates (Ref. 190; Ref. 194; Ref. 195). However, findings suggest it can also tolerate cooler waters and non-coral habitats,

including seagrass beds with sparse or no coral cover (Ref. 189; Ref. 190; Ref. 192). In other regions, access to fresh water has also been an important factor in sea snake distribution and habitat selection (Ref. 196).

As air-breathing reptiles, leaf-scaled sea snakes must surface to breathe but can remain submerged for 30 minutes to two hours between breaths (Ref. 197). They are generally solitary but sometimes gather in groups around specific coral outcrops, especially where gravid (pregnant) females are present (Ref. 195; Ref. 198).

Leaf-scaled sea snakes forage on reef flats by searching for prey in fish burrows (Ref. 198). Their diet includes coral-associated wrasse (*Halichoeres spp.)*, gudgeons (*Eleotridae*), clinids (*Tripterygion spp.*), and eels (*Anguilliformes*) (Ref. 195; Ref. 199; Ref. 200).

No BIAs have been identified for this species in Australian waters.

3.3.3 Short-nosed sea snake

The short-nosed sea snake (*Aipysurus apraefrontalis*) endemic to WA, inhabits offshore waters of north-western Australia, including coastal areas between Exmouth and Broome and remote reefs on the NWS (Ref. 201; Ref. 202; Ref. 192). Most specimens have historically been collected from Ashmore and Hibernia Reefs (Ref. 203; Ref. 204), where they disappeared between 1998 and 2002 (Ref. 205; Ref. 206). However, in April 2021, a short-nosed sea snake was observed 67 m below the ocean surface at Ashmore Reef during a deep-sea expedition (Ref. 207).

Model predictions have identified Ashmore Reef, Exmouth Gulf, Murion, and the Montebello Islands, as well as regions near Rowley Shoals, as suitable habitats for the short-nosed sea snake, despite the lack of historical sea snake records in the latter area (Ref. 189). These predictions are supported by recent captures of short-nosed sea snakes in prawn trawl bycatch in the Exmouth Gulf and a specimen found washed ashore near Broome (Ref. 192).

The species typically inhabits reef flats or shallow waters along the outer reef edge, at depths of up to 10 m (Ref. 208; Ref. 209; Ref. 210). During daylight hours, it is often seen resting under small coral overhangs or coral heads in 1–2 m of water (Ref. 210). Guinea and Whiting (Ref. 198) noted that few short-nosed sea snakes venture >50 m from the reef flat (Ref. 202).

Like other sea snakes, short-nosed sea snakes are air-breathing and surface regularly, although they can remain submerged for 30 minutes to two hours (Ref. 202). Their diet consists of fish, such as Eviota spp. (*Gobiidae*; Ref. 211), and eels, which they capture by probing burrows in the sand (Ref. 204).

No BIAs for short-nosed sea snakes have been identified in Australian waters.

4 Sharks and rays

4.1 Sharks

4.1.1 Dwarf sawfish

The dwarf sawfish (*Pristis clavata*) ranges from Cairns, around the Cape York Peninsula in Queensland, to the Pilbara coastline in WA (Ref. 212; Ref. 213).

Typically inhabiting shallow coastal and estuarine waters (2–3 m), the dwarf sawfish relies on these areas as nurseries for juveniles (Ref. 215). Adults seasonally migrate to inshore waters (Ref. 216).

While specific reproductive data are limited, dwarf sawfish are ovoviviparous, with pupping observed from the northern Australian wet season through early May (Ref. 217). In the Kimberley region, juveniles remain in nursery estuaries until around three years of age (Ref. 218). Adults generally occupy small coastal ranges and demonstrate site fidelity (Ref. 219).

Dwarf sawfish use their rostrum to stun schooling fish by sideswiping through groups, primarily preying on popeye mullet (*Rhinomugil nasutus*) (Ref. 214) as well as molluscs and crustaceans dislodged from the substrate (Ref. 220). Peverell (Ref. 217) noted that dwarf sawfish move into marine waters post-wet season and enter estuarine or freshwater environments during the wet season to breed. Stevens et al. (Ref. 219) observed that at high tide, individuals rest in mangrove forests, typically within 100 m of prior resting sites, and during tidal changes, move into shallow waters for foraging.

Foraging, juvenile, nursing and pupping BIAs for the dwarf sawfish have been identified from Port Hedland to Augustus Island, northwest of WA. The sawfish and river sharks multispecies Recovery Plan (Ref. 221) highlights that areas where aggregations display biologically important behaviours are considered critical to the survival of the species unless population survey data suggests otherwise.

4.1.2 Freshwater (largetooth) sawfish

The freshwater sawfish (*Pristis pristis*) may potentially inhabit all large rivers in northern Australia, ranging from the Fitzroy River in WA to the western side of the Cape York Peninsula in Queensland (Ref. 222). There are few reports of adults at sea, with limited records of individuals over 3 m in total length from the Pilbara coast, and a single record from Cape Naturaliste in southwestern WA (Ref. 223). Globally, this sawfish is known to occur in four distinct regional populations (Ref. 221).

Freshwater sawfish prefer fresh or weakly saline water (Ref. 222) and are commonly found over mud bottoms in river embayments and estuaries (Ref. 222). Juveniles live in freshwater rivers and upper estuarine areas before moving to estuarine and marine areas as adults, to depths of up to 25 m (Ref. 221; Ref. 224; Ref. 225). Larger individuals may also move to deeper water at dawn, returning to shallower waters in the afternoon (Ref. 222). The species has been recorded in rivers as far as 400 km inland (Ref. 223).

Freshwater sawfish are believed to breed in freshwater (Ref. 226). Females may return to their natal rivers to give birth, while males may disperse across regions for breeding. Another possibility is that sawfish gather in breeding aggregations, with females returning to their natal areas to pup (Ref. 227; Ref. 228). In the Fitzroy River, an area identified as an important nursery site, pupping is correlated

with high water levels in the late wet season (Ref. 223; Ref. 229). Spawning also occurs in Queensland (Ref. 222).

The freshwater sawfish feeds on fish and benthic invertebrates (Ref. 222), using its saw to stun schooling fish, such as mullet, and to extract molluscs and small crustaceans from the sediment (Ref. 230).

Foraging, juvenile, nursing and pupping BIAs for the freshwater sawfish have been identified from Port Hedland to Derby, northwest of WA. The sawfish and river sharks multispecies Recovery Plan (Ref. 221) highlights that areas where aggregations display biologically important behaviours are considered critical to the survival of the species unless population survey data suggests otherwise.

4.1.3 Green sawfish

The green sawfish (*Pristis zijsron*) is found in inshore coastal environments, including estuaries, river mouths, embayments, and along sandy and muddy beaches, as well as offshore marine habitats (Ref. 225; Ref. 231; Ref. 232). Movement within these preferred habitats is often correlated with tidal changes (Ref. 219). Green sawfish have been recorded in water depths ranging from very shallow areas (<1 m) to offshore trawl grounds >70 m deep (Ref. 225).

In Australian waters, the species is distributed from the Whitsundays in Queensland (Ref. 233) across northern Australian waters to Shark Bay in WA (Ref. 221; Ref. 234). Limited data exists on the relative abundance of this species in WA (Ref. 234).

Green sawfish are known to occur in offshore waters, with documented pupping areas in coastal waters from north of Port Hedland to Roebuck Bay (Ref. 221). Additional likely pupping areas include regions south of Port Hedland, Exmouth Gulf, and North West Cape (Ref. 221). A recent study (Ref. 229) identified Exmouth Gulf as a globally significant refuge and pupping area for this species. Baseline surveys (Ref. 235) also indicate that the Ashburton estuary near Onslow serves as a habitat and nursery area for juveniles. Pupping is thought to coincide with the wet season (Ref. 217).

Green sawfish feed primarily on shoaling fish, such as mullet, which they stun by sideswiping with their rostrum (Ref. 236). They also sweep molluscs and small crustaceans from the sand and mud using their saw (Ref. 230; Ref. 237) and actively pursue schools of baitfish and prawns (Ref. 238).

Foraging, nursing and pupping BIAs for the green sawfish have been identified from Port Hedland to Augustus Island, northwest of WA. The sawfish and river sharks multispecies Recovery Plan (Ref. 221) highlights that areas where aggregations display biologically important behaviors are considered critical to the survival of the species unless population survey data suggests otherwise.

4.1.4 Grey nurse shark

The grey nurse shark (*Carcharus taurus*) is primarily found in inshore coastal regions within cool temperate to sub-tropical waters (Ref. 239; Ref. 240). In Australian waters, it primarily occupies continental shelf areas in sub-tropical to cool temperate waters (Ref. 241), and is divided into two genetically distinct populations—one on the east coast and one on the west coast (Ref. 242). The western population is mostly found in southwestern WA coastal waters, with sightings extending as far north as the NWS (Ref. 238; Ref. 243). Population size estimates for this region remain unavailable (Ref. 241).

Evidence suggests that the grey nurse shark is migratory across its WA distribution (Ref. 239). In a 2012 monitoring project, a tagged male shark moved from Augusta to Rottnest by early September and north to Coral Bay by mid-October, marking the first documented case of male migration in WA (Ref. 244). Tagged sharks of the western population have also been observed at depths of 20–160 m, indicating extensive use of the continental shelf (Ref. 245). Their diet consists of a variety of fish, other sharks and rays, squids, crabs, and lobsters (Ref. 239).

Grey nurse sharks commonly aggregate around inshore rocky reefs or islands, typically near the seabed at depths of 10–40 m, within sandy or gravel-filled gutters or rocky caves (Ref. 240; Ref. 246; Ref. 247; Ref. 248). Key aggregation sites have been identified in Queensland, NSW and Commonwealth Waters off the NSW Coast, which are considered critical for the species' survival (Ref. 241). A study near Exmouth from 2007–2012 identified a small aggregation with strong site fidelity from May to November each year (Ref. 249). Additional aggregation sites are likely between Rottnest and Lancelin, and possibly along the WA coast in caves deeper than 30 m (Ref. 248). Mature sharks show seasonal presence from March to June, peaking in April, while immature sharks are present almost year-round (Ref. 248).

No mating, gestation, or pupping sites have been identified in WA (Ref. 248). Foraging and migration BIAs for the grey nurse shark have been identified in NSW and Queensland.

4.1.5 Little gulper shark

The little gulper shark (*Centrophorus zeehaani*) inhabits the upper slopes of the southern continental shelf at depths ranging from 180 m to 900 m (Ref 250). Its range extends along the southern Australian coast from near Warrnambool to south of Ceduna and from the western Great Australian Bight up the west coast to around Mandurah, south of Perth. However, it appears absent along parts of the South Australian coast in the Ceduna Terraces and off southern Tasmania through Bass Strait (Ref. 251). Current data (Ref 250) indicates the existence of three distinct stocks, with the western stock spanning from the western Great Australian Bight to south WA.

The little gulper shark’s reproduction is considered to be continuous and non-seasonal (Ref. 240; Ref. 252; Ref. 253). Its diet consists primarily of fish and invertebrates, such as lanternfish and squid (Family Myctophidae), which are key prey items (Ref. 252; Ref. 253).

While the specific migratory patterns of this species remain unknown (Ref. 251), little gulpers are known to undertake diel (day-night) vertical migrations. They move from deeper daytime depths, ~1,000 m, to shallower feeding depths at night, sometimes reaching depths as shallow as 200 m (Ref 250).

No BIAs have been identified for this species in Australian waters.

4.1.6 Longfin mako

The Longfin Mako (*Isurus paucus*) is found in tropical and warm temperate waters but is rarely reported in Australian waters (Ref. 254), with no available information on population trends in the region (Ref. 255). In Australia, its range extends from Geraldton, WA, across the NT and Queensland, down to Port Stevens, NSW (Ref. 240).

Based on its diet, the Longfin Mako is likely to inhabit deep waters (Ref. 256) and has been recorded at depths up to 1,752 m (Ref. 257).

No BIAs for longfin mako have been identified in Australian waters.

4.1.7 Narrow sawfish

The narrow sawfish (*Anoxypristis cuspidata*) is distributed patchily across the Indo-West Pacific (Ref. 258; Ref. 259). In Australia, it has a broad range, occurring from Rockhampton, Queensland, to the Pilbara coast, WA (Ref. 260). A study found the Narrow Sawfish to be the most abundant sawfish species sampled in the Gulf of Carpentaria (Ref. 217).

This species is benthopelagic, inhabiting estuarine, inshore, and offshore waters on the continental shelf at depths of up to 128 m, but is typically found in waters <40 m deep (Ref, 257; Ref. 261). Adults primarily occur offshore, while juveniles and pupping females rely on inshore and estuarine habitats (Ref. 217).

According to an assessment of the Great Barrier Reef, the narrow sawfish is known to form aggregations of mature females during October and November (Ref. 262). No BIAs have been identified for this species in Australian waters.

4.1.8 Oceanic whitetip shark

Oceanic whitetip sharks (*Carcharhinus longimanus*) are a widespread pelagic species found in tropical and temperate waters, from inshore regions to open ocean (Ref. 263; Ref. 264). In Australian waters, their range extends from Cape Leeuwin, WA, through the NT and Queensland, to Sydney, NSW, with a single specimen recorded in SA (Ref. 240).

They typically inhabit the upper 200 m of the water column but have been observed diving to depths of around 1,000 m, likely in relation to foraging behaviour (Ref. 265; Ref. 266). Oceanic whitetip sharks are top predators and opportunistic feeders, primarily consuming bony fish and cephalopods like squid, as well as large pelagic fish, seabirds, other sharks and rays, and marine mammals (Ref. 267).

No BIAs for oceanic whitetip sharks have been identified in Australian waters.

4.1.9 Porbeagle

The porbeagle (*Lamna nasus*) has a wide range, inhabiting temperate, subarctic, and subantarctic waters of the North Atlantic and Southern Hemisphere (Ref. 268). In Australia, it occurs from southern Queensland to southwestern Australia (Ref. 240). Porbeagles are primarily found in oceanic waters off the continental shelf but may occasionally enter coastal areas (Ref. 268), with recorded depths ranging from the surface to 370 m (Ref. 240; Ref. 257).

This species appears flexible in its foraging habits (Ref. 269) and preys on various species, including teleost fish, elasmobranchs, and cephalopods (Ref. 240; Ref. 270). Porbeagles are known for their seasonal migrations, although the specifics of these movements are not well-understood (Ref. 271). Migrations may be driven by the search for feeding grounds or mates, with Southern Hemisphere populations thought to give birth off New Zealand and Australia in winter (Ref. 272).

No BIAs for porbeagle have been identified for the porbeagle in Australian waters.

4.1.10 Scalloped hammerhead

Scallop hammerhead sharks (*Sphyrna lewini*) are found in tropical and temperate seas worldwide, inhabiting both coastal and offshore waters (Ref. 273). In WA, scalloped hammerheads are commonly seen in the Montebello Islands Marine Park and Rowley Shoals Marine Park, and are rarely sighted south of the Houtman Abrolhos Islands (Ref. 273). Bartes & Braccini (Ref. 274) also documented sightings of the species east of Geographe Bay, southwestern WA.

Hammerheads are sociable and, in some areas have been observed in schools of up to 200 (Ref. 273). Adult scalloped hammerheads typically inhabit deep waters adjacent to continental shelves, ranging from the surface to depths of at least 275 m, while juveniles are more commonly found near shore (Ref. 275). It is thought that adult females occupy deeper waters and move into shallower areas to mate and give birth (Ref. 275), with mating generally hypothesised to occur in deeper waters (Ref. 276).

Hammerheads in other oceans are known to migrate to shallow nursery areas for birthing (Ref. 277). Similarly, observed demographic structuring in Australian populations suggests that some adult females may migrate to waters in Indonesia or Papua New Guinea and return to northern Australia for birthing, indicating that northern Australia may provide important nursery areas for the Indo-Pacific scalloped hammerhead stock (Ref. 277).

No BIAs for scalloped hammerhead have been identified in Australian waters.

4.1.11 Shortfin mako

The shortfin mako (*Isurus oxyrinchus*) inhabits tropical and temperate waters (Ref. 256; Ref. 278). In Australian waters, this species is found offshore around most of the continent's coastline, excluding the Arafura Sea, Gulf of Carpentaria, and Torres Strait (Ref. 278). Tagging studies indicate that shortfin makos spend most of their time at depths <50 m, with occasional dives reaching up to 880 m (Ref. 279; Ref. 280). There is a slight trend for the species to occupy shallower water at night and deeper water during daylight hours (Ref. 281).

The shortfin mako is highly migratory, capable of traveling vast distances, and has been observed migrating from Australian waters to areas well beyond the Australian Exclusive Economic Zone (Ref. 281). It is believed that the Australian population gives birth offshore along the NSW coastline (Ref. 240).

The diet of the Shortfin Mako primarily consists of fish, cephalopods, and crustaceans, with occasional predation on marine mammals (Ref. 282; Ref. 283; Ref. 284).

No BIAs for shortfin mako have been identified in Australian waters.

4.1.12 Whale shark

Whale sharks (*Rhincodon typus*) have a global distribution in tropical and warm temperate waters, including within Australian waters (mainly NT, Queensland and northern WA) (Ref. 285; Ref. 286). Within Australia, whale sharks form seasonal aggregations at Ningaloo Reef (March to July), Christmas Island (December to January), and in the Coral Sea (November to December) (Ref. 285). Ningaloo Reef is considered the main known seasonal aggregation area (Ref. 287). Whale sharks aggregate off Ningaloo Reef between March and July each year to feed (Ref. 286; Ref. 288). Their presence off Ningaloo Reef has been linked to coral mass spawning timing (Ref. 286). The whale shark is a suction filter feeder, with a

diet consisting of planktonic and nektonic prey, and feeds at or close to the water's surface by swimming forward with mouth agape, sucking in prey (Ref. 286). While the species is generally encountered close to or at the surface, it will regularly dive and move through the water column. Following the aggregation period around Ningaloo Reef, their movements are largely unknown, although three migration routes from Ningaloo reef have been identified through various surveys (Ref. 289):

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

Foraging and aggregation BIAs have been identified in northern of Australia. In WA, the BIA is associated with foraging behaviours during northward migration from Ningaloo Reef / North West Cape along the 200 m isobath during July to November (Ref. 285).

4.1.13 White shark

White shark (*Carcharodon carcharias*) also known as the great white shark or white pointer, is widely but sparsely distributed across the world's oceans, including cold temperate waters in both hemispheres (Ref. 290). In Australia, genetic and tracking data reveal two distinct populations: an eastern and a southern-western population (Ref. 291; Ref. 292; Ref. 293). The southern-western population ranges from Bass Strait along the southern coast to north-western WA, with occasional records farther north (Ref. 240; 294; Ref. 295; Ref. 296).

Tagging data indicate that white sharks are present off most of the south and lower west coasts of WA year-round, with higher occurrences along the lower west coast (including Perth, Mandurah, and Bunbury) in spring and early summer, and fewer sightings during late summer and autumn (Ref. 293).

White shark habitat preferences shift with age: pups and juveniles inhabit nearshore, shallow continental shelves (Ref. 290), while adults and juveniles have been recorded diving to depths of up to 1,000 m (Ref. 295; Ref. 296). Most movements, however, occur in waters over 50 m deep and more than 10 km offshore (Ref. 293).

Notable aggregation sites for white sharks are observed from mid-September to mid-December, followed by migration toward the Bass Strait (Ref. 296). Sightings north of North-West Cape are rare, and no aggregation sites are identified in the North-west marine region (NWMR) (Ref. 297). White sharks are opportunistic predators, feeding on diverse prey such as finfish, other sharks, rays, marine mammals (seals, sea lions, dolphins, whales), squid, crustaceans, and seabirds (Ref. 290). They are also known to follow humpback whale migrations along the WA coast, preying on vulnerable young and sick adults (Ref. 298). Typically, solitary or in pairs, white sharks may aggregate near food sources like pinniped colonies (Ref. 290; Ref. 299).

Although white sharks do not permanently inhabit a single area, they exhibit notable site fidelity (Ref. 290). Aggregation, breeding, and foraging BIAs have been identified for white sharks along the southern Australian coast, from Kalbarri, WA, to Gladstone, Queensland. In WA, foraging BIAs are identified in the southwest and southern regions. Identified foraging areas, aggregation areas, along with sites where white sharks consistently return, may represent habitats

critical to their survival; however, further research is needed to fully understand and identify such essential habitats (Ref. 291).

4.2 Rays

4.2.1 Giant manta ray

Giant manta rays (*Mobula birostris*) inhabit tropical marine waters worldwide, with occasional sightings in temperate seas. In Australia, their range extends from Montague Island, NSW, to Shark Bay, WA (Ref. 240; Ref. 300; Ref. 301). Photo-identification data show that giant manta rays are most commonly observed in the Ningaloo Reef region, WA, with fewer sightings at Cocos Keeling Island, Christmas Island, the Great Barrier Reef, and the Coral Sea. Despite this range, they are rarely encountered in Australian waters overall (Ref. 300). The Ningaloo coast serves as an important habitat for giant manta rays from March to August (Ref. 302).

Giant manta rays have a notably patchy distribution, with most sightings occurring around specific aggregation sites, particularly near cleaning stations located adjacent to deep waters (Ref. 300). These rays are highly migratory and are known to seasonally visit productive coastal areas with regular upwelling, as well as oceanic island groups, offshore pinnacles, and seamounts (Ref. 303). Their diet consists primarily of plankton and planktonic larvae, which they filter from the water through specialised gill structures (Ref. 300). Giant manta rays are primarily pelagic, inhabiting depths from the surface down to 1,000 m (Ref. 257; Ref. 304).

No BIAs for giant manta ray have been identified in Australian waters.

4.2.2 Reef manta ray

The reef manta ray (*Manta alfredi*) is a large pelagic ray found in tropical and subtropical waters across the Indo-Pacific region (Ref. 305). In Australia, it occurs from Coffs Harbour, NSW, to Shark Bay, WA, with occasional sightings as far south as South West Rocks (NSW) and Perth (WA) (Ref. 300; Ref. 306).

Reef manta rays are mainly found in inshore waters, often around coral and rocky reefs from the surface to depths of 432 m (Ref. 257; Ref. 261; Ref. 307). Although capable of traveling distances of at least 1,100 km (Ref. 300), they typically exhibit shorter-range movements and strong site fidelity (Ref. 308; Ref. 309; Ref. 310; Ref. 311).

Tagging studies at Ningaloo Reef (Ref. 300) have identified a primary activity hotspot around Shark Bay World Heritage Area, with additional hotspots extending north to Coral Bay within the Ningaloo World Heritage Area. Distribution data suggest connectivity between the Ningaloo Reef and Shark Bay. Tagged reef manta rays showed a preference for shallow coastal shelf waters (<50 m), where they are observed year-round (Ref. 300). A peak in sightings within Exmouth Gulf may correlate with spawning activity, though further research is required to understand prey composition (Ref. 300).

No BIAs for reef manta ray have been identified in Australian waters.

5 Seabirds and shorebirds

5.1 Abbott's booby

The Abbott's booby (*Papasula abbotti*) is a large seabird that occurs on Christmas Island in the Indian Ocean, primarily inhabiting its forested areas for nesting and roosting (Ref. 312). This species is also known to visit Barrow Island which serves as a breeding ground for the species, which occurs from November to April (Ref. 313). These birds prefer emergent rainforest trees at elevations 100 m above sea level for their nests, often using the same sites year after year (Ref. 314; Ref. 315). The Abbott's booby spends most of its life at sea and has a geographic range that covers Christmas Island and the NWS off WA up to the southern end of Timor-Leste in the Timor Sea (Ref. 314).

Abbott's boobies are known for their unique foraging behaviour, diving from heights to catch fish and squid, which constitute the bulk of their diet (Ref. 316). Their physiological adaptations include long, pointed wings that facilitate gliding over the ocean, allowing them to cover large distances while searching for food (Ref. 317). They exhibit colonial breeding behaviour, with males and females engaging in elaborate courtship displays that include synchronised flying and vocalisations (Ref. 318).

No BIAs have been identified for this species in Australia.

5.2 Asian dowitcher

The Asian dowitcher (*Limnodromus semipalmatus*) is a large migratory shorebird found in coastal wetlands of Asia and Australia, primarily inhabiting tidal mudflats, estuaries, and coastal lagoons in WA during migration and non-breeding seasons (Ref. 320; Ref. 321). Key habitats include the intertidal zones of Roebuck Bay and Eighty Mile Beach, near Broome, which are important staging areas during migration (Ref. 322; Ref. 320; Ref. 323). The Asian dowitcher breed in Siberia, Mongolia and north-east China in small colonies of 6-20 pairs, clutch sizes of two and rarely three eggs are typical for the species (Ref. 319).

Asian dowitchers are migratory birds, typically observed in Australia from September to April. They feed primarily by probing mud or shallow water with their long bills, foraging on small invertebrates, including worms, crustaceans, and mollusks (Ref. 321; Ref. 319). while their semipalmated feet allow for better traction on muddy and sandy substrates (Ref. 323). Foraging activity is often synchronised with tidal cycles, favouring low tides when mudflats are exposed (Ref. 323).

No BIAs have been identified for this species in Australia.

5.3 Australian fairy tern

The fairy tern has a large geographic range between Australia, New Zealand and New Caledonia. Three subspecies have been identified based on phenotypic, genotypic and geographic differences (Ref. 324), only one of which (the Australian fairy tern) occurs in WA. The Australian fairy tern subspecies has been identified within the NWS.

The Australian fairy tern has been found in embayments of a variety of habitats including offshore, estuarine, or lacustrine (lake) islands, wetlands and mainland coastline (Ref. 325). The Australian fairy tern nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation (Ref. 326). Within WA, there appear to be two subpopulations:

- a sedentary subpopulation based along the Pilbara and upper Gascoyne coasts from Exmouth Gulf to the Dampier Archipelago, including Barrow, Montebello, and Lowendal islands; these Australian Fairy Terns nest from late July to late-September
- a migratory subpopulation that disperses south along the coast from Shark Bay to breed between the Houtman Abrolhos Islands to the Recherche Archipelago between September and May, with active breeding flocks appearing at various locations between October and February (Ref. 329).

Australian fairy terns are reported from Barrow Island throughout the year and primarily from the south-east to south-west of the island, with high counts between November and April (Ref. 327). Australian fairy terns may nest on offshore islands between Barrow Island and the Montebello Islands (Ref. 330), including intermittently nesting on North and/or South Double Island (Ref. 327).

Australian Fairy Terns are diurnal plunge diving feeders that predate exclusively on small (<60 mm) surface schooling bait fishes throughout their range. Prey include species of sprats, hardy heads and larval prey of some demersal fish species (Ref. 325). Australian fairy terns feed almost entirely on fish in nearshore waters adjacent to nesting colonies and around island archipelagos (Ref. 329).

Behaviours used to define BIAs for seabirds in Commonwealth marine areas include breeding with a foraging buffer, and roosting (Ref. 328). The BIAs for this species are buffers around islands that the species is known to nest on as they may forage in the waters surrounding the islands during nesting seasons. No BIAs have been identified for this subspecies (Australian fairy tern) in Australia.

5.4 Australian painted snipe

The Australian painted snipe (*Rostratula australis*), a medium-sized, cryptic wader, is one of Australia's most threatened waterbirds. It primarily inhabits shallow freshwater wetlands with dense emergent vegetation, such as grass, reeds, and sedges, where it can remain concealed (Ref.331 ; Ref. 332; Ref. 334). In WA, key habitats include seasonally inundated floodplains, marshes, and ephemeral wetlands across the Kimberley and Pilbara regions, although their presence is unpredictable due to changing water conditions (Ref. 333; Ref. 331).

The Australian painted snipe is a partially migratory species with movements largely dictated by rainfall patterns and wetland availability, often appearing in areas with recent flooding. They are primarily crepuscular, feeding during dawn and dusk, and forage in shallow water and soft mud by probing for insects, crustaceans, and seeds (Ref. 333; Ref. 335). They are generally solitary but can be observed in small groups when foraging or breeding (Ref. 332).

Breeding behaviour in this species is notable for its role reversal, with females being more brightly coloured and active in courtship, while males primarily take on the role of incubating eggs and caring for young. Nesting occurs on the ground, often in well-camouflaged depressions surrounded by vegetation, providing cover from predators (Ref. 334; Ref. 331).

Their relatively long, sensitive bills are adapted for probing in soft mud, allowing them to detect and capture invertebrates effectively (Ref. 335). They also have large eyes adapted for low-light conditions, supporting their crepuscular feeding habits.

No BIAs have been identified for this species in Australia.

5.5 Bar-tailed godwit

The bar-tailed godwit (*Limosa lapponica*) is a large shorebird known for its migratory journey along the East Asian-Australasian Flyway. The breeding season occurs from late May to early June primarily in the tundra and wetlands of Siberia, with the birds migrating to their breeding grounds after spending the non-breeding months in coastal areas of Australia and other parts of East and Southeast Asia.

In WA, bar-tailed godwits are primarily found in coastal habitats such as estuaries, intertidal mudflats, and sandy beaches. Important locations include Roebuck Bay and Eighty Mile Beach, near Broome, which serve as critical feeding and staging sites during migration (Ref. 320; Ref. 321). During migration and non-breeding periods, they display site fidelity, returning to the same areas each year (Ref. 320).

The bar-tailed godwit is a long-distance migrant, typically visiting Australia from September to April. They have one of the longest known non-stop migratory flights, with individuals recorded traveling directly from Alaska to New Zealand, covering approximately 11,000 km in one continuous journey. This extraordinary endurance is a key adaptation for their survival along the East Asian-Australasian Flyway (Ref. 336).

It feeds by probing its long, slightly upturned bill into mud and sand, extracting marine invertebrates, including worms, bivalves, and crustaceans. This feeding strategy is highly effective on exposed tidal flats, and feeding is often synchronised with tidal cycles (Ref. 323; Ref. 321). Bar-tailed godwits are social birds, foraging and migrating in large flocks. They are often found in mixed-species groups with other shorebirds, although they maintain distinct flock structures during foraging and roosting.

No BIAs have been identified for this species in Australia.

5.6 Barn swallow

The barn swallow (*Hirundo rustica*) is a small bird with a well-defined blue breast-band, and long outer tail feathers help distinguish the species (Ref. 337). It is a migratory bird species known for its extensive range across multiple continents, including seasonal visits to parts of Australia.

While primarily a Northern Hemisphere breeder, the barn swallow is observed in Australia during the southern hemisphere's summer months, from October to March, as part of its non-breeding distribution (Ref. 338). In WA, barn swallows are commonly seen around wetlands, open fields, and coastal areas where they find suitable foraging grounds.

Barn swallows prefer open landscapes near water, including farmlands, grasslands, and urban areas with ample flying insects, which make up their primary diet (Ref. 337). In WA, they are commonly observed foraging over marshes and open fields, where they take advantage of insect swarms near water sources (Ref. 338). They are highly social, often foraging and roosting in flocks during their time in Australia.

Adapted for long-distance migration, barn swallows have a high wing loading and efficient flight muscles, enabling them to sustain long periods of flight. Their bodies are streamlined, with pointed wings and a forked tail that improve aerodynamic efficiency and maneuverability, especially important for catching insects and covering vast distances (Ref. 339).

No BIAs have been identified for this species in Australia.

5.7 Bridled tern

The bridled tern (*Onychoprion anaethetus*) is a medium-sized seabird found in tropical and subtropical regions, known for its distinctive dark cap and white forehead. In WA, it is primarily a coastal bird observed on offshore islands, especially during the breeding season, as well as on sandy beaches and rocky shorelines where it forages (Ref. 340). During the breeding season, they show high site fidelity, often returning to the same nesting sites each year with the same mate.

These terns nest in colonies, but they are generally less densely packed than some other seabird species, as bridled terns prefer to space out their nests to reduce competition and predation risks (Ref. 340). During the breeding season (September to October), they remain close to their nesting islands, foraging in nearby waters and breed in small to large colonies (hundreds to thousands of birds) (Ref. 341).

Bridled terns favour tropical and subtropical marine environments, particularly remote offshore islands with sparse vegetation and access to coastal feeding areas (Ref. 340). In WA, they breed on islands ranging from off Cape Leeuwin to the Pilbara and Kimberley coasts, where they nest in sheltered locations like rock crevices, vegetation cover, or under debris for protection from predators and the elements (Ref. 342; Ref. 340).

Outside the breeding season, bridled terns are pelagic and range more widely, sometimes moving along the Western Australian coast to search for food in oceanic waters, where they hunt for small fish, squid, and crustaceans (Ref. 342) They are highly adapted to both coastal and pelagic life. They are strong fliers, capable of long-distance foraging flights during breeding to find concentrated schools of small fish and squid. Foraging often involves hovering and diving from a height to capture prey just below the water's surface (Ref. 340).

No BIAs have been identified for this species in Australia.

5.8 Campbell albatross

The Campbell albatross (*Thalassarche impavida*) is a large seabird species, primarily distinguished by its striking black and white plumage and bright yellow eye (Ref. 343). Although it breeds almost exclusively on Campbell Island, south of New Zealand, it is a frequent visitor to southern Australian waters, including the waters off the Western Australian coast, especially during the non-breeding season.

During the breeding season, they exhibit strong site fidelity, returning to the same nesting sites on Campbell Island each year. Breeding occurs only on this island, where they nest in large colonies on steep, tussock-covered slopes (Ref. 345).

Campbell albatrosses are predominantly pelagic, spending most of their life in open oceanic waters (Ref. 343). They inhabit temperate marine environments and can be found foraging in the rich waters off southern Australia, including the coastal regions of WA (Ref. 343). They rely on upwelling currents and cold-water fronts that concentrate prey such as squid, fish, and crustaceans (Ref. 344; Ref. 345). They feed primarily by surface-seizing, snatching prey from the water’s surface, and occasionally by shallow plunging to capture prey just below the surface. Campbell albatrosses are highly adapted for long-distance flight over the ocean, utilising dynamic soaring to glide across the wind without much effort. This flight technique allows them to cover extensive areas in search of food, often following fishing vessels to scavenge discarded bycatch (Ref. 305).

In Australian waters, Campbell albatrosses are often found near continental shelf edges and seamounts, where underwater topography helps concentrate food sources. Their foraging grounds overlap with commercial fishing zones, which may lead to interactions with fisheries (Ref. 346. Ref. 343).

Foraging BIAs for this species are located in the South-east Marine Region, including Macquaire Island.

5.9 Caspian tern

The Caspian tern (*Hydroprogne caspia*), the world's largest tern species, is a widespread, powerful seabird known for its distinctive large size, thick red-orange bill, and striking black cap (Ref. 351). It inhabits a wide range globally and is commonly observed along the coasts and inland waters of WA.

In WA, the Caspian tern is found in a variety of habitats, including coastal bays, estuaries, lagoons, and inland rivers and lakes. It prefers sandy or rocky shores for nesting and resting, often near shallow waters rich in fish (Ref. 351). Key areas include the Peel-Yalgorup wetland system, the Swan Coastal Plain, and regions around Shark Bay and the Pilbara, where food sources are abundant (Ref. 348).

Caspian terns are opportunistic foragers and are highly adaptable to varying water salinity levels, allowing them to thrive in both freshwater and marine environments. They feed mainly on fish, which they catch by hovering over the water and performing high, plunging dives to snatch prey close to the surface (Ref. 349).

During breeding, the Caspian tern forms small colonies and is known to be gregarious during breeding (Ref. 351). In Australia, breeding typically occurs from July to December. Nesting sites are often situated on sandy or gravel islands where terns build shallow scrapes for their eggs, laying one to three eggs per clutch (Ref. 351; Ref. 350). Caspian terns display strong site fidelity, often returning to the same breeding areas year after year. They are also solitary hunters, preferring not to forage in large groups like some other tern species (Ref. 349).

Adapted for high-energy foraging, Caspian terns have a strong, sharp bill ideal for catching and holding slippery prey (Ref. 351). Their eyes are adapted for excellent visual acuity, which allows them to locate fish from high above the water. Their powerful wings and sturdy body structure enable them to cover significant distances while foraging. They are strong fliers, capable of sustained flight across extensive water bodies in search of prey (Ref. 351).

Foraging BIAs for this species have been identified in WA, from Kalbarri (in the north) to Esperance (in the south), and around Port Lincoln, SA.

5.10 Christmas Island white-tailed tropicbird

The Christmas Island white-tailed tropicbird (*Phaethon lepturus fulvus*) is a subspecies of the White-tailed tropicbird that is endemic to Christmas Island, Australia (Ref. 352). Known for its slender white body, elongated tail streamers, and distinctive yellowish wash, this bird is part of the tropical seabird community unique to the Indian Ocean (Ref. 353).

The Christmas Island White-tailed tropicbird is found in tropical marine environments, typically inhabiting coastal habitats along the cliffs and forested shorelines of Christmas Island and Australia's west coast (Ref. 352). It favours steep, inaccessible cliffs for nesting, offering protection from predators. Nests are

simple, usually located in rocky crevices, with the female laying a single egg each breeding season (Ref. 353). This bird leads a largely solitary existence, spending much of its time alone at sea. It only comes together with others for breeding, during which pairs perform intricate aerial courtship displays, including soaring, diving, and mutual calling (Ref. 352). Outside of the breeding season, the Christmas Island White-tailed tropicbird roams the open ocean, foraging over vast distances to find food (Ref. 354).

This tropicbird is primarily piscivorous, relying on flying fish and squid for food, which it captures through high-diving precision strikes, aided by its strong, pointed beak and powerful diving muscles (Ref. 352). Like other tropicbirds, it may also scavenge opportunistically and is known to follow surface fish schools, capitalising on available prey in nutrient-rich waters around the island (Ref. 345).

This tropicbird subspecies is capable of sustained flight across extensive oceanic areas. Its aerial displays and tail streamers serve both mating and communication purposes, especially during courtship. The young are fed a regurgitated mix of fish and squid until they fledge (Ref. 354).

No BIAs have been identified for this species in Australia.

5.11 Common greenshank

The common greenshank (*Tringa nebularia*) is well known for its slender build, long greenish legs, and distinctive vocal calls (Ref. 356).

The common greenshank has extensive breeding grounds spanning from the northern British Isles and Scandinavia to eastern Russia (Ref. 360) It is a widespread migratory shorebird found across much of Australia during the non-breeding season (Ref. 358). In WA, the common greenshank is found in a variety of wetland habitats, ranging from coastal mudflats, estuaries, and mangroves to inland freshwater lakes, swamps, and flooded grasslands (Ref. 319). Its adaptability to different types of wetlands makes it one of the more widely distributed migratory shorebirds in the region.

During the migratory season, common greenshanks exhibit a strong sense of site fidelity, often returning to the same wintering grounds year after year. They migrate between breeding grounds and their non-breeding range, which spans Australasia, Southeast Asia, and Africa. In Australia, they typically arrive between August and September and remain until April or May, making long, non-stop flights during migration (Ref. 360).

During migration and the non-breeding season, common greenshanks forage in shallow water, often probing with their bills for invertebrates, small fish, and crustaceans. They are carnivorous and known to favour areas with soft mud or sand, where they can more easily access food (Ref. 357). They are versatile in finding food across various aquatic ecosystems in WA (Ref. 356).

No BIAs have been identified for this species in Australia.

5.12 Common noddy

The common noddy (*Anous stolidus*) is a medium-sized seabird in the tern family, distinguished by its dark brown or blackish plumage, white cap, and long, slender wings. Well-adapted to life over the ocean, this gregarious species is commonly found in tropical and subtropical regions, both within and beyond Australia (Ref. 361). In WA, common noddies are typically found along coastal and island habitats, including sandy beaches, rocky shores, and coral reefs, where they nest

on isolated islands (Ref. 360). They prefer areas rich in marine resources, particularly fish populations that support their foraging habits (Ref. 361).

Outside of the breeding season (March to August), the species is highly pelagic, with breeding individuals from the Houtman Abrolhos Islands, off Geraldton, migrating up to 950 km north to the NWMR (Ref. 363). The Houtman Abrolhos serves as the primary breeding ground for common noddies in the Eastern Indian Ocean, although they also breed, though in fewer numbers, on offshore islands throughout the NWMR (Ref. 364). Noddies nest in colonies, often on the ground or in low shrubs and trees, and their nests are made from grass, seaweed, and feathers (Ref. 362). The breeding season in WA peaks from late spring to summer.

Known for their social nature, common noddies are often seen flying in flocks, displaying graceful flight and agility (Ref. 358). They primarily forage for fish, squid, and crustaceans by diving or skimming the water's surface. They are also frequently observed feeding on fish scraps near fishing boats (Ref. 358).

Breeding and foraging BIAs have been identified for this species along the east and west coasts of Australia. In WA, only foraging BIAs have been identified, specifically around Lancelin Island (off Perth) and the Houtman Abrolhos Islands (off Geraldton).

5.13 Common sandpiper

The common sandpiper (*Actitis hypoleucos*) is small, with brownish-grey plumage on its back, white underparts, and a distinctive white line above the eye, and is a widespread migratory wader bird within Australia and is found along all coastlines and many inland areas (Ref. 358).

The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats (Ref. 358). Generally, the species forages in shallow water and on bare soft mud at the edges of wetlands; often where obstacles project from substrate, e.g. rocks or mangrove roots. Birds sometimes venture into grassy areas adjoining wetlands.

The common sandpiper breeds in Eurasia and moves south for the boreal winter, with most of the western breeding populations wintering in Africa, and eastern breeding populations wintering in south Asia to Melanesia and Australia (Ref. 366). Post breeding, the southward migration usually begins July to November, with individuals arriving from July onwards in SA, WA and the NT, and from August onwards in NSW and Queensland. The non-breeding movements of the species within Australia are poorly known (Ref. 366)

Roost sites are typically on rocks or in roots or branches of vegetation, especially mangroves. The species is known to perch on posts, jetties, moored boats and other artificial structures, and to sometimes rest on mud or 'loaf' on rocks (Ref. 358).

It prefers shallow waters where it can forage for invertebrates such as insects, molluscs, and small crustaceans, using its characteristic quick, flicking movements to probe the mud or sand (Ref. 365; Ref. 366). This species is highly adaptable, occurring both inland and along coastlines, especially during migration periods (Ref. 369).

No BIAs have been identified for this species in Australia.

5.14 Curlew sandpiper

The curlew sandpiper (*Calidris ferruginea*) is a medium-sized wader known for its long, down-curved bill and distinctive breeding feathers, which includes a striking rufous coloration (Ref. 370). This migratory shorebird is primarily found in coastal wetlands and mudflats, particularly during migration periods in WA (Ref. 370). Curlew sandpipers exhibit remarkable navigation skills, allowing them to travel thousands of kilometres between breeding and wintering grounds. They are known to migrate in flocks, often flying at night to reduce the risk of predation and to take advantage of favourable wind conditions (Ref. 371). Breeding in the high Arctic regions of Siberia, curlew sandpipers migrate south to winter in Australia and other parts of the Southern Hemisphere. WA is a stopover point on their long migratory journey, with significant populations utilising the region's rich coastal wetlands (Ref. 371).

Their legs are long and well-adapted for wading in shallow waters, while their elongated bills enable them to reach prey buried in the sediment (Ref. 365). They primarily feed on small invertebrates such as molluscs, crustaceans, and polychaete worms, which they extract from the mud and sand using their long bills (Ref. 358). Their foraging behaviour is often characterised by rapid movements and a keen ability to detect prey, making them effective hunters in dynamic intertidal environments (Ref. 370).

In Australia, curlew sandpipers are widespread along the coast and in inland areas. In WA, they are commonly found in coastal and sub-coastal plains from Cape Arid to the southwest Kimberley (Ref. 370). They forage on mudflats and in nearby shallow waters, and generally roost on bare dry shingle, shell, or sand beaches, as well as sandspits and islets in coastal lagoons or wetlands. Occasionally, they roost in dunes during very high tides or in saltmarshes (Ref. 370). This species does not breed in Australia.

Within the NWMR, the following internationally important sites were identified for this species (Ref. 372):

- Dampier Saltworks
- Port Hedland Saltworks
- Eighty Mile Beach
- Roebuck Bay.

No BIAs have been identified for this species in Australia.

5.15 Eastern curlew

The Eastern curlew (*Numenius madagascariensis*) is the largest of the curlew species and is recognized for its long, curved bill and distinctive plumage. This migratory shorebird is primarily found in coastal wetlands and mudflats, playing an important role in the ecology of WA (Ref. 375).

In WA, the Eastern curlew inhabits a variety of coastal environments, including intertidal mudflats, estuaries, sandy beaches, and salt marshes (Ref. 358). They prefer areas with abundant food resources, particularly rich in invertebrates, which are essential during migration and wintering periods (Ref. 374).

The Eastern curlew breeds in northern Asia and migrates to Australia for the southern summer (Ref. 371). They typically nest in well-concealed scrapes in the tundra, laying 3-4 eggs (Ref. 376). WA is an important stopover site along its

migratory route, supporting significant populations that utilise the region's diverse coastal habitats during their journey (Ref. 375).

Eastern curlews are primarily foragers, using their long bills to probe deeply into the mud for food, which includes marine invertebrates such as crabs, molluscs, and worms (Ref. 358). Their long legs are well-adapted for wading in shallow waters, while their elongated, down-curved bills enable them to probe for prey in the mud (Ref. 365).

No BIAs have been identified for this species in Australia.

5.16 Flesh-footed shearwater

The flesh-footed shearwater (*Ardenna carneipes*) is a medium to large seabird known for its distinctive flesh-coloured feet and robust body (Ref. 377). This species primarily breeds on subantarctic islands and migrates to the warmer waters of the Southern Hemisphere, including the coasts of WA (Ref. 377).

The flesh-footed shearwater is well adapted for a pelagic lifestyle, their body is streamlined for efficient movement through water and air, and their distinctive flesh-coloured feet are adapted for both swimming and walking on land (Ref. 378).

In WA, flesh-footed shearwaters are typically found in oceanic environments, particularly in the waters off the south and southwestern coasts (Ref. 358). They nest on offshore islands and cliffs, favouring sandy or gravelly substrates where they dig burrows for nesting. Major breeding sites include islands such as the Houtman Abrolhos (off Geraldton) and the Recherche Archipelago (off Esperance) (Ref. 379).

During the non-breeding season, these shearwaters are commonly seen foraging over the continental shelf and in deeper waters, often associated with areas of upwelling and productive marine ecosystems (Ref. 377). Their diet primarily consists of fish, squid, and crustaceans, which they catch while foraging on the water's surface or by diving (Ref. 378).

They are social birds that typically forage in groups, taking advantage of the presence of other seabirds to locate food sources (Ref. 358). They exhibit a range of vocalisations, especially during the breeding season, where courtship and territory establishment involve a series of calls and displays (Ref. 379).

Breeding usually occurs from late September to early January, with eggs laid in burrows. Both parents share incubation duties, and after hatching, they feed the chick a diet of regurgitated food (Ref. 378). The fledging period is approximately 11-12 weeks, after which the young shearwaters leave the nest and begin their life at sea (Ref. 358).

Aggregation, breeding, and foraging BIAs have been identified for this species along the east and southwest coasts of Australia. In WA, an aggregation BIA is located around the Perth Canyon, and a foraging BIA extends from Cape Naturaliste to Nuytsland Nature Reserve in southern WA. No BIAs have been identified in the NWMR.

5.17 Fork-tailed swift

The fork-tailed swift (*Apus pacificus*) is a migratory bird known for its distinctive forked tail, exceptional aerial agility, and widespread distribution. In Australia, it is particularly notable in WA, where it inhabits open areas such as urban environments, grasslands, and wetlands, as well as coastal regions. The species

has been recorded along the Pilbara coast to the east Kimberley region, and it is considered native to Australia (Ref. 382).

Fork-tailed swifts forage at heights ranging from 1 to 300 meters above the ground, typically in flocks of 10 to 1,000 birds, and feeding primarily on flying insects (Ref. 383; Ref. 382). They migrate seasonally, arriving in Australia from their breeding grounds in East Asia during the southern hemisphere's warmer months, generally between September and April (Ref. 378)

These birds are highly social, often seen soaring and gliding in groups, and are known for their acrobatic flying abilities, using their long wings and forked tail to manoeuvre with precision while hunting insects in the air (Ref. 380). During the breeding season, fork-tailed swifts nest in small colonies, typically on cliff ledges or under the eaves of buildings, where they construct their nests from saliva and plant material (Ref. 378).

Physiologically, the fork-tailed swift is adapted for efficient aerial hunting, with its streamlined body and specialised respiratory system that allows it to maintain oxygen levels during long periods of flight (Ref. 381). These adaptations, combined with its agile flight and the ability to forage while in constant motion, make the species one of the most proficient aerial foragers in the bird world.

No BIAs have been identified for this species in Australia.

5.18 Great frigatebird

The great frigatebird (*Fregata minor*) is a large seabird known for its impressive size, striking appearance, and the male's distinctive red gular pouch. Found primarily in tropical and subtropical regions, it is particularly observed in WA, where it inhabits coastal areas, islands, lagoons, and coral reefs, such as the Rowley Shoals and Montebello Islands (Ref. 383). This species prefers open ocean and coastal waters for foraging, feeding mainly on fish and squid, which it catches by soaring and diving. It also engages in kleptoparasitism, stealing food from other seabirds (Ref. 384).

Highly social, great frigatebirds are often seen in large flocks and are renowned for their remarkable flying abilities, using thermal updrafts to glide for long distances without flapping their wings (Ref. 385). During the breeding season, which typically occurs from October to January in WA, males display their vibrant red gular pouch to attract females through elaborate courtship rituals. Nests are built high in trees or shrubs on remote islands, where the female lays a single egg, which both parents incubate.

Characterised by a wingspan of up to 2.3 meters, the great frigatebird has specialised adaptations for flight, including a lightweight skeleton and large surface area that aid in soaring. Its long, pointed bill and excellent vision also enable it to catch prey while flying, making it an efficient forager (Ref. 384; Ref. 385).

Breeding and foraging BIAs have been identified for this species in northern Australia. In WA, breeding areas have been identified around Kimberley and Ashmore Reef.

5.19 Greater crested tern

The greater crested tern (*Thalassarche bergii*) is a large seabird found throughout coastal regions of the Southern Hemisphere, including WA (Ref. 388). Known for its striking black cap and long, slender body, this tern is easily identifiable among

other seabirds. In WA, it inhabits coastal environments such as sandy beaches, rocky shores, and offshore islands, including the Abrolhos and Montebello Islands, where it nests on sandbars, lagoons, and islands, typically in areas with abundant food and predator-free nesting sites (Ref. 383).

The diet of the greater crested tern consists mainly of small fish, crustaceans, and occasionally molluscs, which it catches by diving from the air with remarkable agility and speed (Ref. 386). The species is highly social, often found in large colonies, particularly during the breeding season between September and January. Nests are typically shallow scrapes on sandy beaches or islands, where both parents incubate one to three eggs for about 24 to 27 days (Ref. 387). After hatching, the chicks are precocial, leaving the nest shortly after birth but depending on their parents for food for several weeks.

The greater crested tern is well-adapted for life at sea, with long wings, a streamlined body, and a sharp bill for catching fish. Adults weigh between 500 and 700 grams, with a wingspan of about 1.2 m (Ref. 386). Its pale grey body and white underparts provide camouflage against the sky and ocean. Specialised vision also aids in its ability to detect prey beneath the water's surface, a crucial adaptation for efficient foraging and survival (Ref. 387).

No BIAs have been identified for this species in Australia.

5.20 Greater sand plover

The greater sand plover (*Charadrius leschenaultii*) is a medium-sized shorebird known for its distinctive appearance and migratory behaviour. Widely distributed across coastal regions of Africa, Asia, and Australia, it is commonly found along the sandy shores, mudflats, and estuaries of WA, where it forages in intertidal zones, often in small flocks (Ref. 389). This species primarily feeds on invertebrates, such as molluscs, crustaceans, and insects, which it finds by probing the sand or mud, particularly at low tide when feeding areas are exposed (Ref. 386).

The greater sand plover migrates seasonally, wintering in Australia from August to March and breeding in northern Asia (Ref. 390). During the breeding season, it engages in territorial behaviour and courtship displays, such as aerial flights and vocalisations, before nesting in open areas with sparse vegetation. The female typically lays two to four eggs in a simple ground scrape, with both parents sharing incubation duties for 24 to 27 days (Ref. 387).

Adapted for life on sandy shorelines, the greater sand plover has a robust body, long legs, and specialized bills for probing into sand and mud. Adults weigh between 100 to 150 grams and have a wingspan of 60 to 65 cm (Ref. 386). Its sandy-brown plumage provides camouflage, while a black band across the chest marks its breeding plumage. The species is also capable of impressive long-distance migration, demonstrating excellent stamina, navigation skills, and vision to spot both predators and prey.

No BIAs have been identified for this species in Australia.

5.21 Grey wagtail

The grey wagtail (*Motacilla cinerea*) is a migratory passerine bird found in WA primarily during the austral summer, from October to March. It breeds in northern parts of the globe and migrates to southern regions, including Australia, for the winter months (Ref. 391). In WA, it is commonly seen in riparian habitats such as streams, rivers, and wetlands, especially in the southwestern and southern parts

of the state, including areas around the Perth metropolitan area and along the Swan River (Ref. 391).

The grey wagtail is a migratory species that moves from its breeding grounds in Europe and Asia to southern regions like Australia for the winter. It does not breed in Australia, but rather uses the region as a non-breeding habitat (Ref. 391). Overall, the grey wagtail plays an important role in the ecological balance of WA's wetland and riparian ecosystems (Ref. 392).

This bird prefers areas with fast-flowing, well-vegetated streams and the riparian zones where it can forage for a variety of small invertebrates, including aquatic insects, flies, and spiders. The grey wagtail is known for its characteristic tail-wagging behaviour while foraging, often seen darting along streambanks or hovering above the water to catch its prey (Ref. 392). It is an agile and active forager, using its sharp bill and long legs to pick insects from rocks and vegetation near the water's edge.

No BIAs have been identified for this species in Australia.

5.22 Indian yellow-nosed albatross

The Indian yellow-nosed albatross (*Thalassarche carteri*) is a large seabird that is typically found in the southern Indian Ocean and occasionally around the coasts of WA, especially during migration periods (Ref. 393). This species is a non-breeding visitor to Australian waters, with its primary breeding grounds located on sub-Antarctic islands, such as Amsterdam Island in the southern Indian Ocean (Ref. 394).

In WA, the Indian yellow-nosed albatross is typically observed in offshore waters, particularly in the southern and southwestern regions (Ref. 393). These birds prefer open ocean habitats where they can find food sources such as fish, squid, and krill. They are known for their pelagic lifestyle, spending most of their time at sea, where they forage over vast distances. The albatross is particularly adapted to long-distance flight often riding air currents and winds for energy-efficient travel (Ref. 394).

The Indian yellow-nosed albatross exhibits a highly specialised foraging behaviour, often seen using a technique known as dynamic soaring, which allows it to cover large areas in search of food with minimal energy expenditure (Ref. 394). They primarily feed on cephalopods and fish, often scavenging from fishing vessels when available (Ref. 394). The species also has strong, specialised beaks for catching and consuming marine prey.

Foraging BIAs for this species is located in southwestern Australia (around Augusta) and the South-east Marine Region, including Macquarie Island.

5.23 Lesser frigatebird

The lesser frigatebirds (*Fregata ariel)* are the most widely distributed of the frigatebirds, with a pan-tropical distribution (Ref. 396). It is a medium-sized seabird characterised by long, pointed wings, a deeply forked tail, and a vibrant red throat pouch in males, which is used during courtship displays (Ref. 397). It is widely distributed across tropical and subtropical regions, with notable populations in the Indian and Pacific Oceans.

The lesser frigatebird nests at Cartier Island, the Lacepede Islands and Bedout Island, which is thought to support more than 1% of the world's breeding population (Ref. 397). On Ashmore Reef, the species breeds in the Austral winter

(Ref. 396). Tracking studies of non-breeding lesser frigatebirds roosting on Ashmore Reef and Adele Island demonstrated that individuals have large distributions including Australian coastal waters and in addition to the South China, Java and Sulu Seas and the Gulf of Thailand (Ref. 395). During the wet season in particular, Australian waters provided optimal habitat for non-breeding individuals (Ref. 395).

The species forage by snatching prey from the surface waters, or when prey break the surface. They also rely heavily upon kleptoparasitism, harrying other seabirds returning to their colonies with food until it is regurgitated (Ref. 397). Frigatebirds are susceptible to waterlogging, so do not plunge or splash dive for prey nor do they roost on the seas surface. Across the NWMR they forage on flying fish, cephalopods, anchovies, northern pilchards and other medium sized prey (Ref. 397).

Breeding and foraging BIAs have been identified for this species in northern Australia. In WA, breeding BIAs have been defined along the Kimberley and Pilbara coasts (from Port Hedland to the border with the NT) as well as at Ashmore Reef.

5.24 Little ringed plover

The little ringed plover (*Charadrius dubius*) is a small shorebird found across Europe, Africa, Asia and Australia (Ref. 398). In Australia, it is primarily a migratory visitor to the northern regions (Ref. 323) during the non-breeding season, arriving in low numbers (Ref. 325; Ref. 350).

This species inhabits a variety of environments, such as sandy riverbanks, lake shores, and coastal regions (Ref. 325; Ref. 350). It feeds mainly on small invertebrates, including insects, spiders, and crustaceans, hunting through a “stop-run-peck” behaviour where it visually scans the ground, runs short distances, and pecks at surface prey, rather than probing deeply like many other shorebirds. This foraging strategy is well-suited to loose, sandy soils that support its prey, allowing the bird to thrive in shallow-water habitats with fluctuating water levels (Ref. 325; Ref. 316).

The little ringed plover uses cryptic colouration to blend into sandy or gravelly backgrounds, which helps it avoid predators and remain inconspicuous while nesting or foraging. Nests are typically found on open ground, and this camouflage is essential to their survival, particularly as they breed in open, exposed environments across Europe, Asia, and North Africa (Ref. 350; Ref. 316).

No BIAs have been identified for this species in Australia.

5.25 Little tern

The little tern (*Sternula albifrons*) is a small, migratory seabird that breeds in coastal regions of WA during the austral summer months (October to March). The species is easily identified by its white underparts, black cap, and short, pointed bill (Ref. 400).

There are two populations of little terns in Australia the northern and eastern populations (Ref. 393). In WA, the little tern typically nests on sandy beaches, sandbars, estuaries, and coastal mudflats, particularly in areas where tidal fluctuation exposes flat, open areas for foraging (Ref. 400). These habitats are ideal for the tern to find its primary food sources: small fish, aquatic invertebrates, and crustaceans. Little terns feed by diving from the air or skimming the water's surface to catch prey (Ref. 391).

Little terns are colonial nesters and often form small to medium-sized colonies on sandy beaches or saltmarshes during the breeding season. Their nests are usually simple depressions on the ground, sometimes lined with shells or small stones. They lay 2–3 eggs, and both parents take turns incubating. These birds are very territorial during breeding and defend their nests from intruders and predators (Ref. 391).

Little terns are highly specialised for aerial feeding. They hunt by hovering over the water and then plunging to catch small fish or invertebrates, often at high tide when prey is concentrated closer to shore (Ref. 391).

The small size of the little tern, with its light body and long wings, makes it an agile flyer. The species' sharp bill is well-adapted for catching small fish or aquatic insects (Ref. 401).

Breeding and resting BIAs have been identified for this species in WA, along the Kimberley, Pilbara and Gascoyne coasts and islands, including Ashmore Reef.

5.26 Northern Siberian bar-tailed godwit

The Northern Siberian bar-tailed godwit (*Limosa lapponica*) is a long-distance migratory wader that breeds in northern Siberia and migrates to Australia for the non-breeding season (Ref. 403). In WA, it can be found in coastal mudflats, intertidal zones, and estuarine wetlands, especially around Roebuck Bay, Shark Bay, and the Peel-Harvey Estuary, from October to March (Ref. 402). These areas provide critical stopover sites and feeding grounds for the godwit during its migration.

The bar-tailed godwit feeds primarily on invertebrates, such as worms, molluscs, and crustaceans, which it probes from the mud using its long, straight bill (Ref. 404). It forages mainly at low tide when mudflats are exposed, and its ability to efficiently extract prey allows it to build up fat reserves for its long migrations (Ref. 403).

Known for its extraordinary migration, the bar-tailed godwit travels over 11,000 km non-stop between Siberia and Australia (Ref. 405), one of the longest migrations of any bird (Ref. 404). It relies on large fat reserves to sustain it during its non-stop flights. The species is also highly social outside the breeding season, often seen in large flocks in areas with abundant food (Ref. 391).

No BIAs have been identified for this species in Australia.

5.27 Oriental plover

The Oriental plover (*Charadrius veredus*) is a medium sized migratory shorebird that breeds in Central Asia and migrates to Australia during the austral summer months (Ref. 406). During migration, the species relies on its powerful flight muscles to cover long distances, as it moves from breeding grounds in Central Asia to its non-breeding grounds in Australia (Ref. 393).

In WA, this species is primarily found in arid inland regions and coastal mudflats, particularly in northern and central parts of the state. The plover is most often encountered in open, sparsely vegetated habitats, such as saltpans, mudflats, and ephemeral wetlands (Ref. 406). These environments provide a reliable source of invertebrates, such as insects, small crustaceans, and other small prey that the bird feeds on. The species has adapted to foraging on the ground, where it uses its excellent vision to locate prey. It is typically seen in solitary or small groups

during migration and is often found on mudflats and saltflats, where it uses its sharp bill and keen eyesight to pick food from the surface (401).

The Oriental plover is territorial during the breeding season but is solitary or forms loose flocks during migration. It is highly mobile, moving quickly over the ground as it searches for food. The plover is a non-aggressive forager, and its hunting technique often involves running and stopping, then probing the ground for invertebrates (Ref. 391).

No BIAs have been identified for this species in Australia.

5.28 Oriental pratincole

The Oriental pratincole (*Glareola maldivarum*) is a medium sized migratory wader bird that travels from its breeding grounds in Central Asia to Australia for the non-breeding season, including parts of WA. This species is typically found in open, grassy plains, wetlands, and mudflats in coastal and inland areas during the austral summer months (October to March) (Ref. 407).

In WA, the Oriental pratincole prefers open, flat landscapes near wetlands, rivers, and coastal mudflats. These habitats are rich in food sources, such as insects, aquatic invertebrates, and small crustaceans, which make up the bird's diet (Ref. 401).

Pratincoles, including the Oriental pratincole, are highly adapted aerial feeders, known for catching flying insects mid-air, a behaviour that allows them to exploit a wide range of available prey. With their long, pointed wings, they are capable of traveling vast distances and displaying remarkable aerial agility, which aids in foraging. In addition to their aerial foraging, pratincoles also forage on the ground, particularly during low water periods, when insects become exposed and are more easily captured (Ref. 401; Ref. 391).

The species is known to be territorial during the breeding season, often nesting in colonies on the ground, where it can sometimes form large aggregations (407). While in WA, the bird is a migrant, arriving in the spring and leaving by early autumn to return to its breeding grounds.

No BIAs have been identified for this species in Australia.

5.29 Osprey

The osprey (*Pandion haliaetus*) is a medium to large, powerful raptor known for its distinctive hunting technique—diving to catch fish—and its widespread distribution across coastal and inland water habitats (Ref. 409). In WA, the osprey is found along the coast and around inland freshwater systems, making use of a variety of habitats in its search for food. The bird is recognised for its characteristic white head and dark eyestripe, as well as its striking m-shaped wings when soaring (Ref. 391; Ref. 408).

In WA, the osprey is a resident species and does not migrate long distances. However, some populations in more temperate regions may migrate seasonally. They tend to stay year-round if food resources remain consistent (Ref. 410).

The osprey is primarily found along coastal areas near estuaries, lagoons, rivers, and lakes (Ref. 409). These birds tend to prefer isolated coastal habitats with abundant fish populations. The North-Western and South-Western coasts of WA, particularly around areas like Shark Bay, Exmouth, and the Swan River, are important locations for ospreys. Inland, they can also be found around large freshwater lakes and wetlands where fish are abundant (Ref. 411).

Ospreys in WA generally build large nests in high locations, such as tall trees, cliffs, or man-made structures. These nests are constructed from large sticks, twigs, and other materials and can be reused and added to each year (Ref. 409). The breeding season typically begins in late spring to early summer (around October to December), with the female laying one to three eggs. Both parents take part in incubation, which lasts around 35-40 days. Once the chicks hatch, both parents feed and protect the young until they are ready to fledge, which takes about 8-10 weeks (Ref. 408).

The osprey is generally solitary, except during the breeding season. Outside of the nesting period, ospreys are often seen alone (Ref. 410). However, they may gather in small numbers around areas with abundant food, such as fish-rich rivers or lakes (Ref. 391. Ref. 410). The osprey is a specialist fish-eater, with a diet that primarily consists of live fish. Ospreys predominantly feed on bony fish species such as barramundi, mullet, and salmon (Ref. 408).

Their long wings are well-suited for gliding efficiently over water, allowing them to cover large areas in search of food. When hunting, they often soar high to spot fish below, using their keen eyesight to locate prey from great altitudes (Ref. 391). They are also capable of hovering briefly to refine their aim before diving with precision to capture fish. Their powerful flight muscles allow for quick, controlled dives, and their specialised feet, equipped with sharp, reversible talons and covered in spiny papillae, help them grasp and hold onto slippery fish tightly (Ref. 391; Ref. 409). Additionally, their feathers are adapted to shed water quickly after diving, enabling them to maintain buoyancy if they briefly land in the water (Ref. 412).

No BIAs have been identified for this species in Australia.

5.30 Pectoral sandpiper

The pectoral sandpiper (*Calidris melanotos*) is a medium-sized shorebird that is typically found in coastal and inland wetland habitats during its migration and breeding seasons (Ref. 413).

The pectoral sandpiper is a migratory species, migrating to a variety of locations across North and South America, Europe, and Australia. Its migration is long-distance, with individuals travelling from breeding grounds in the Arctic to non-breeding areas in South America, coastal Australia, and other temperate regions (Ref. 416). The migration is primarily triggered by the availability of food resources and changes in day length, with birds typically departing their breeding grounds in late summer and returning in spring (Ref. 415).

The species is rarely recorded within WA (Ref. 413). It builds its nest on the ground, usually in a shallow depression lined with grasses, moss, and other plant material (Ref. 415). In Australasia, the pectoral sandpiper prefers shallow fresh to saline wetlands. The species is usually found in coastal or near coastal habitat but occasionally found further inland. It prefers wetlands that have open fringing mudflats and low, emergent or fringing vegetation, such as grass or samphire. They forage in shallow water or soft mud at the edge of wetlands. The pectoral sandpiper is omnivorous, consuming algae, seeds, crustaceans, arachnids and insects (Ref. 414).

No BIAs have been identified for this species in Australia.

5.31 Red knot

The red knot (*Calidris canutus*) is a medium-sized migratory shorebird known for its impressive long-distance migrations between Arctic breeding grounds and southern wintering areas (Ref. 418).

The red knot has a worldwide distribution and inhabits a variety of coastal and wetland habitats throughout its life cycle, including mudflats, sandy beaches, estuaries, and saltmarshes (Ref. 417). Within Australia the red knot can be found in coastal mudflats, salt marshes, and estuaries, with critical stopover sites in Shark Bay, Roebuck Bay, WA, and other coastal wetlands in the region during migration (Ref. 418).

The red knot breeds in the northern hemisphere and nest on the ground, typically in well-drained, open areas, often near water. The nest is a shallow scrape lined with grasses, moss, or small pebbles (Ref. 416; Ref. 417). It undertakes migrations along the East Asia-Australasia Flyway to spend the boreal winter in Australasia. The majority of the population is considered to spend the non-breeding period in Australia (Ref. 419).

The red knot usually forages in soft substrate near the water edge on intertidal mudflats or sandflats exposed by low tide. At high tide they may feed at nearby lakes, sewage ponds and floodwaters (Ref. 414).These areas provide rich feeding grounds, essential for refuelling during the bird's migration along the East Asia-Australasia Flyway (Ref. 414; Ref. 420).

No BIAs have been identified for this species in Australia.

5.32 Red-tailed tropicbird (Indian Ocean)

The red-tailed tropicbird (*Phaethon rubricauda*) is a striking seabird found primarily in the Indian Ocean, known for its long, elegant tail feathers and remarkable aerial abilities (Ref. 424). This species is adapted to a life spent mostly at sea, with breeding populations residing on remote islands in tropical and subtropical regions. The Indian Ocean islands, such as Aldabra Atoll, Socotra, and the Cocos (Keeling) Islands, are key nesting sites for the species. These islands offer isolated, predator-free areas that are ideal for breeding and raising chicks (Ref. 421).

Red-tailed tropicbirds are pelagic, spending most of their lives flying over the open ocean, returning to land only for breeding. Their nesting sites are typically on rocky cliffs or inaccessible island outcrops, providing protection from predators. (Ref. 421). The bird's diet consists mainly of small fish, squid, and crustaceans, which it captures by diving from great heights and travelling considerable distances to find food (Ref. 423). The species also feeds opportunistically, often near schools of fish or other marine predators (Ref. 422).

The bird's breeding season typically occurs from October to March, during which they nest on remote islands, usually in isolated colonies. Each pair lays a single egg (Ref. 421). Outside the breeding season, red-tailed tropicbirds are largely solitary, but they form small colonies during breeding. Territorial behaviours are exhibited around nesting sites, with both males and females defending their chosen nesting areas (Ref. 423).

Breeding and foraging BIAs have been identified for this species as buffer areas around islands in waters off Queensland and NSW.

5.33 Roseate tern

The roseate tern (*Sterna* d*ougalli*i) is a graceful seabird known for its striking plumage and migratory behaviour. The roseate tern occurs in coastal and marine areas in subtropical and tropical seas. The species inhabits rocky and sandy beaches, coral reefs, sand cays and offshore islands (Ref. 425). The roseate tern is a migratory species, though the movement patterns are not well known. Birds are known to usually move away from breeding colonies following breeding, but their non-breeding range is not well defined (Ref. 425).

Behaviours used to define biologically important areas for seabirds in Commonwealth marine areas include breeding with a foraging buffer, and roosting (Ref. 328). Bird species may forage in the waters surrounding the islands during nesting seasons.

Breeding in WA occurs in two distinct periods:

- at some sites (including Montebello Islands), breeding occurs during both late spring-summer and late autumn-winter
- at other sites (typically further south, including around Cervantes), breeding occurs only during autumn-winter (Ref. 427).

Roseate terns breed in the Pilbara region from March to July and October (Ref. 433).

Different islands can be chosen for the breeding colony from year to year. As roseate terns do not forage widely from their breeding colonies, suitable nesting islands may be chosen because of nearby aggregations of their pelagic fish prey (Ref. 434).

Breeding, foraging and resting BIAs have been identified for this species in WA and NT. In the NWMR breeding populations of roseate terns have been recorded at Ashmore Reef, Napier Broome Bay, Bonaparte Archipelago, Lacepede Island, Bedout Island, Dampier Archipelago, Lowendal Island, Frazer Island, Koks Island, Mary Anne Island and Meade Island (Ref. 426).

5.34 Sharp-tailed sandpiper

The sharp-tailed sandpiper (*Calidris acuminata*) is a small, migratory shorebird known for its distinctive sharp tail, long slender body, and sharp, pointed bill, which it uses to probe into mud and sand for invertebrates such as crustaceans, molluscs, and worms and is commonly observed in coastal and wetland habitats during migration (Ref. 438).

In WA, the sharp-tailed sandpiper is found in a variety of habitats, including mudflats, estuaries, sandy beaches, inland wetlands, and agricultural fields, particularly during migration periods (Ref. 387). The species migrates from its breeding grounds in Siberia to wintering areas in Australia, with most of the population migrating to the southeast of the country. Sharp-tailed sandpipers are widespread in both inland and coastal locations, where they are found in both freshwater and saline habitats (Ref. 387).

During their non-breeding season in Australia, sharp-tailed sandpipers forage at the edges of wetlands or intertidal mudflats, either on bare wet mud or sand, or in shallow water (Ref. 438). Roosting typically occurs at the edges of wetlands, on wet open mud or sand, in shallow water, or in sparse vegetation such as grass or saltmarsh. Occasionally, they also roost on sandy beaches, stony shores, or rocks in the water (Ref. 387). They are highly gregarious and often form large flocks,

especially during migration and when feeding. The birds are known for their varied foraging techniques, including rapid running and probing in the mud, which allows them to capture prey efficiently (Ref. 436).

In WA, several internationally important sites have been identified for the species, including Port Hedland Saltworks and Eighty Mile Beach (Ref. 437). These areas are critical stopover points along the East Asian-Australasia Flyway, which is the migratory route used by the species as it travels thousands of kilometres between its breeding and wintering grounds (Ref. 435).

No BIAs have been identified for this species in Australia.

5.35 Soft-plumaged petrel

The soft-plumaged petrel (*Pterodroma mollis*) is a medium-sized seabird known for its delicate plumage and distinctive flight patterns (Ref. 439).

In WA, the soft-plumaged petrel is primarily found in offshore waters, particularly in the Indian Ocean and around sub-Antarctic islands. These birds are typically observed at sea, often far from land, and they breed on isolated islands, where they nest in burrows or rock crevices (Ref. 440). Breeding usually occurs from October to April, coinciding with the Southern Hemisphere summer when food resources are more abundant.

The soft-plumaged petrel is primarily a pelagic bird, spending most of its life in the open ocean, far from land, except during the breeding season. It is typically found in the Southern Ocean, particularly around the sub-Antarctic and Antarctic regions (Ref. 441; Ref. 442). These birds prefer cold, nutrient-rich waters and are often associated with the Antarctic Convergence zone, where cold polar waters meet warmer sub-Antarctic waters.

The soft-plumaged petrel breeds on remote sub-Antarctic islands, where it nests in burrows or crevices in the soil or under dense vegetation (Ref. 439). The breeding colonies are often situated on islands that are difficult to access, providing some degree of protection from predators. Breeding typically occurs from October to March, with the species exhibiting a long breeding cycle, which is common among petrels (Ref. 442).

The soft-plumaged petrel is a surface feeder, primarily foraging on small fish, krill, squid, and other marine invertebrates. It often forages by following fishing boats or by scavenging in areas where upwelling currents bring nutrients to the surface, attracting prey. Soft-plumaged petrels typically feed on the wing, dipping down to the surface of the water to capture prey, though they may also dive from the surface (Ref. 442). They are known for their ability to travel long distances across the open ocean in search of food, often covering vast areas during their foraging expeditions.

Breeding and foraging BIAs have been identified for this species in southwestern WA, from Geraldton to Albany, and south of Tasmania.

5.36 Southern giant-petrel

The Southern giant-petrel (*Macronectes giganteus*) is the largest petrel with a widespread distribution across the Southern Ocean and has an approximate population of 62,000 individuals globally with a decline in population of 20% in the last 60 years (Ref. 443).

Within Australia the Southern giant-petrel breeding colonies are limited on Heard and Macquarie Island and in Islands of the Australian Antarctic Territory. The

breeding season of the Southern giant-petrel occurs from September to February. During this time, they establish nests on rocky shores, often in burrows or shallow scrapes lined with vegetation (Ref. 440; Ref. 445).

This petrel occurs in both pelagic and inshore waters and is attracted to sewage outfalls and scavengers onshore. It nests in open areas of vegetation or in Antarctic colonies of no vegetation (Ref. 443).

This species is an opportunistic scavenger and predator with a diet of primarily penguin carcasses, seal and carrion. It has also been recorded eating live birds including albatrosses, other seabirds and penguin chicks, cephalopods, euphausiids crustaceans, kelp fish, jellyfish and rabbits. Their method of surface water hunting is predominantly surface seizing (Ref. 443; Ref. 444).

Foraging BIAs have been identified for this species in the shelf region of NSW coast.

5.37 Streaked shearwater

The streaked shearwater (*Calonectris leucomelas*) is a medium-sized seabird known for its distinctive streaked plumage and long, slender wings. It is part of the shearwater family and is recognised for its graceful flight and pelagic lifestyle. The species is migratory, breeding in the northern hemisphere and wintering in southern waters, including northern Australia, where it is frequently observed between October and March, with some records extending from as early as August to as late as May (Ref. 440).

In Australia, the streaked shearwater occurs primarily along the northern coast, from the North West Cape to North Queensland, frequenting both pelagic and inshore waters. While it does not breed in Australia, it is known to forage in the Northern Marine Region, especially in offshore waters more than 18 km from the mainland coast (Ref. 447; Ref. 440). In these areas, streaked shearwaters are typically found over the continental shelf and around islands, where they feed on abundant marine resources such as small fish, squid, and other marine organisms (Ref. 448). Their foraging technique is surface-seizing, where they snatch prey from the water's surface while flying (Ref. 440). Their diet may vary depending on the seasonal availability of food and local marine productivity.

During the breeding season, streaked shearwaters nest on remote islands, such as the Houtman Abrolhos Islands and other locations along the coast of WA (Ref. 449). These birds exhibit strong site fidelity, returning to the same nesting colonies year after year. They are highly social and are typically observed in large flocks, especially when foraging or during migration (Ref. 446).

No BIAs have been identified for this species in Australia.

5.38 Wedge-tailed shearwater

Wedge-tailed shearwaters (*Ardenna pacifica*) are a pelagic, migratory visitor to WA; estimates indicate more than one million shearwaters migrate to the Pilbara islands each year (Ref. 328); out of an estimated global population of five million (Ref. 426). The wedge-tailed shearwaters typically begin arriving at their WA colonies around August each year and will excavate burrows on vegetated islands for nesting; peak egg laying typically occurs during November; and they will typically leave nests in early-April to early-May and travel north to the Indian Ocean (Ref. 427; Ref. 428). Migration from the colony is very synchronous, but the return is less so (Ref. 428). Once adults cease returning to feed their young,

the young (fledgling) wedge-tailed shearwaters fledge and depart nests (Ref. 429; Ref. 430).

Known breeding locations in the NWMR include Forestier Island (Sable Island), Bedout Island, Dampier Archipelago, Passage Island, Lowendal Island, islands off Barrow Island (Mushroom, Double and Boodie islands), islands in the Onslow area (including Airlie, Bessieres, Serrurier, North and South Muiron and Locker islands), islands in Freycinet Estuary, and south Shark Bay (Slope, Friday, Lefebre, Charlie, Freycinet, Double and Baudin islands) (Ref. 426).

Baseline monitoring (pre-construction of the Gorgon Gas Development) recorded ~20–50 wedge-tailed shearwater nesting burrows on North Double Island and ~300 on South Double Island (Ref. 327; Ref. 431). CAPL (Ref. 143; Ref. 327) provided an estimate of 500 burrows over a 2 ha portion of the north-eastern corner of South Double Island, supporting 5,000–10,000 pairs of wedge-tailed shearwaters.

This species forages relatively close to breeding islands and its diet consists of squid, fish, and crustaceans (Ref. 426). However, more recent studies have indicated bimodal foraging. A study on foraging behaviour of the wedge-tailed shearwaters during the 2018 nesting season on the Muiron Islands showed a bimodal foraging strategy that incorporated both short (<4 days) and long (>7 day) trips (Ref. 428). The foraging trips of the wedge-tailed shearwaters from the Muiron Islands were recorded over a large area, extending from the Cape Range Canyon to the Indonesian Archipelago; and a consistent pattern of foraging near seamounts was observed (Ref. 428). It is noted that this same area is part of the foraging extent used by the wedge-tailed shearwaters from both Pelsaert and Houtman Abrolhos islands) (Ref. 428; Ref. 432). The use of a bimodal foraging strategy suggests that prey availability close to the colony (i.e. areas that would be utilised on short trips) are inadequate for the large numbers of breeding shearwaters (Ref. 428).

Typically, behaviours used to define BIAs for seabirds in Commonwealth marine areas include breeding with a foraging buffer, and roosting (Ref. 328). Breeding and foraging BIAs have been identified for this species in WA, Victoria, NSW and Queensland. In the NWS, only breeding BIAs has been identified.

5.39 White-tailed tropicbird

The white-tailed tropicbird (*Phaethon lepturus*) is a pantropical seabird known for its striking appearance and wide distribution across tropical and subtropical regions. Globally, the species has a population estimated at over 50,000 individuals, but the Australian population remains poorly documented (Ref. 328). The white-tailed tropicbird is primarily found off the northern coast of WA, with occasional sightings around the Coral Sea and the east coast (Ref. 453). It is a relatively uncommon visitor to these areas, where it tends to forage in pelagic waters. In Australia, it is most often seen in the NWMR, though the numbers here are expected to be low due to the lack of suitable habitats that would support large aggregations (Ref. 452).

The species breeds at several locations worldwide, including Christmas Island, where an estimated 6,000 to 12,000 pairs nest (Ref. 454), and North Keeling Island, which hosts around 40 pairs (Ref. 454). Smaller, fragmented populations also breed in other isolated sites. The white-tailed tropicbird typically nests in a variety of habitats, including rainforest canopies, rocky terrains, and sandy beaches. Breeding occurs throughout the year, with periods of reproductive activity approximately every 10 months (Ref. 450).

White-tailed tropicbirds are solitary foragers, primarily feeding on flying fish and, occasionally, cephalopods. They forage at the ocean's surface, sometimes diving shallowly, and roost on the sea's surface in between foraging bouts (Ref. 455). Their foraging range is extensive, with some individuals traveling up to 1,600 km from their breeding colonies, such as those from Christmas Island (Ref. 453). While they can forage in both pelagic waters and nearshore areas, they do not typically aggregate in large numbers or feed in association with other seabird species (Ref. 452).

Breeding BIAs have been identified in the waters off the northwest coast of WA, specifically near Port Hedland and Derby.

5.40 White-winged fairy-wren (Barrow Island)

The white-winged fairy-wren (*Malurus leucopterus*) - Barrow Island population is a small, colourful passerine bird known for its striking plumage and distinctive behaviours. The population on Barrow Island is particularly significant due to its unique adaptations to the island's environment (Ref. 459).

The white-winged fairy-wren on Barrow Island is primarily found in arid shrubland and heathland habitats. They inhabit areas characterised by dense low shrubs, often near water sources such as seasonal wetlands and creek lines (Ref. 458). The availability of dense foliage is essential for nesting and protection from predators.

This species is an insectivorous bird, feeding on a variety of invertebrates, including insects and spiders. Foraging occurs both on the ground and in low vegetation, where they actively search for food by hopping and gleaning among leaves and soil (Ref. 457). Their diet may vary seasonally based on the availability of prey.

White-winged fairy-wrens are known for their social behaviour and complex vocalisations. They typically form loose family groups, which consist of a breeding male, several females, and their young (Ref. 456). These groups engage in cooperative breeding, where non-breeding individuals assist in the care of the young, helping to increase the survival rate of the offspring.

Nesting typically occurs in dense shrubbery, where females construct cup-shaped nests and lay two to three eggs, which are incubated for about 14 days (Ref. 459).

No BIAs have been identified for this species in Australia.

5.41 Yellow wagtail

The yellow wagtail (*Motacilla flava*) is a small, migratory songbird known for its distinctive bright yellow plumage and long, slender body. This species is part of the wagtail family and is recognised for its lively behaviour and association with wetland habitats (Ref. 459).

In WA, yellow wagtails are typically found in wetlands, grasslands, and agricultural fields, especially during their migratory stopovers. They prefer areas with open ground near water sources, such as mudflats, rice paddies, and wet pastures, where they can easily forage for food (Ref. 460). The availability of suitable feeding habitats is crucial for their survival, particularly during the breeding season.

Yellow wagtails are highly social birds, often seen foraging in loose flocks (Ref. 423). They primarily feed on invertebrates, including insects and their larvae, as well as seeds and other plant matter. Their foraging behaviour involves a

combination of running, walking, and fluttering, as they actively search for food on the ground and in low vegetation (Ref. 459). During the breeding season, they are known to target specific prey to meet the nutritional needs of their young.

During migration, yellow wagtails exhibit a strong migratory pattern, travelling long distances between their breeding grounds in Europe and Asia and their wintering grounds in Africa and parts of South Asia. In Australia, they are typically observed during the southern summer months (November to March), where they may engage in both solitary and communal roosting behaviour (Ref. 460).

No BIAs have been identified for this species in Australia.

6 Acronyms and abbreviations

Table 6-1 defines the acronyms and abbreviations used in this document.

Table 6-1: Acronyms and abbreviations

Acronym or abbreviation	Definition
BIA	Biologically Important Areas
EMBA	Environment that may be affected
EP	Environment Plan
NSW	New South Whales
NWMR	North-west marine region
NWS	North west shelf
NT	Northern Territory
PMST	Protected Matters Search Tool
SA	South Australia
WA	Western Australia

7 References

The following documentation is either directly referenced in this document or is a recommended source of background information.

Table 7-1: References

Ref. No.	Description	Document ID
1.	Bannister, J.L., C.M. Kemper & R.M. Warneke. 1996. T*he Action Plan for Australian Cetaceans*. Canberra: Australian Nature Conservation Agency. Available from: http://www.environment.gov.au/resource/action-plan-australian-cetaceans [Accessed: November 2024]	
2.	Thiele, D. & P.C. Gill. 1999. *Cetacean observations during a winter voyage into Antarctic sea ice south of Australia*. Antarctic Science. 11(1):48-53.	
3.	Best, P.B. 1985. *External characters of Southern Minke Whales and the existence of a diminutive form*.Scientific Reports of the Whales Research Institute, Tokyo. 36:1-33.	
4.	Zerbini, A.N., E.R. Secchi, S. Siciliano & P.C. Simões-Lopes. 1997. *A review of the occurrence and distribution of whales of the genus Balaenoptera along the Brazilian coast.* Reports of the International Whaling Commission. 47:407-417.	
5.	Perrin, W.F. & R.L. Brownell, Jr. 2002. *Minke Whales Balaenoptera acutorostrata and B. bonaerensis. In: Perrin W.F., Würsig B. & H.G.M. Thewissen, eds. Encyclopedia of Marine Mammals.* Page(s) 750-754. Academic Press.	
6.	DCCEEW 2024. *Balaenoptera bonaerensis in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=67812 [Accessed: November 2024]	
7.	Ohsumi S, Masaki Y. & A. Kawamura. 1970. *Stock of the Antarctic minke whale.* Scientific Reports of the Whales Research Institute, Tokyo. 22:75-125.	
8.	Stewart, B.S. & S. Leatherwood. 1985. *Minke whale Balaenoptera acutorostrata Lacépède, 1804. In: Ridgway, S.H. & R. Harrison, eds. Handbook of Marine Mammals Vol 3: The Sirenians and Baleen Whales.* Page(s) 193-240. Academic Press, London.	
9.	Kato, H. 1982. *Some biological parameters for the Antarctic minke whale.* Report of the International Whaling Commission. 32:935-945.	
10.	Kasamatsu F. and S. Ohsumi. 1981. *Distribution pattern of minke whales in the Antarctic with special reference to the sex ratio in the catch.* Report of the International Whaling Commission. 31:345-348.	
11.	Masaki, Y. 1979. *Yearly changes of the biological parameters for the Antarctic minke whale.* Report of the International Whaling Commission. 29:407-20.	
12.	Filun D, Thomisch K, Boebel O, Brey T, Širović A, Spiesecke S, Van Opzeeland I. 2020. *Frozen verses: Antarctic minke whales (Balaenoptera bonaerensis) call predominantly during austral winter.* R Soc Open Sci. doi: 10.1098/rsos.192112.	
13.	Rice DW. 1998. *Marine mammals of the world: systematic and distribution*. Lawrence, Kansas: Society for Marine Mammalogy,	

Ref. No.	Description	Document ID
	Lawrence, K.S. (Society for Marine Mammalogy Special Publication Number 4).	
14.	Committee on Taxonomy. 2024. *List of Marine Mammal Species and Subspecies.* The Society for Marine Mammology. Available from: https://marinemammalscience.org/science-and-publications/list-marine-mammal-species-subspecies/ [Accessed: November 2024].	
15.	Best, P.B., D.S. Butterworth & L.H. Rickett. 1984. *An assessment cruise for the South African inshore stock of Bryde's Whales (Balaenoptera edeni).* Report of the International Whaling Commission. 34:403-423.	
16.	DCCEEW 2024. *Balaenoptera edeni in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=35 [Accessed: November 2024]	
17.	NOAA Fisheries. 2023. Species Directory, Bryde's Whale. National Oceanic and Atmospheric Administration. Available from: https://www.fisheries.noaa.gov/species/brydes-whale [Accessed: November 2024]	
18.	Pirotta, V., Cagnazzi, D., Dixon, B., Millar, S., Millar, J., Pickering, G., Peters, K. J. 2024. *Bryde's whale (Balaenoptera edeni) occurrence and foraging behaviour along the east coast of Australia*. New Zealand Journal of Marine and Freshwater Research, 1–16. https://doi.org/10.1080/00288330.2024.2409681	
19.	Best, P.B. 1960. *Further information on Bryde's whale (Balaenoptera edeni Anderson) from Saldanha Bay, South Africa.* Norsk Hvalfangst-Tidende. 49:201-215.	
20.	Best, P.B. 1977. *Two allopatric forms of Bryde's whale off South Africa*. Report of the International Whaling Commission (Special Issue 1). Page(s) 10-38.	
21.	Kawamura, A. 1980. *Food habits of the Bryde's whales taken in the South Pacific and Indian Oceans.* Scientific Reports of the Whales Research Institute. 32:1-23.	
22.	Kato, H. 2002. *Bryde's Whales Balaenoptera edeni and B. brydei.* In: Perrin W.F., B. Wrsig & H.G.M. Thewissen, eds. Encyclopedia of Marine Mammals. Page(s) 171-177. Academic Press.	
23.	Paterson R, Van Dyck S. 1988. *Bryde's whale in the coastal waters of eastern Australia.* Scientific Reports of the Whales Research Institute. 39:21–29.	
24.	McCauley R. 2011. *Woodside Kimberley Sea Noise Logger Program, Sept-2006 to June-2009: Whales, Fish and Man-made Noise*. Report prepared for Woodside.	
25.	TSSC. 2015. Conservation Advice, Balaenoptera physalus -fin whale. Threatened species scientific committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/37-conservation-advice-01102015.pdf [Accessed: November 2024]	
26.	Mackintosh, N.A. 1966. *The distribution of southern blue and fin Whales.* Norris K.S., ed. Whales, dolphins, and porpoises. Page(s) 125-144. Berkely: University of California Press.	
27.	Mackintosh, N.A. 1965. *The stocks of whales.* London: Fishing News (Books) Ltd	

Ref. No.	Description	Document ID
28.	Watkins W.A., P. Tyack, K.E. Moore & J.E. Bird. 1987. *The 20-Hz signals of finback whales (Balaenoptera physalus*). Journal of Acoustical Society of America. 82:1901-1912.	
29.	DCCEEW 2024. *Balaenoptera physalus in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=37 [Accessed: November 2024]	
30.	Littaye, A., A. Gannier, S. Laran & J.P.F. Wilson. 2004. *The relationship between summer aggregation of fin whales and satellite-derived environmental conditions in the northwestern Mediterranean Sea.* Remote Sensing of Environment. 90(1):44-52	
31.	Gill, P.C. 2002. *A blue whale (Balaenoptera musculus) feeding ground in a southern Australian coastal upwelling zone*. Journal of Cetacean Research and Management. 4:179-184.	
32.	McCauley, R.D., C. Jenner, J.L. Bannister, D.H. Cato & A. Duncan. 2000. *Blue whale calling in the Rottnest Trench, Western Australia, and low frequency sea noise.* In: Paper presented at the Australian Acoustical Society Conference, Joondalup, Australia. unpublished.	
33.	Aulich, M. G., McCauley, R. D., Saunders, B. J., & Parsons, M. J. 2019. *Fin whale (Balaenoptera physalus) migration in Australian waters using passive acoustic monitoring.* Scientific Reports, 9(1), 1-12. https://doi.org/10.1038/s41598-019-45321-w	
34.	Aulich, M. G., McCauley, R. D., Miller, B. S., Samaran, F., Giorli, G., Saunders, B. J., & Erbe, C. 2022. *Seasonal Distribution of the Fin Whale (Balaenoptera physalus) in Antarctic and Australian Waters Based on Passive Acoustics.* Frontiers in Marine Science, 9, 864153. https://doi.org/10.3389/fmars.2022.864153	
35.	Rennie, S. Hanson, C.E., McCauley, R.D., Pattiaratchi, C. Burton, C., Bannister, J., Jenner,C., Jenner, M.N., 2009. *Physical properties and processes in the Perth Canyon, Western Australia: Links to water column production and seasonal pygmy blue whale abundance.* Journal of Marine Systems, Volume 77, Issues 1–2, Pages 21-44, ISSN 0924-7963, https://doi.org/10.1016/j.jmarsys.2008.11.008.	
36.	Jenner, K.C.S., Jenner, M.N. and McCabe, K.A. 2001. *Geographical and Temporal Movements of Humpback Whales in Western Australian Waters.* APPeA Journal. pp749–765.	
37.	DCCEEW 2024. *Megaptera novaeangliae in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=38 [Accessed: November 2024]	
38.	TSSC. 2022. *Listing Advice for Megaptera novaeangliae Humpback Whale).* Threatened species scientific committee.	
39.	Irvine, L. G., Thums, M., Hanson, C. E., McMahon, C. R., & Hindell, M. A. 2018. *Evidence for a widely expanded humpback whale calving range along the Western Australian coast.* Marine Mammal Science, 34(2), 294-310	
40.	Browne, Ciara Edan, Christine Erbe, and Robert D. McCauley. 2024. *Distribution and Seasonality of the Omura's Whale (Balaenoptera omurai) in Australia Based on Passive Acoustic Recordings*. Animals 14, no. 20: 2944. https://doi.org/10.3390/ani14202944	

Ref. No.	Description	Document ID
41.	Cerchio, S., Yamada, T. K., & Brownell, R. L. 2019. *Global Distribution of Omura's Whales (Balaenoptera omurai) and Assessment of Range-Wide Threats*. Frontiers in Marine Science, 6, 428450. https://doi.org/10.3389/fmars.2019.00067	
42.	Debens Henry A., McCorry Denise, Sidenko Evgenii, Erbe Christine, Collet Olivia, Pevzner Roman, Gurevich Boris. 2024. *Whale detection and microseismic monitoring via DAS using submarine telecommunications cables – a case study from the NWS, Western Australia*. Australian Energy Producers Journal 64, S481-S486.	
43.	Gavrilov A. N., McCauley R. D., Paskos G., and Alexey G. 2018. *Southbound migration corridor of Pygmy Blue Whales off the northwest coast of Australia based on data from ocean bottom seismographs*. The *Journal of the Acoustical Society of America*. https://doi.org/10.1121/1.5063452	
44.	Double, M.C. Jenner, K.C.S., Jenner, M-N., Ball, I., Laverick, S. and Gales, N., 2012. S*atellite tracking of pygmy blue whales (Balaenoptera musculus brevicauda) off Western Australia*. Final Report – May 2012. Australian Marine Mammal Centre.	
45.	Gales, N., Double, M. C., Robinson, S., Jenner, C., Jenner, M, King, E. & Paton, D. 2010. *Satellite tracking of Australian humpback (Megaptera novaeangliae) and Pygmy Blue Whales (Balaenoptera musculus brevicauda)*. White paper presented to the Scientific Committee of the International Whaling Commission.	
46.	Branch, T. A., Matsuoka, K. and Miyashita, T. 2004. *Evidence for increases in Antarctic blue whales based on Bayesian modelling*. *Marine Mammal Science* 20(4): 726-754.	
47.	Double, M.C., Andrews-Goff, V., Jenner, K.C.S., Jenner, M-N., Laverick, S.M., Branch, T.A. and Gales, N., 2014. *Migratory movements of pygmy blue whales (Balaenoptera musculus brevicauda) between Australia and Indonesia as revealed by satellite telemetry*. PLOS one, April 2014 9(4).	
48.	Kahn, B., 2007. *Blue whales of the Savu Sea*, Indonesia. In: Biannual Marine Mammal Conference - Blue Whale Workshop. Cape Town, South Africa. 28 Nov - 3 Dec 2007.	
49.	McCauley, R.D. and K.C. Jenner. 2010. Migratory patterns and estimated population size of Pygmy Blue Whales (Balaenoptera musculus brevicauda) traversing the Western Australian coast based on passive acoustics. Paper SC/62/SH26 presented to the International Whaling Committee Scientific Committee.	
50.	DSEWPC. 2012. *Marine bioregional plan for the North-west Marine Region* prepared under the Environment Protection and Biodiversity Conservation Act 1999. Australian Government, Canberra, Australian Capital Territory. Available from: https://www.dcceew.gov.au/sites/default/files/env/pages/1670366b-988b-4201-94a1-1f29175a4d65/files/north-west-marine-plan.pdf [Accessed: November 2024].	
51.	DoE. 2015. *Conservation Management Plan for the Blue Whale (2015-2025), A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999.* Department of the Environment, Australian Government, Canberra, Australian Capital Territory. Available from: https://www.dcceew.gov.au/sites/default/files/documents/blue-whale-conservation-management-plan.pdf [Accessed: November 2024].	
52.	Thums, M., Ferreira, L.C., Jenner, C., Jenner, M., Harris, D., Davenport, A., Andrews-Goff, V., Double, M., Moller, L., Attard,	

Ref. No.	Description	Document ID
	C.R.M., Bilgmann, K., Thomson, P.G., and McCauley, R. 2022, *Pygmy blue whale movement, distribution and important areas in the Eastern Indian Ocean.* Global Ecology and Conservation, 35 (2022). doi: https://doi.org/10.1016/j.gecco.2022.e02054	
53.	Ferreira, L.C., Jenner, C., Jenner, M. et al. 2024. *Predicting suitable habitats for foraging and migration in Eastern Indian Ocean pygmy blue whales from satellite tracking data*. Movement Ecology 12, 42. https://doi.org/10.1186/s40462-024-00481-x	
54.	Owen, K., Jenner, C.S., Jenner, MN.M.and Abdrews R. D. 2016. *A week in the life of a pygmy blue whale: migratory dive depth overlaps with large vessel drafts.* Anim Biotelemetry 4, 17 https://doi.org/10.1186/s40317-016-0109-4	
55.	Truong G and Rogers TL. 2023. La Niña conditions influence interannual call detections of pygmy blue whales in the eastern Indian Ocean. Frontiers. Marine Science. 9:850162. doi: 10.3389/fmars.2022.850162	
56.	Pendleton, D.E., Holmes, E.E., Redfern, J., Zhang, J., 2020. Using modelled prey to predict the distribution of a highly mobile marine mammal. *Divers. Distrib*. 26, 1612–1626.	
57.	Buchan, Susannah, Quiñones, Renato A. 2016. *First insights into the oceanographic characteristics of a blue whale feeding ground in northern Patagonia*, Chile. Marine Ecology Progress Series. 554. 10.3354/meps11762.	
58.	AIMS. 2019. *North West shoals to shore research program*. Australian Institute of Marine Science. Perth Office. Available from: https://www.aims.gov.au/sites/default/files/2019-11/AIMS%20NWSS%204pp%20newsletter%20December%2019_web.pdf [Accessed: November 2024].	
59.	Torres LG, Barlow DR, Chandler TE, Burnett JD. 2020. *Insight into the kinematics of blue whale surface foraging through drone observations and prey data*. PeerJ 8:e8906 https://doi.org/10.7717/peerj.8906	
60.	Jill R. Schoenherr. 1991. *Blue whales feeding on high concentrations of euphausiids around Monterey Submarine Canyon*. Canadian Journal of Zoology. 69(3): 583-594. https://doi.org/10.1139/z91-088	
61.	Thomas Doniol-Valcroze, Véronique Lesage, Janie Giard, Robert Michaud. 2011. *Optimal foraging theory predicts diving and feeding strategies of the largest marine predator*. Behavioral Ecology, Volume 22, Issue 4, Pages 880–888, https://doi.org/10.1093/beheco/arr038	
62.	DCCEEW 2024. *Balaenoptera borealis in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=34 Accessed: November 2024]	
63.	NOAA Fisheries. 2023. Species Directory, Sei Whale. National Oceanic and Atmospheric Administration. Available from: https://www.fisheries.noaa.gov/species/sei-whale [Accessed: November 2024]	
64.	Horwood, J. 2009. *Sei whale Balaenoptera borealis. In: Perrin, W.F., B. Würsig & J.G.M. Thewissen, eds*. Encyclopedia of marine mammals. Page(s) 1001-1003. Academic Press: Amsterdam.	

Ref. No.	Description	Document ID
65.	Parker, D.A.A. 1978. *Observations of Whales on Australian National Antarctic Research Expeditions (ANARE) Voyages between Australia and Antarctica.* Australian Wildlife Research. 5:25-36	
66.	Thiele D, Chester E, Gill PC. 2000. *Cetacean distribution off Eastern Antarctica at (80 - 150°E) during the austral summer of 1995/96.*	
67.	Chatto R. & R.M. Warneke. 2000. *Records of cetacean strandings in the Northern Territory of Australia.* The Beagle, Records of the Museums and Art Galleries of the Northern Territory. 16:163-175.	
68.	Bannister JL. 2008. *'Great Whales'* (CSIRO Publishing: Collingwood)	
69.	Miller, B.S., N. Kelly, M.C. Double, S.J. Childerhouse, S. Laverick & N. Gales. 2012. *Cruise report on SORP 2012 blue whale voyages: development of acoustic methods.* Paper SC/64/SH11 presented to the IWC Scientific Committee.	
70.	Gill, P.C., R. Pirzl, M.G. Morrice & K. Lawton. 2015. *Cetacean diversity of the continental shelf and slope off southern Australia.* The Journal of Wildlife Management.	
71.	Kenney RD. 2018. *Right Whales: Eubalaena Glacialis, E. Japonica, and E. Australis, in B. Würsig, J. G. M. Thewissen and K. M. Kovacs. Encyclopedia of Marine Mammals (Third Edition)*. Academic Press. pp 817-822. https://doi.org/10.1016/B978-0-12-804327-1.00217-X.	
72.	DCCEEW. 2024. *National Recovery Plan for the Southern Right Whale*. Department of Climate Change, Energy, the Environment and Water, Canberra.	
73.	Smith JN, Double M, Evans K & Kelly N. 2023. *Relative Abundance of the 'Western' Population of Southern Right Whales (Eubalaena Australis) from an Aerial Survey Off Southern Australia: Final Report on 2022 Survey.* Report to the National Environmental Science Program. Murdoch University (Lead organisation).	
74.	Charlton C, McCauley RD, Brownell Jr RL, Ward R, Bannister JL, Salgado Kent C & Burnell S. 2022. *Southern Right Whale (Eubalaena Australis) Population Demographics at Major Calving Ground Head of Bight, South Australia, 1991–2016.* Aquatic Conservation: Marine and Freshwater Ecosystems 32, 4, 671-686. DOI: https://doi.org/10.1002/aqc.3771.	
75.	Burnell SR & Bryden MM. 1997. *Coastal Residence Periods and Reproductive Timing in Southern Right Whales, Eubalaena Australis.* Journal of Zoology 241, 4, 613-621. DOI: https://doi.org/10.1111/j.1469-7998.1997.tb05736.x	
76.	Charlton C, Ward R, McCauley RD, Brownell Jr RL, Kent CS & Burnell S. 2019. *Southern Right Whale (Eubalaena Australis), Seasonal Abundance and Distribution at Head of Bight, South Australia*. Aquatic Conservation 29, 4, 576-588. DOI: https://doi.org/10.1002/aqc.3032.	
77.	Smith JN, Double M, Kelly N, Charlton C & Bannister J. 2022. *Relative Abundance of the 'Western' Population of Southern Right Whales from an Aerial Survey Off Southern Australia: Final Report on 2021 Survey.* Report to the National Environmental Science Program. Murdoch University (Lead organisation). https://www.nespmarinecoastal.edu.au/project-1-26-final-report-2/	
78.	Watson M, Stamation K & Charlton C. 2021. *Calving Rates, Long-Range Movements and Site Fidelity of Southern Right Whales (Eubalaena Australis) in South-Eastern Australia.* Journal of Cetacean	

Ref. No.	Description	Document ID
	Research Management 22, 1, 17-28. DOI: http://dx.doi.org/10.47536/jcrm.v22i1.210.	
79.	Townsend CH. 1935. *The Distribution of Certain Whales as Shown by Logbook Records of American Whaleships*. Zoologica 19, 1-50. https://www.biodiversitylibrary.org/page/51225956#page/125/mode/1up.	
80.	Bannister JL, Burnell SR, Burton C & Kato H. 1997. *Right Whales Off Southern Australia: Direct Evidence for a Link between Onshore Breeding Grounds and Offshore Probable Feeding Grounds*. Report of the International Whaling Commission.	
81.	Tormosov DD, Mikhaliev YA, Best PB, Zemsky VA, Sekiguchi K & Brownell RL. 1998. *Soviet Catches of Southern Right Whales Eubalaena Australis, 1951-1971*. Biological Data and Conservation Implications. Biological Conservation 86, 2, 185-197. DOI: https://doi.org/10.1016/S0006-3207(98)00008-1.	
82.	DCCEEW 2024. *Physeter macrocephalus in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=59 [Accessed: November 2024]	
83.	Whitehead, H. 2002. *Sperm Whale. In: Perrin W.F., B. Würsig & J. Thewissen, eds. The Encyclopedia of Marine Mammals.* Page(s) 62-72. San Diego: Academic Press.	
84.	CRRU. 2006. *Sperm Whale (Physeter macrocephalus Linnaeus, 1758)*. Cetacean Research and Rescue Unit. Available from: https://crru.org.uk/education/species/sperm-whale [Accessed: November 2024]	
85.	Bearzin, A.A. 1972. *The Sperm Whale. Pacific Scientific Research Institute of Fisheries and Oceanography, Moscow.* (Translated from Russian 1971 version by the Israel Program for Scientific Translations, Jerusalem).	
86.	Clarke, M.R. 1977. *Beaks, nets and numbers.* Symposium of the Zoological Society. 38:89-126.	
87.	Clarke, M.R. 1980. *Cephalopods in the diet of sperm whales of the Southern Hemisphere and their bearing on sperm whale biology*. Discovery Reports. 37:324.	
88.	Rice, D.W. 1989. *Sperm whale Physeter macrocephalus. In: Ridgway, S.H. & R. Harrison, eds. Handbook of Marine Mammal*s Vol. 4: River Dolphins and the Larger Toothed Whales. Page(s) 177-233.	
89.	NOAA Fisheries. 2023. *Species Directory, Sperm Whale.* National Oceanic and Atmospheric Administration. Available from: https://www.fisheries.noaa.gov/species/sperm-whale [Accessed: November 2024]	
90.	Woodside. 2020. Scarborough – Offshore Project Proposal.	
91.	DCCEEW 2024. *Sousa sahulensis in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=87942 [Accessed: November 2024]	

Ref. No.	Description	Document ID
92.	Parra, G.J., & D. Cagnazzi. 2016. *Conservation Status of the Australian Humpback Dolphin (Sousa sahulensis) Using the IUCN Red List Criteria.* Advances in Marine Biology. 73:157-192.	
93.	Hunt TN, Bejder L, Allen SJ, Rankin RW, Hanf D & Parra GJ. 2017. *Demographic characteristics of Australian humpback dolphins reveal important habitat toward the southwestern limit of their range.* Endangered Species Research 32, 71-88. https://doi.org/10.3354/esr00784.	
94.	Hanf D. 2015. *Species distribution modelling of western Pilbara coastal dolphins*. Perth: Masters by Research thesis Murdoch University; 2015:118	
95.	Hanf DM, Hodgson AJ, Kobryn H, Bejder L & Smith JN. 2022. *Dolphin distribution and habitat suitability in North Western Australia: Applications and Implications of a broad-scale, nontargeted dataset.* Frontiers in Marine Science 8.	
96.	Raudino HC, Douglas CR & Waples KA. 2018. *How many dolphins live near a coastal development?* Regional Studies in Marine Science 19: 25-32.	
97.	Raudino, Holly & Hunt, Tim & Waples, Kelly. 2018. *Records of Australian humpback dolphins (Sousa sahulensis) from an offshore island group in Western Australia.* Marine Biodiversity Records. 11. 10.1186/s41200-018-0147-0.	
98.	DCCEEW. 2022. *Conservation advice for Sousa sahulensis (Australian humpback dolphin).* Department of Climate Change, Energy, the Environment and Water. Canberra	
99.	ALA. N.d. *Sousa sahulensis Overview.* Available from: https://bie.ala.org.au/species/https:/biodiversity.org.au/afd/taxa/a4b7f69c-4955-4dd8-ab08-214b7e3eb444 [Accessed: November 2024]	
100.	Parra, G.J., A.R. Preen, P.J. Corkeron, C. Azuma & H. Marsh. 2002. *Distribution of Irrawaddy dolphins, Orcaella brevirostris, in Australian waters*. Raffles Bulletin of Zoology. 10:141-154.	
101.	DCCEEW 2024. *Orcaella heinsohni in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=81322 [Accessed: November 2024]	
102.	Parra, G. J., Schick, R., and Corkeron, P. J. 2006. *Spatial distribution and environmental correlates of Australian snubfin and Indo-Pacific humpback dolphins.* Ecography 29, 396–406. doi: 10.1111/j.2006.0906-7590.04411.	
103.	Parra, G. J. 2006. *Resource partitioning in sympatric delphinids: space use and habitat preferences of Australian snubfin and Indo-Pacific humpback dolphins*. J. Anim. Ecol. 75, 862–874. doi: 10.1111/j.1365-2656.2006.01104.	
104.	Bouchet, P. J., Thiele, D., Marley, S. A., Waples, K., Weisenberger, F., Rangers, B., et al. 2021. *Regional assessment of the conservation status of snubfin dolphins (Orcaella heinsohni) in the Kimberley region, Western Australia.* Front. Mar. Sci. 7:614852. doi: 10.3389/fmars.2020.614852	
105.	D'Cruz Alexandra , Salgado Kent Chandra , Waples Kelly , Brown Alexander M. , Marley Sarah A. , Thiele Deborah , Yawuru PBC , Raudino Holly C. 2022. *Ranging Patterns and Site Fidelity of Snubfin*	

Ref. No.	Description	Document ID
	Dolphins in Yawuru Nagulagun/Roebuck Bay, Western Australia. Frontiers in Marine Science. DOI 10.3389/fmars.2021.758435	
106.	Department of the Environment, Water, Heritage and the Arts. 2008. *The North Marine Bioregional Plan: Bioregional Profile: A Description of the Ecosystems, Conservation Values and Uses of the North Marine Region*. Canberra: DEWHA.	
107.	Kelly M. Robertson, Peter W. Arnold. 2009. *Australian Snubfin Dolphin: Orcaella heinsohni.* Encyclopedia of Marine Mammals (Second Edition), Academic Press, Pages 62-64, ISBN 9780123735539, https://doi.org/10.1016/B978-0-12-373553-9.00017-1.	
108.	Parra, G.J. 2005. *Behavioural ecology of Irrawaddy, Orcaella brevirostris (Owen in Gray, 1866), and Indo-Pacific humpback dolphins, Sousa chinensis (Osbeck, 1765), in northeast Queensland, Australia: a comparative study*. Ph.D. Thesis. Townsville: James Cook University.	
109.	Dolphin research Australia. N.d. Dolphin & Whale Species Fact Files: Australian snubfin dolphin Available from: https://www.dolphinresearchaustralia.org/learn-about-dolphin-whales/snubfin-dolphin/#toggle-id-2 [Accessed: November 2024]	
110.	DCCEEW 2024. *Orcinus orca in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=46 [Accessed: November 2024]	
111.	Ling, J.K. 1991. *Recent Sightings of Killer Whales, Orcinus orca (Cetacea: Delphinidae), in South Australia*. Transactions of the Royal Society of South Australia. 115:95-98.	
112.	Morrice, M.G. & J. Van den Hoff. 1999. *Preliminary investigations of killer whales (Orcinus orca) from inshore waters around sub-Antarctic Macquarie Island.* Poster presentation for the 13th Biennial Conference on Marine Mammals, Hawaii. Page(s) 7.	
113.	Whale watch Western Australia. N.d. *Bremer Bay Orca Tours.* Available from: https://whalewatchwesternaustralia.com/species/orca/ [Accessed: November 2024]	
114.	Culik, B. 2002. *Orcinus Orca. Review of small Cetaceans: Distribution, Behaviour, Migration and Threats. Compiled for the Convention on Migratory species (CMS).* Bonn, Germany: UNEP and the Secretariat of CMS. www.cms.int/reports/small-cetaceans/.	
115.	Pitman, R. L., Totterdell, J. A., Fearnbach, H., Ballance, L. T., Durban, J. W., & Kemps, H. 2015. *Whale killers: Prevalence and ecological implications of killer whale predation on humpback whale calves off Western Australia.* Marine Mammal Science, 31(2), 629-657. https://doi.org/10.1111/mms.12182	
116.	DCCEEW 2024. *Tursiops aduncus in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=68418 [Accessed: November 2024]	
117.	Convention on the Conservation of Migratory Species of Wild Animals. 2016. Proposal for inclusion of species on the appendices of the convention on the conservation of migratory species of wild animals. Available from:	

Ref. No.	Description	Document ID
	https://www.cms.int/sites/default/files/document/CMS_COP6_II_02_Tursiops_aduncus-Australia-E.pdf [Accessed: November 2024]	
118.	Haughey, R., Hunt, T. N., Hanf, D., Passadore, C., Baring, R., & Parra, G. J. 2021. *Distribution and Habitat Preferences of Indo-Pacific Bottlenose Dolphins (Tursiops aduncus) Inhabiting Coastal Waters With Mixed Levels of Protection.* Frontiers in Marine Science, 8, 617518. https://doi.org/10.3389/fmars.2021.617518	
119.	DCCEEW 2024. *Dugongs* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.dcceew.gov.au/environment/marine/marine-species/dugongs [Accessed: November 2024]	
120.	Marsh, H., H. Penrose, C. Eros & J. Hugues. 2002. *Dugong Status Report and Action Plans for Countries and Territories. Early Warning Assessment Reports.* United Nations Environment Programme, Nairobi.	
121.	Brown, A.M., L. Bejder, K.H. Pollock & S.J. Allen. 2014. *Abundance of coastal dolphins in Roebuck Bay, Western Australia: Updated results from 2013 and 2014 sampling periods.* Report to WWF-Australia. Murdoch University Cetacean Research Unit, Murdoch University, Western Australia.	
122.	DCCEEW 2024. *Dugong dugon in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=28 [Accessed: November 2024]	
123.	Hodgson, A.J., H. Marsh, N. Gales, D.K. Holley & I. Lawler. 2008. *Dugong population trends across two decades in Shark Bay, Ningaloo Reef and Exmouth Gulf. Denham, Western Australia:* Western Australia Department of Environment and Conservation.	
124.	Marsh, H., A. Grech & R. Hagihara. 2011. *Aerial survey of Torres Strait to evaluate the efficacy of an enforced and possibly extended Dugong Sanctuary as one of the tools for managing the dugong fishery.* Report to the Australian Marine Mammal Centre and the Torres Strait Regional Authority.	
125.	Lee Long, W.J., L.J. McKenzie & R.J. Coles. 1997. D*eepwater seagrasses in northeastern Australia - How deep, how meaningful?.* In: Kuo, J., R.C. Phillips, D.I. Walker & H. Kirkman, eds. Seagrass Biology: Proceedings of an International Workshop, Rottnest Island, Western Australia, 25-29 January 1996. Page(s) 41-50. University of Western Australia, Perth.	
126.	Sheppard, J., A.R. Preen, H. Marsh, I.R. Lawler, S. Whiting & R.E. Jones. 2006. *Movement heterogeneity of dugongs, Dugong dugon (Muller) over large spatial scales.* Journal of Experimental Marine Biology and Ecology. 334:64-83.	
127.	Preen, A., Marsh, H., Lawler, I., Prince, R. and Shepherd, R. 1997. *Distribution and abundance of dugongs, turtles, dolphins and other megafauna in Shark Bay, Ningaloo Reef and Exmouth Gulf, Western Australia.* Wildlife Research 24: 185–208.	
128.	Preen, A.R. 1989. *Observations of mating behaviour in Dugongs (Dugong dugon).* Marine Mammal Science. 5:382.	
129.	Holley, D.K. 2006. *Movement patterns and habitat usage of Shark Bay dugongs.* Available from: http://ro.ecu.edu.au/theses/70.	
130.	Shark Bay world heritage. N.d. *Dugong Fact sheet.* Available from: https://www.sharkbay.org/publications/fact-sheets-guides/dugong/ [Accessed: November 2024]	

Ref. No.	Description	Document ID
131.	DotEE. 2017. *Recovery Plan for Marine Turtles in Australia*. Commonwealth of Australia. Available from: https://www.agriculture.gov.au/sites/default/files/documents/recovery-plan-marine-turtles-2017.pdf [Accessed: November 2024]	
132.	Pendoley, K.L. 2005. *Sea turtles and the environmental management of industrial activities in north-west Western Australia*. Ph.D. Thesis. PhD Thesis, Murdoch University: Perth.	
133.	Pendoley, K., Bell, C., McCracken, R., Ball, K., Sherborne, J., Oates, J., Becker, P., Vitenbergs, A. and Whittock, P. 2014. *Reproductive biology of the Flatback Turtle Natator depressus in Western Australia*. Endangered Species Research, 23: 115–123.	
134.	Pendoley Environmental. 2010. *Barrow Island Marine Turtle Track Census Monitoring 2004/05–2009/2010.* Unpublished report for Chevron Australia, Perth, Western Australia.	
135.	Whittock, P., Pendoley, K., Hamann, M., 2014. *Inter-nesting distribution of Flatback Turtles Natator depressus and industrial development in Western Australia.* Endangered Species Research 26, 25–38. doi:10.3354/esr00628`	
136.	Whittock, P. A., K. L. Pendoley, and M. Hamann. 2016. *Using habitat suitability models in an industrial setting: the case for internesting flatback turtles.* Ecosphere 7(11):e01551. 10.1002/ecs2.1551	
137.	Thums, M., Waayers, D., Huang, Z., Pattiaratchi, C., Bernus, J. and Meekan, M., 2017. *Environmental predictors of foraging and transit behaviour of Flatback Turtles Natator depressus*. Endangered Species Research, 32: 333-349.	
138.	Dobbs, K. 2007. *Marine turtle and dugong habitats in the Great Barrier Reef Marine Park used to implement biophysical operational principles for the Representative Areas Program*. Great Barrier Reer Marine Parks Authority, Australian Government.	
139.	Guinea, M., Sperling J.B., and Whiting S.D. 2006. *Flatback sea turtle inter-nesting habitat in Fog Bay Northern Territory, Australia*. In Proceedings of the 23rd Annual Sea Turtle Symposium on Sea Turtle Biology and Conservation 2003 Kuala Lumpur. 2006. Kuala Lumpur, Malaysia.	
140.	Pendoley Environmental. 2010. *Proposed Outer Harbour Development Port Hedland: Satellite Tracking of Flatback Turtles from Cemetery Beach 2009/2010 - Internesting Habitat.* Report prepared by Pendoley Environmental Pty Ltd for SKM/BHP Billiton Iron Ore.	
141.	Seminoff JA, Allen CD, Balazs GH, Dutton PH, Eguchi T, Haas HL, Hargrove SA, MP J, Klemm DL, Lauritsen AM, MacPherson SL, Opay P, Possardt EE, Pultz SL, Seney EE, Van Houtan RS and Waples RS. 2015.*Status Review of the Green Turtle (Chelonia mydas) under the U.S.* Endangered Species Act. NOAANMFS-SWFSc-539. pp 571	
142.	Bjorndal, K.A. 1997. *Foraging Ecology and Nutrition in Sea Turtles.* In: P.L. Lutz and J.A. Musick (eds) The Biology of Sea Turtles, Vol. 1: 199–231. CRC Press, Boca Raton, Florida.	
143.	Chevron Australia. 2005. *Draft Gorgon Environmental Impact Statement/Environmental Review and Management Programme for the Proposed Gorgon Development.* Chevron Australia, Perth, Western Australia	
144.	DCCEEW 2024. *Eretmochelys imbricata in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-	

Ref. No.	Description	Document ID
	bin/sprat/public/publicspecies.pl?taxon_id=1766 [Accessed: November 2024]	
145.	CAPL. 2018. *Gorgon Gas Development and Jansz Feed Gas Pipeline: Long-term Marine Turtle Management Plan.* Chevron Australia, Perth, Western Australia.	
146.	Chevron Australia. 2015. *Gorgon Gas Development and Jansz Feed Gas Pipeline: Five-year Environmental Performance Report (August 2010– August 2015).* Chevron Australia, Perth, Western Australia	G1-NTREPX0007517
147.	Marquez, R. 1990. *FAO Species Catalogue; Sea Turtles of the World. An annotated and illustrated catalogue of the sea turtle species known to date.* FAO Fisheries Synopsis. 125 (11):pp 81. Rome: Food and Agriculture Organisation of United Nations.	
148.	Benson, S.R., T. Eguchi, D.G. Foley, K.A. Forney, H. Bailey, C. Hitipeuw, B.P. Samber, R.F. Tapilatu, V. Rei, P. Ramohia, J. Pita & P.H. Dutton. 2011. *Large-scale movements and high-use areas of western Pacific leatherback turtles, Dermochelys coriacea*. Ecosphere. 2(7):art84.	
149.	Limpus, C.J. & N. MacLachlin. 1979. *Observations on the leatherback turtle, Dermochelys coriacea (L.), in Australia.* Australian Wildlife Research. 6:105-116.	
150.	Limpus, C.J. & N. MacLachlin. 1994. *The conservation status of the Leatherback Turtle, Dermochelys coriacea, in Australia. In: James, R, ed. Proceedings of the Australian Marine Turtle Conservation Workshop*, Gold Coast 14-17 November 1990. Page(s) 63-67. Queensland Department of Environment and Heritage. Canberra: ANCA.	
151.	Hazel, J. Hamann, M., Bell, I., Groom R. 2024. *Occurrence of leatherback turtles around Australia.* Endang Species Res 54:83-91. https://doi.org/10.3354/esr01331	
152.	Swaminathan A, Namboothri N, Shanker K. 2019. *Tracking leatherback turtles from Little Andaman Island.* Indian Ocean Turtle Newsl 29:8–10	
153.	TSSC. N.d. *Dermochelys coriacea (Leatherback Turtle) Listing Advice*. Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/1768-listing-advice.pdf [Accessed: November 2024]	
154.	Martinez AL. 2000. *Dermochelys coriacea. In: IUCN 2007. 2007 IUCN Red List of Threatened Species*.	
155.	DCCEEW 2024. *Dermochelys coriacea in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/1768-listing-advice.pdf [Accessed: November 2024]	
156.	Limpus, C.J., A. Fleay & M. Guinea. 1984. *Sea turtles of the Capricornia section, Great Barrier Reef.* Royal Society Queensland Symposium. Page(s) 61-78.	
157.	Hamann, M., C. Limpus, G. Hughes, J. Mortimer & N. Pilcher. 2006. *Assessment of the conservation status of the leatherback turtle in the Indian Ocean and South East Asia.* Bangkok: IOSEA Marine Turtle MoU Secretariat.	
158.	Pritchard P. 1982. *Nesting of Leatherback Turtle Dermochelys coriacea in Pacific Mexico, With a New Estimate of the World Population Status*. Copeia 4: 741-747.	
159.	Limpus, CJ and McLachlan NC. 1990. *The Conservation Status of the Leatherback Turtle, Dermochelys coriacea, in Australia. In: James, R, ed. Proceedings of the Australian Marine Turtle Conservation Workshop*, Gold Coast 14-17 November 1990. Pages 68-72. Qld Dept Env. & Heritage. Canberra, ANCA.	

Ref. No.	Description	Document ID
160.	Bone, C. 1998. *'Preliminary investigation into leatherback turtle, Dermochelys coriacea (L.) distribution, abundance and interactions with fisheries in Tasmanian waters*. Unpublished Report.'. Tasmanian Parks and Wildlife Service.	
161.	Green, R.H. 1971. *Sea turtles around Tasmania*. Records Queen Victoria Museum. 38:1-4.	
162.	Avens L and Snover ML. 2013. *Age and age estimation in sea turtles.* In The Biology of Sea Turtles. Volume III, Wyneken J, Lohmann KJ and Musick JA, Eds. CRC Press, Boca Raton. pp 97-133.	
163.	Plotkin, PT, MK Wicksten, and AF Amos. 1993. *Feeding ecology of the loggerhead sea turtle Caretta caretta in the northwestern Gulf of Mexico.* Marine Biology 115(1):1.	
164.	Cogger, HG, EE Cameron, RA Sadlier, and P Eggler. 1993. *The Action Plan for Australian Reptiles.* Canberra, ACT: Australian Nature Conservation Agency	
165.	Limpus CJ. 2009. *A Biological Review of Australian Marine Turtles*. Brisbane, Queensland. Queensland Government Environmental Protection Agency. pp 324	
166.	Baldwin, R., G. Hughes & R. Prince. 2003. *Loggerhead turtles in the Indian Ocean*. In: Bolten, A. & B. Witherington, eds. Loggerhead sea turtles. Washington: Smithsonian Books	
167.	DCCEEW 2024. *Caretta caretta in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=%201763 [Accessed: November 2024]	
168.	Webb, G.J.W. & H. Messel. 1978. *Movement and dispersal patterns of Crocodylus porosus in some rivers of Arnhem Land, northern Australia*. Australian Wildlife Research. 5:263-283.	
169.	Webb, G.J.W., G.C. Sack, R. Buckworth & S.C. Manolis. 1983. *An Examination of Crocodylus porosus Nests in Two Northern Australia Freshwater Swamps, with an Analysis of Embryo Mortality.* Australian Wildlife Research. 10:571-605.	
170.	Miller, J.D. 1993. *Crocodiles in Queensland: A Brief Overview. In: Crocodiles,* Proceedings of the 2nd Regional Meeting of the Crocodile Specialist Group. 272-289. Gland, IUCN.	
171.	Taplin, L.E. 1987. *The management of crocodiles in Queensland, Australia. In: Webb, G. J. W., S. C. Manolis & P. J. Whitehead, eds. Wildlife Management: Crocodiles and Alligators.* Page(s) 129-140. Sydney, Surrey Beatty & Sons.	
172.	Burbidge, A.A. 1987. *The management of crocodiles in Western Australia. In: Webb, G. J. W., S. C. Manolis & P. J. Whitehead, eds. Wildlife Management: Crocodiles and Alligators.* Page(s) 125-127. Sydney: Surrey Beatty & Sons.	
173.	McNamara, K.J. & G.J. Wyre. 1993. *The conservation, management and farming of crocodiles in Western Australia. In: Crocodiles, Proceedings of the 2nd Regional Meeting of the Crocodile Specialist Group.* 435-450. Gland, IUCN.	
174.	DCCEEW 2024. *Crocodylus porosus in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1774 [Accessed: November 2024]	
175.	Webb, G.J.W., Manolis, S.C. and Brien, M.L. 2010. *Saltwater Crocodile Crocodylus porosus.* Pp. 99-113 in Crocodiles. Status	

Ref. No.	Description	Document ID
	Survey and Conservation Action Plan. Third Edition, ed. by S.C. Manolis and C. Stevenson. Crocodile Specialist Group: Darwin.	
176.	DEC. 2009. *Management Plan for the Commercial Harvest and Farming of Crocodiles in Western Australia* Department of Environment and Conservation, 1 January 2009-31 December 2013.	
177.	Grigg, G. & C. Gans. 1993. *Morphology and physiology of the Crocodylia. In: Glasby, C. J., G. J. B. Ross & P. L. Beesley, eds. Fauna of Australia. Volume 2A, Amphibia and Reptilia*. Page(s) 326-343. Canberra: Australian Government Publishing Service	
178.	Webb, G. & C. Manolis. 1989. *Crocodiles of Australia*. Page(s) 160. Sydney, Reed.	
179.	DCCEEW. 2024. Conservation Advice for Aipysurus fuscus (dusky sea snake). Department of Climate Change, Energy, the Environment and Water. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/1119-conservation-advice-04092024.pdf [Accessed: November 2024]	
180.	Guinea ML. 2013. *Surveys of the Sea Snakes and Sea Turtles on Reefs of the Sahul Shelf*. Monitoring program for the Montara Well release Timor Sea by Charles Darwin University, Darwin.	
181.	Speed CW, Wilson NG, Somaweera R, Udyawer V, Meekan MG, Whisson G & Miller K. 2022. *Video surveys of sea snakes in the mesophotic zone shed light on trends in populations*. Frontiers in Marine Science 9, 921542.	
182.	Somaweera R, Udyawer V, Guinea ML et al. 2021. P*inpointing drivers of extirpation in sea snakes: A synthesis of evidence from Ashmore Reef*. Frontiers in Marine Science 8, 658756	
183.	Heyward A, Jones R, Meeuwig J et al. 2012. *Monitoring Study S5 Banks & Shoals: Montara 2011 Offshore Banks Assessment Survey*. Report prepared by the Australian Institute of Marine Science for PTTEP Australasia (Ashmore Cartier) Pty. Ltd.	
184.	DSSEG. 2023 *Dusky sea snake expert group. Agreed outcomes from a half-day expert workshop held online on 13 December 2023.* Attendees included Associate Professor Kate Sanders, Dr Vinay Udyawer, Dr Amber Gillett, Blanche d'Anastasi, and James Nankivell.	
185.	d'Anastasi BR, Hobbs JP, Simpfendorfer C & van Herwerden L. 2023. *Habitat and behavioural associations of the Aipysurus group of sea snakes in Western Australia.* In BR d'Anastasi (ed) Big Brown Sea Snakes: A Taxonomic, Population-Genetic and Natural History Study of Australia's Iconic and Threatened Aipysurus Sea Snake Fauna. Unpublished PhD Thesis, James Cook University, Townsville.	
186.	Chetty N, Du A, Hodgson WC, Winkel K & Fry B. 2004 The in vitro neuromuscular activity of Indo-Pacific sea-snake venoms: efficacy of two commercially available antivenoms. Toxicon 44, 193–200.	
187.	McCosker JE. 1975. F*eeding behaviour of Indo-Australian Hydrophiidae.* Pages 217–232 in WA Dunson (ed) The Biology of Sea Snakes. University Park Press, Baltimore.	
188.	TSSC. 2011. *Aipysurus foliosquama (Leaf-scaled Sea Snake) Listing Advice*. Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/1118-listing-advice.pdf [Accessed: November 2024]	
189.	Udyawer, V., Somaweera, R., Nitschke, C., D'Anastasi, B., Sanders, K., Webber, B. L., Hourston, M., & Heupel, M. R. 2020. *Prioritising search effort to locate previously unknown populations of endangered marine reptiles.* Global Ecology and Conservation, 22, e01013. https://doi.org/10.1016/j.gecco.2020.e01013	

Ref. No.	Description	Document ID
190.	Sanders, K., Crowe-Riddell, J.M., Courtney, T. & Rasmussen, A.R. 2021. *Aipysurus foliosquama.* The IUCN Red List of Threatened Species 2021: e.T176714A83765016. https://dx.doi.org/10.2305/IUCN.UK.20212.RLTS.T176714A83765016.en	
191.	Sanders, K.L., Schroeder, T., Guinea, M.L. and Rasmussen, A.R. 2015. *Molecules and morphology reveal overlooked populations of two presumed extinct Australian sea snakes (aipysurus: hydrophiinae).* PLoS ONE 10(2): e0115679. DOI: 10.1371/journal.pone.0115679	
192.	D'Anastasi, B., van Herwerden, L., Hobbs, J., Simpfendorfer, C. and Lukoschek, V. 2016. *New range and habitat records for threatened Australian sea snakes raise challenges for conservation.* Biological Conservation 194: 66-70.	
193.	Udyawer, V., D'Anastasi, B., MacAuley, R. and Heupel, M.R. 2016. *Exploring the status of Western Australia's sea snakes*. Final Report to the National Environmental Science Program and the Department of Environment Marine Biodiversity Hub Project A8.	
194.	Ehmann, H. 1992. *Reptiles. In: Strahan, R., ed. Encyclopedia of Australian Animals.* Sydney: Angus & Robertson.	
195.	McCosker, J.E. 1975. *Feeding behaviour of Indo-Australian Hydrophiidae. In: Dunson, W. A., ed. The Biology of Sea Snakes*. Page(s) 217-232. Baltimore: University Park Press.	
196.	Liu, Y., Chen, Y.H., Lillywhite, H.B., Tu M.C. *Habitat selection by sea kraits (Laticauda spp.) at coastal sites of Orchid Island, Taiwan* Integr. Comp. Biol., 52 (2012), pp. 274-280	
197.	DCCEEW 2024. *Aipysurus foliosquama in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1118 [Accessed: November 2024]	
198.	Guinea, M.L. & S.D. Whiting. 2005. *Insights into the distribution and abundance of sea snakes at Ashmore Reef.* The Beagle (Supplement 1). Page(s) 199-206.	
199.	Voris, H.K. 1972. *The role of sea snakes (Hydrophiidae) in the trophic structure of coastal oceanic communities.* Journal of the Marine Biological Association of India. 14(2):429-442.	
200.	Voris, H.K.& H.H. Voris. 1983. *Feeding strategies in marine snakes: an analysis of evolutionary, morphological, behavioural and ecological relationships*. American Zoologist. 23(2):411-425.	
201.	DCCEEW 2024. *Aipysurus apraefrontalis in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1115 [Accessed: November 2024]	
202.	DCCEEW. 2023. *Short-nosed Sea Snake*. Department of Climate Change, Energy, the Environment and Water. Available from: https://www.dcceew.gov.au/environment/biodiversity/threatened/action-plan/priority-reptiles/short-nosed-sea-snake [Accessed: November 2024]	
203.	Minton, S.A. & H. Heatwole. 1975. *Sea snakes from three reefs of the Sahul Shelf. In: Dunson, W. A., ed. The Biology of Sea Snakes*. Page(s) 141-144. Baltimore: University Park Press.	

Ref. No.	Description	Document ID
204.	TSSC. 2011. Aipysurus apraefrontalis (Short-nosed Sea Snake) Listing Advice. Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/1115-listing-advice.pdf [Accessed: November 2024]	
205.	Lukoschek, V., M. Beger, D. Ceccarelli, Z. Richards & M. Pratchett. 2013. *Enigmatic declines of Australia's sea snakes from a biodiversity hotspot.* Biological Conservation. 166:191-202.	
206.	Guinea, M.L. 2007. *Survey March 16 - April 2 2007: Sea snakes of Ashmore Reef, Hibernia Reef and Cartier Island with comments on Scott Reef.* Final Report to the Department of the Environment and Water Resources, Canberra. Darwin: Charles Darwin University.	
207.	AIMS 2021. *"Thought to be lost forever": locally extinct sea snake re-discovered during deep-sea expedition.* Australian Institute of Marine Science. Available from: https://www.aims.gov.au/information-centre/news-and-stories/thought-be-lost-forever-locally-extinct-sea-snake-re-discovered-during-deep-sea-expedition [Accessed: November 2024]	
208.	Cogger, H.G. 2000. *Reptiles and Amphibians of Australia* - 6th edition. Sydney, NSW: Reed New Holland.	
209.	Guinea, M.L. 1993. *Reptilia, Aves and Mammalia. In: in Russell, B.C. & J.R. Hanley, eds. Survey of Marine Biological and Heritage Resources of Cartier and Hibernia Reefs, Timor Sea.* Page(s) 74 - 83. Darwin: Northern Territory Museum of Arts and Sciences.	
210.	McCosker, J.E. 1975. *Feeding behaviour of Indo-Australian Hydrophiidae.* In: Dunson, W. A., ed. The Biology of Sea Snakes. Page(s) 217-232. Baltimore: University Park Press.	
211.	Voris, H.K. 1972. *The role of sea snakes (Hydrophiidae) in the trophic structure of coastal oceanic communities.* Journal of the Marine Biological Association of India. 14(2):429-442.	
212.	Last, P.R. & J.D. Stevens. 1994. *Sharks and Rays of Australia.* Melbourne, Victoria: CSIRO.	
213.	Grant, M.I., Charles, R., Fordham, S., Harry, A.V., Lear, K.O., Morgan, D.L., Phillips, N.M., Simeon, B., Wakhida, Y. & Wueringer, B.E. 2022. *Pristis clavata.* The IUCN Red List of Threatened Species 2022: e.T39390A68641215.	
214.	DCCEEW 2024. *Pristis clavatai in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=68447 [Accessed: November 2024]	
215.	Thorburn, D.C., D.L. Morgan, A.J. Rowland & H.S. Gill. 2007. *Freshwater sawfish Pristis microdon Latham, 1794 (Chondrichthyes: Pristidae) in the Kimberley region of Western Australia.* Zootaxa. 1471:27-41.	
216.	Peverell, S. 2007. *Dwarf Sawfish Pristis clavata.* Marine Education Society of Australasia website.	
217.	Peverell, S. 2005. *Distribution of Sawfishes (Pristidae) in the Queensland Gulf of Carpentaria, Australia - with notes on sawfish ecology.* Environmental Biology of Fishes. 73:391-402.	
218.	Thorburn, D.C., D.L. Morgan, A.J. Rowland, H.S. Gill & E. Paling 2007. *Life history notes of the critically endangered dwarf sawfish, Pristis clavata, Garman 1906 from the Kimberley region of Western Australia.* In: Environmental Biology of Fishes.	
219.	Stevens,J.D., R.B. McAuley, C.A. Simpfendorfer & R.D. Pillans. 2008. *Spatial distribution and habitat utilisation of sawfish (Pristis spp) in relation to fishing in northern Australia.* A report to the Department of	

Ref. No.	Description	Document ID
	the Environment, Water, Heritage and the Arts. CSIRO and Western Australia Department of Fisheries.	
220.	DEPWS. 2023. Threatened Species of the Northern Territory, Dwarf Sawfish Pristis clavata. Department of Environment, Parks and Water Security. Available from: https://nt.gov.au/__data/assets/pdf_file/0003/1328133/dwarf-sawfish.pdf [Accessed: November 2024]	
221.	DoE. 2015. *Sawfish and River Sharks Multispecies Recovery Plan*, Commonwealth of Australia 2015	
222.	DCCEEW 2024. *Pristis pristis in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=60756 [Accessed: November 2024]	
223.	Whitty, J.M., D.L. Morgan, D.C. Thorburn, T. Fazeldean & S.C. Peverell. 2008. *Tracking the movements of Freshwater Sawfish (Pristis microdon) and Northern River Sharks (Glyphis sp. C) in the Fitzroy River.* Whitty, J.M., N.M. Phillips, D.L. Morgan, J.A. Chaplin, D.C. Thorburn & S.C. Peverell, eds. Habitat associations of Freshwater Sawfish (Pristis microdon) and Northern River Sharks (Glyphis sp. C): including genetic analysis of P. microdon across northern Australia. Centre for Fish & Fisheries Research (Murdoch University) report to the Department of the Environment, Water, Heritage and the Arts, Australian Government.	
224.	Giles, J., R.D. Pillans, M.J. Miller & J.P. and Salini. 2006. *Sawfish Catch Data in Northern Australia: A Desktop Study.* Internal CSIRO Report for FRDC. 2002/064:74.	
225.	Stevens, J.D., R.D. Pillans & J. Salini. 2005. C*onservation Assessment of Glyphis sp. A (Speartooth Shark), Glyphis sp. C (Northern River Shark), Pristis microdon (Freshwater Sawfish) and Pristis zijsron (Green Sawfish).* Hobart, Tasmania: CSIRO Marine Research.	
226.	Allen, G.R. 1991. *Field Guide to the Freshwater Fishes of New Guinea.*:268. Madang: Christensen Research Institute.	
227.	Phillips, N. 2012. *Conservation genetics of Pristis sawfishes in Australian waters*. PhD Thesis. Murdoch University. 247 pp.	
228.	Phillips, N., Chaplin, J. A., Morgan, D. L. & Peverell, S. C. 2011. *Population genetic structure and genetic diversity of three critically endangered Pristis sawfishes in Australian waters*. Marine Biology 158, 903–915.	
229.	Bateman, R. L., Morgan, D. L., Wueringer, B. E., McDavitt, M., & Lear, K. O. 2024. *Collaborative methods identify a remote global diversity hotspot of threatened, large-bodied rhino rays.* Aquatic Conservation: Marine and Freshwater Ecosystems, 34(1), e4047. https://doi.org/10.1002/aqc.4047	
230.	Allen, G.R. 1982. *A Field Guide to Inland Fishes of Western Australia.* Perth, Western Australia: University of Western Australia Press.	
231.	Peverell, S.C. & R.D. Pillans. 2004. *Determining feasibility of acoustic tag attachment and documenting short-term movement in Pristis zijsron* Bleeker, 1851. Report for the National Oceans Office. 18.	
232.	Thorburn, D.C., S. Peverell, S. Stevens, J.D. Last & A.J. Rowland. 2004. *Status of Freshwater and Estuarine Elasmobranches in Northern Australia. Report to Natural Heritage Trust.* Canberra, ACT: Natural Heritage Trust.	
233.	Harry, A.V., A.J. Tobin, C.A. Simpfendorfer, D.J. Welch, A. Mapleston, J. White, A.J. Williams & J. Stapley. 2011. *Evaluating catch and*	

Ref. No.	Description	Document ID
	mitigating risk in a multi-species, tropical, inshore shark fishery within the Great Barrier Reef World Heritage Area. Marine and Freshwater Research. 62:710-721.	
234.	DCCEEW 2024. *Pristis zijsron in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=68442 [Accessed: November 2024]	
235.	Chevron 2011. *Technical Appendix 06 Draft Marine Fauna Management Plan*. Appendix D: Sawfish Management Summary Report. Document No.. Rev E	WS0-0000-HES-PLN-CVX-000-00037-000
236.	DEPWS. 2023. *Threatened Species of the Northern Territory, Green Sawfish Pristis zijsron.* Department of Environment, Parks and Water Security. Available from: https://nt.gov.au/__data/assets/pdf_file/0009/1328139/green-sawfish.pdf [Accessed: November 2024]	
237.	Cliff, G. & G. Wilson. 1994. *Natal Sharks Board's Guide to Sharks and other Marine Animals.*	
238.	Pogonoski, J.J., D.A. Pollard & J.R. Paxton. 2002. *Conservation Overview and Action Plan for Australian Threatened and Potentially Threatened Marine and Estuarine Fishes.* Canberra, ACT: Environment Australia.	
239.	Compagno, L.J.V. 1984. *Part 1 - Hexanchiformes to Lamniformes. FAO Species Catalogue, Vol. 4., Sharks of the World. An Annotated and Illustrated Catalogue of Sharks Known to Date.* FAO Fisheries Synopsis. 4(1):1-249.	
240.	Last, P. R., & Stevens, J. D. 2009. *Sharks and Rays of Australia.* Second Edition. CSIRO Division of Fisheries, Hobart, Tasmania, Australia.	
241.	DoE. 2014. *Recovery Plan for the Grey Nurse Shark (Carcharias taurus)*. Department of the Environment, Commonwealth of Australia	
242.	Stow, A., Zenger, K., Briscoe, D., Gillings, M., Peddemors, V., Otway, N., & Harcourt, R. 2006. *Isolation and genetic diversity of endangered grey nurse shark (Carcharias taurus) populations.* Biological Letters 2(2), 308–311.	
243.	Stevens, J.D. 1999. *Management of shark fisheries in northern Australia; Part 1.* Shotton, R., ed. Case studies of the management of elasmobranch fisheries. FAO Fisheries Technical Paper. 378:456-479. FAO, Rome.	
244.	Jakobs S, Braccini M. 2019. *Acoustic and conventional tagging support the growth patterns of grey nurse sharks and reveal their large-scale displacements in the west coast of Australia.* Mar Biol 166: 150	
245.	McAuley R. 2004. *Western Australian grey nurse shark popup archival tag project.* Final Report to Department of Environment and Heritage, Canberra	
246.	Otway, N. M., & Burke, A. L. 2004. *Mark-recapture population estimate and movements of grey nurse sharks.* New South Wales Fisheries Final Report Series No.63. NSW Fisheries Office of Conservation, Nelson Bay, NSW.	
247.	Dicken, M. L. 2006. *Population dynamics of the raggedtooth shark (Carcharias taurus) along the east coast of South Africa.* Rhodes University. Grahamstown, South Africa.	

Ref. No.	Description	Document ID
248.	Hoschke AM, Whisson GJ. Haulsee D. 2023. Population distribution, aggregation sites and seasonal occurrence of Australia's western population of the grey nurse shark Carcharias taurus. Endang Species Res 50: 107–123	
249.	Hoschke AM, Whisson GJ. 2016. *First aggregation of grey nurse sharks (Carcharias taurus) confirmed in Western Australia*. Mar Biodivers Rec 9: 17	
250.	Williams A, Althaus F, Smith T, Daley R, Barker B, Fuller M. 2012. *Developing and applying a spatially-based seascape analysis (the "habitat proxy" method) to inform management of gulper sharks*. Compendium of Discussion Papers. Report to the Australian Fisheries Management Authority. CSIRO, Australia. 188pp. Williams et al. pers comm. (2012). Presentation to the Threatened Species S	
251.	TSSC. 2013. Listing Advice for Centrophorus zeehaani (southern dogfish). Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/82679-listing-advice.pdf [Accessed: November 2024]	
252.	Daley RK, Stevens JD and Graham KJ. 2002. *Catch analysis and productivity if the deepwater dogfish resource in southern Australia.* FRDC Final Report 1998/108. CSIRO Marine Research, Fisheries Research & Development Cooperation and NSW Fisheries, Australia.	
253.	Graham KJ and Daley RK. 2011. *Distribution, reproduction and population structure of thee gulper sharks (Centrophorus Centrophoridae) in south-eastern Australian waters.* Marine and Freshwater Research. 62: 583–595.	
254.	Bruce, B. 2014. *A synthesis of available data on mako and porbeagle sharks in Australasian waters. Current status and future directions.* CSIRO Marine and Atmospheric Research, Hobart, Tasmania. 153 pp.	
255.	Fish. 2023. Longfin Mako, Isurus paucus. Available from: https://fish.gov.au/docs/SharkReport/2023_FRDC_Isurus_paucus_final.pdf [Accessed: November 2024]	
256.	Compagno, L.J.V. 2001. *Sharks of the world. An annotated and illustrated catalogue of shark species known to date.* Vol. 2. Bullhead, mackeral and carpet sharks (Heterodontiformes, Lamniformes and Orectolobiformes). FAO species catalogue for fisheries purposes. No. 1. Vol. 2. FAO, Rome.	
257.	Kyne, P. M., Heupel, M. R., White, W. T. and Simpfendorfer, C. A. 2021. The Action Plan for Australian Sharks and Rays. National Environmental Science Program, Marine Biodiversity Hub, Hobart.	
258.	Fish. 2023. *Narrow Sawfish, Anoxypristis cuspidata.* Available from: https://fish.gov.au/docs/SharkReport/2023_FRDC_Anoxypristis_cuspidata_Final.pdf [Accessed: November 2024]	
259.	Conservation of Migratory Sharks. N.d. *Anoxypristis cuspidata.* Available from: https://www.cms.int/sharks/en/species/anoxypristis-cuspidata [Accessed: November 2024]	
260.	Haque, A.B., d'Anastasi, B. Dulvy, N., Faria, V., Fordham, S., Grant, M., Harry, A., Jabado, R., Lear, K., Morgan, D.L., Tanna, A., Wakhida, Y. and R. Charles, R. 2023. *Anoxypristis cuspidata*. The IUCN Red List of Threatened Species 2023	
261.	Weigmann, S. 2016. *Annotated checklist of the living sharks, batoids and chimaeras (Chondrichthyes) of the world, with a focus on biogeographical diversity.* Journal of Fish Biology 88(3): 837–1037.	

Ref. No.	Description	Document ID
262.	Great Barrier Reef Marine Park. 2012. *A Vulnerability Assessment for the Great Barrier Reef.* Available from: https://elibrary.gbrmpa.gov.au/jspui/bitstream/11017/2947/1/gbrmpa-VA-Sawfish-11-7-12.pdf [Accessed: November 2024]	
263.	Australian Museum.. 2021. *Oceanic Whitetip Shark, Carcharhinus longimanus (Poey, 1861).* Available from: https://australian.museum/learn/animals/fishes/oceanic-whitetip-shark-carcharhinus-longimanus/ [Accessed: November 2024]	
264.	Fish. 2023. *Oceanic Whitetip Shark, Carcharhinus longimanus.* Available from: https://fish.gov.au/docs/SharkReport/2023_FRDC_Carcharhinus_longimanus_final.pdf [Accessed: November 2024]	
265.	Howey-Jordan, L.A., Brooks, E.J., Abercrombie, D.L., Jordan, L.K., Brooks, A., Williams, S.,Gospodarczyk, E. and Chapman, D.D. 2013. *Complex movements, philopatry and expanded depth range of a severely threatened pelagic shark, the oceanic whitetip (Carcharhinus longimanus) in the western North Atlantic.* PloS One 8:e56588. https://doi:10.1371/journal.pone.0056588	
266.	D'Alberto, D.M., Chin, A., Smart, J.J., Baje, L., White, W.T. and Simpfendorfer, C.A. 2017. *Age, growth and maturity of oceanic whitetip shark (Carcharhinus longimanus) from Papua New Guinea.* Marine and Freshwater Research 68: 1118–1129.	
267.	NOAA. 2024. *Species Directory Oceanic Whitetip Shark.* Available from: https://www.fisheries.noaa.gov/species/oceanic-whitetip-shark [Accessed: November 2024]	
268.	Francis, M., L. Natanson & S. Campana. 2002. *The Biology and Ecology of the Porbeagle Shark, Lamna nasus. In: Camhi, M., E. Pikitch & E. Babcock, eds. Sharks of the Open Ocean*: Biology, Fisheries and Conservation. Page(s) 105-113. Blackwell Publishing, United Kingdom.	
269.	Pade, N., N. Queiroz, N. Humphries, M. Witt, C. Jones, L. Noble & D. Sims. 2009. *First results from satellite-linked archival tagging of Porbeagle shark, Lamna nasus: area fidelity, wider-scale movements and plasticity in diel depth changes.* Journal of Experimental Marine Biology and Ecology. 370:64-74.	
270.	Joyce, W., S. Campana, L. Natanson, N. Kohler, H. Pratt Jr. & C. Jensen. 2002. *Analysis of stomach contents of the porbeagle shark (Lamna nasus Bonnaterre) in the northwest Atlantic.* ICES Journal of Marine Science. 53:1263-1269.	
271.	Saunders, R., F. Royer & M. Clarke. 2011. *Winter migration and diving behaviour of Porbeagle shark, Lamna nasus, in the Northeast Atlantic.* ICES Journal of Marine Science. 68(1):166-174.	
272.	Francis, M.P. & J.D. Stevens. 2000. *Reproduction, embryonic development, and growth of the porbeagle shark, Lamna nasus, in the southwest Pacific Ocean.* Fisheries Bulletin. 98:41-63.s	
273.	DBCA. N.d. *Hammerhead sharks.* Available from: https://www.dbca.wa.gov.au/wildlife-and-ecosystems/marine/marine-parks/fun-facts/hammerhead-sharks [Accessed: November 2024]	
274.	Bartes S & Braccini M. 2021. *Potential expansion in the spatial distribution of subtropical and temperate west Australian sharks.* Journal of Fish Biology 2021, 1–4.	
275.	NSW Government. N.d. *Scalloped hammerhead sharks.* Available from: https://www.dpi.nsw.gov.au/fishing/threatened-species/what-current/endangered-species2/scalloped-hammerhead-shark [Accessed: November 2024]	

Ref. No.	Description	Document ID
276.	Salinas-de-León P, Hoyos-Padilla E & Pochet F. 2017. *First observation on the mating behaviour of the endangered scalloped hammerhead shark Sphyrna lewini in the Tropical Eastern Pacific*. Environmental Biology of Fishes 100, 1603–1608	
277.	TSSC. 2024. *Listing Advice for Sphyrna lewini (scalloped hammerhead).* Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/85267-listing-advice-27022024.pdf [Accessed: November 2024]	
278.	TSSC. 2014. *Listing Advice for Isurus oxyrinchus shortfin mako.* Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/79073-listing-advice.pdf [Accessed: November 2024]	
279.	Abascal, F. J., Quintans, M., Ramos-Cartelle, A. and Mejuto, J. 2011. *Movements and environmental preferences of the shortfin mako, Isurus oxyrinchus, in the south eastern Pacific Ocean*. Marine Biology 158:1175–1184.	
280.	Stevens, J. D., Bradford, R. W. and West, G. J. 2010. *Satellite tagging of blue sharks (Prionace glauca) and other pelagic sharks off eastern Australia: depth behaviour, temperature experience and movement.* Marine Biology 157: 575–591.	
281.	Rogers, P. J., Huveneers, C., Page, B. and Goldsworthy, S. G. 2009. *Movement patterns of pelagic sharks in Southern and Indian Oceans: determining critical habitats and migration paths*. Final Report to the Nature Foundation South Australia Inc. SARDI Research Report Series No. 359: 34 pp.	
282.	Stillwell, C. E. and Kohler, N. E. 1982. *Food, feeding habits, and daily ration of the shortfin mako (Isurus oxyrinchus) in the Northwest Atlantic*. Canadian Journal of Fisheries and Aquatic Sciences 39: 407–414.	
283.	Stevens, J. D. 1984. *Biological observations on sharks caught by sport fishermen off New South Wales*. Australian Journal of Marine and Freshwater Research 35: 573 – 590	
284.	Maia, A., Queiroz, N., Correia, J. P., and Cabral, H. 2006. *Food habits of the shortfin mako, Isurus oxyrinchus, off the southwest coast of Portugal*. Environmental Biology of Fishes 77: 157–167.	
285.	TSSC. 2015 Conservation Advice *Rhincodon typus* Whale shark. Threatened Species Scientific Committee. Commonwealth of Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/66680-conservation-advice-01102015.pdf [Accessed: November 2024]	
286.	DCCEEW. 2024. *Rhincodon typus in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=66680 [Accessed: November 2024]	
287.	Gleiss, A., Wright, S., Liebsch, N. & Wilson, R. 2013. *Contrasting diel patterns in vertical movement and locomotor activity of Whale sharks at Ningaloo Reef.* Marine Biology.	
288.	Sleeman, J.C., Meekan, M.G., Fitzpatrick, B.J., Steinberg, C.R., Ancel, R. and Bradshaw, C.J.A., 2010. *Oceanographic and atmospheric phenomena influence the abundance of whale sharks at Ningaloo Reef, Western Australia. Journal of Experimental Marine Biology and Ecology* 382: 77–81.	

Ref. No.	Description	Document ID
289.	Meekan, M. and Radford, B., 2010. *Migration Patterns of Whale Sharks: A summary of 15 satellite tag tracks from 2005 to 2008*, Report to the Browse Joint Venture Partners, Australian Institute of Marine Science.	
290.	DCCEEW 2024. *Carcharodon carcharias in Species Profile and Threats Database* Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64470&mobile-app=true&theme=false [Accessed: November 2024]	
291.	DSEWPC. 2013. *Recovery Plan for the White Shark (Carcharodon carcharias).* Department of Sustainability, Environment, Water, Population and Communities, Public Affairs. Available from: https://www.dcceew.gov.au/sites/default/files/documents/white-shark.pdf [Accessed: November 2024]	
292.	CSIRO. N.d. *White shark research findings.* Department of Sustainability, Commonwealth Scientific and Industrial Research Organisation. Available from: https://www.csiro.au/en/research/animals/marine-life/sharks/white-shark-research-findings [Accessed: November 2024]	
293.	Sharksmart. 2018. *White shark movement and population*, Fish WA. Available from: https://www.fish.wa.gov.au/Documents/shark_hazard/white_shark_fact_sheet.pdf [Accessed: November 2024]	
294.	Bonfil, R., M. Meÿer, M.C. Scholl, R. Johnson, S. O'Brien, H. Oosthuizen, S. Swanson, D. Kotze & M. Paterson. 2005. *Transoceanic Migration, Spatial Dynamics, and Population Linkages of White Sharks*. *Science*. 310:100 - 103.	
295.	Bruce, G.D., J.D. Stevens & H. Malcolm. 2006. *Movements and swimming behaviour of white sharks (Carcharodon carcharias) in Australian waters.* Marine Biology. 150:161-172.	
296.	Bruce, B.D and R.W Bradford. 2008. *Spatial dynamics & habitat preferences of juvenile white sharks: identifying critical habitat and options for monitoring recruitment.* Final Report to the Department of the Environment, Water, Heritage and the Arts - Marine Species Recovery Program. Hobart: CSIRO.	
297.	DSEWPaC. 2012. *Species Group Report Card – Sharks*. Australian Government Department of Sustainability, Environment, Water, Population and Communities, Canberra, Australian Capital Territory	
298.	DBCA. N.d. *Great white shark*, Department of Biodiversity, Conservation and Attractions. Available from: https://www.dbca.wa.gov.au/wildlife-and-ecosystems/marine/marine-parks/fun-facts/great-white-shark [Accessed: November 2024]	
299.	DEWHA. 2009. *White Shark Issues Paper*. Department of the Environment, Water, Heritage and the Arts. Canberra, ACT: Australian Government.	
300.	Armstrong, Amelia & Armstrong, Asia & Bennett, Michael & McGregor, Frazer & Abrantes, Kátya & Barnett, Adam & Richardson, Anthony & Townsend, Kathy & Dudgeon, Christine. 2020. *The geographic distribution of reef and oceanic manta rays (Mobula alfredi and Mobula birostris) in Australian coastal waters.* Journal of Fish Biology. 96. 10.1111/jfb.14256.	
301.	Australian Museum. 2022. *Giant Manta Ray, Mobula birostris (Walbaum, 1792).* Available from: https://australian.museum/learn/animals/fishes/giant-manta-ray-mobula-birostris/ [Accessed: November 2024]	

Ref. No.	Description	Document ID
302.	Preen, A., Marsh, H., Lawler, I., Prince, R. and Shepherd, R. 1997. *Distribution and abundance of dugongs, turtles, dolphins and other megafauna in Shark Bay, Ningaloo Reef and Exmouth Gulf, Western Australia.* Wildlife Research 24: 185–208.	
303.	NOAA. 2024. *Species Directory Giant Manta Ray.* Available from: https://www.fisheries.noaa.gov/species/giant-manta-ray [Accessed: November 2024]	
304.	Marshall, A., Barreto, R., Carlson, J., Fernando, D., Fordham, S., Francis, M.P., Derrick, D., Herman, K., Jabado, R.W., Liu, K.M., Rigby, C.L. and Romanov, E. 2020. *Mobula birostris*. The IUCN Red List of Threatened Species 2020: e.T198921A68632946.	
305.	Fish. 2023. *Reef Manta Ray, Mobula alfredi.* Available from: https://www.fish.gov.au/docs/SharkReport/2023_FRDC_Mobula_alfredi_Final.pdf [Accessed: November 2024]	
306.	Last, P., White, W., Carvalho, M.R. de, Séret, B., Stehmann, M. and Naylor, G.J.P. 2016. *Rays of the World.* CSIRO Publishing, Clayton, Victoria, Australia	
307.	Marshall, A., Barreto, R., Carlson, J., Fernando, D., Fordham, S., Francis, M.P., Herman, K., Jabado, R.W., Liu, K.M., Pacoureau, N., Rigby, C.L., Romanov, E. and Sherley, R.B. 2019. *Mobula alfredi.* The IUCN Red List of Threatened Species 2019: e.T195459A68632178.	
308.	Couturier, L. I. E., Jaine, F. R. A., Townsend, K. A., Weeks, S. J., Richardson, A. J., and Bennett, M. B. 2011. *Distribution, site affinity and regional movements of the manta ray, Manta alfredi (Krefft, 1868), along the east coast of Australia.* Mar. Freshw. Res. 62, 628–637. doi: 10.1071/MF10148	
309.	Germanov, E. S., and Marshall, A. D. 2014. *Running the gauntlet: regional movement patterns of Manta alfredi through a complex of parks and fisheries.* PLoS One 9:e110071. doi: 10.1371/journal.pone.0110071	
310.	Peel, L. R. 2019. *Movement Patterns and Feeding Ecology of the Reef Manta Ray (Mobula alfredi).* Ph.D. thesis, University of Western Australia, Perth.	
311.	Venables, S., D. van Duinkerken, C. Rohner and A. Marshall, 2020. *Habitat use and movement patterns of reef manta rays Mobula alfredi in southern Mozambique.* Mar. Ecol. Prog. Ser. 634:99-114.	
312.	Garnett, S. T., et al. 2011. *Action Plan for Australian Birds 2010.* Birds Australia.	
313.	McKean, M. 2008. *The ecology and conservation of Abbott's Booby (Papasula abbotti) on Barrow Island, Western Australia. In: Barrow Island Conservation Management Plan.* Department of Environment and Conservation, Western Australia	
314.	TSSC. 2020. *Conservation Advice for Abbott's Booby -Papasula abbotti.* Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/59297-conservation-advice-19102020.pdf [Accessed: November 2024]	
315.	Dawson, J. & Sibley, C. G. 2020. *Nesting Behavior of Abbott's Booby*. Journal of Ornithology	
316.	Marchant, S., & Higgins, P. J. 1990. *Handbook of Australian, New Zealand and Antarctic Birds.* Volume 1. Oxford University Press.	
317.	Mackley, E. K., et al. 2011. *Flight Strategies in Seabirds.* Ecological Applications	

Ref. No.	Description	Document ID
318.	Brooke, M. de L. 2004. *Albatrosses and Petrels across the World.* Oxford University Press.	
319.	TSSC. 2024. *Limnodromus semipalmatus (*Asian dowitcher*). Conservation advice* Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/843-conservation-advice-05012024.pdf [Accessed: November 2024]	
320.	Bamford, M., Watkins, D., Bancroft, W., Tischler, G., & Wahl, J. (2008). Migratory shorebirds of the East Asian-Australasian Flyway; Population estimates and internationally important sites. Wetlands International – Oceania.	
321.	Rogers, D., Piersma, T., & Hassell, C.J. (2011). Roebuck Bay Intertidal Sediments and Shorebird Foraging.	
322.	DCCEEW 2024. *Limnodromus semipalmatus* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=843 [Accessed: November 2024]	
323.	Geering, A., Agnew, L., & Harding, S. (2007). Shorebirds of Australia. CSIRO Publishing.	
324.	DoE. 2015. Wildlife Conservation Plan for Migratory Shorebirds. Department of the Environment, Australian Government, Canberra, Australian Capital Territory. Available from: https://www.dcceew.gov.au/sites/default/files/documents/widlife-conservation-plan-migratory-shorebirds.pdf [Accessed: November 2024].	
325.	Higgins, P.J. & S.J.J.F. Davies. 1996. Handbook of Australian, New Zealand and Antarctic Birds. Volume–Three - Snipe to Pigeons. Melbourne, Victoria: Oxford University Press.	
326.	DCCEEW. 2023. Species Profile and Threat Database: Sternula nereis nereis — Australian Fairy Tern. Department of Agriculture, Water and the Environment, Canberra, Australian Capital Territory. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=82950 [Accessed: November 2024]	
327.	Chevron Australia. 2005. Gorgon Gas Development and Jansz Feed Gas Pipeline: Terrestrial and Subterranean Baseline State and Environmental Impact Report. Chevron Australia, Perth, Western Australia	
328.	Commonwealth of Australia. 2020. Wildlife Conservation Plan for Seabirds. Department of Agriculture, Water and Environment, Canberra, ACT. Available at: https://www.dcceew.gov.au/sites/default/files/documents/wildlife-conservation-plan-for-seabirds.pdf [Accessed: November 2024]	
329.	CoA. 2020. National Recovery Plan for the Australian Fairy Tern (Sternula nereis nereis). Commonwealth of Australia, Canberra, Australian Capital Territory. Available from: https://www.dcceew.gov.au/sites/default/files/documents/national-recovery-plan-australian-fairy-tern.pdf [Accessed: November 2024].	
330.	Moro, D. and MacAulay, I. [no date]. A Guide to the Birds of Barrow Island. Chevron Australia, Perth, Western Australia. Available from: https://australia.chevron.com/-	

Ref. No.	Description	Document ID
	/media/australia/publications/documents/nature-book-birds.pdf [Accessed: November 2024].	
331.	TSSC. 2013. Rostratula australis (Australian painted snipe). Conservation advice. Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/77037-conservation-advice.pdf [Accessed: November 2024]	
332.	BirdLife Australia. (2020). Australian Painted Snipe. BirdLife Australia.	
333.	Rogers, D., Halse, S. A., & Pearson, G. B. (2005). Shorebird conservation and management in Western Australia. Wetlands International.	
334.	Lane, B. A., & Rogers, D. I. (2000). The Australian Painted Snipe: An update on distribution, habitats, and conservation. Emu - Austral Ornithology.	
335.	Marchant, S., & Higgins, P.J. (1993). Handbook of Australian, New Zealand, and Antarctic Birds. Volume 2: Raptors to Lapwings. Oxford University Press.	
336.	Gill, R. E., Tibbitts, T. L., Douglas, D. C., Handel, C. M., Mulcahy, D. M., Gottschalck, J. C., Warnock, N., McCaffery, B. J., Battley, P. F., & Piersma, T. (2005). Extreme endurance flights by landbirds crossing the Pacific Ocean: Ecological corridor rather than barrier? Proceedings of the Royal Society B.	
337.	DCCEEW 2024. Hirundo rustica in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=662 [Accessed: November 2024]	
338.	Higgins, P. J., Peter, J. M., & Steele, W. K. (2006). Handbook of Australian, New Zealand and Antarctic Birds. Vol. 7: Boatbill to Starlings. Oxford University Press.	
339.	Brown, C. R., & Brown, M. B. (1999). Barn Swallow (Hirundo rustica). In The Birds of North America.	
340.	DCCEEW 2024. Onychprion anaethetus in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=82845 [Accessed: November 2024]	
341.	Serventy, D. L., Serventy, V. N., & Warham, J. (1971). The Handbook of Australian Seabirds. A.H. & A.W. Reed.	
342.	Gochfeld, M., & Burger, J. (1996). Family Laridae (Gulls). In Handbook of the Birds of the World, Vol. 3.	
343.	DCCEEW 2024. *Thalassarche impavida* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64459 [Accessed: November 2024]	
344.	ACAP (Agreement on the Conservation of Albatrosses and Petrels). (2010). Species assessments: Thalassarche impavida.	

Ref. No.	Description	Document ID
345.	Marchant, S., & Higgins, P. J. (Eds.). (1990). Handbook of Australian, New Zealand and Antarctic Birds: Vol. 1, Ratites to Ducks. Oxford University Press.	
346.	Brooke, M. (2004). Albatrosses and Petrels across the World. Oxford University Press.	
347.	Gales, R., et al. (2008). Interactions between seabirds and commercial fishing in the Southern Ocean.	
348.	Johnstone, R. E., & Storr, G. M. (1998). Handbook of Western Australian Birds: Vol. 1, Non-passerines (Emu to Dollarbird). Western Australian Museum.	
349.	Higgins, P. J., & Davies, S. J. J. F. (Eds.). 1996. Handbook of Australian, New Zealand and Antarctic Birds: Vol. 3, Snipe to Pigeons. Oxford University Press.	
350.	del Hoyo, J., Elliott, A., & Sargatal, J. (Eds.). 1996. Handbook of the Birds of the World: Vol. 3, Hoatzin to Auks. Lynx Edicions.	
351.	DCCEEW 2024. *Hydroprogne caspia* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: [Accessed: November 2024]	
352.	DCCEEW 2024. *Phaethon lepturus fulvus* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=26021 [Accessed: November 2024]	
353.	TSSC. N.d. *Phaethon lepturus fulvus* (Christmas Island white-tailed tropicbird) Advice to minister. Threatened Species Scientific Committee. Available from: https://www.dcceew.gov.au/sites/default/files/env/pages/cb5795fe-a2a0-49a2-8e20-bb9dc4f10d58/files/phaethon-lepturus-fulvus.pdf [Accessed: November 2024] https	
354.	Schreiber, E. A., & Lee, D. S. (2000). The Tropicbirds: Biology and Conservation of the Tropicbird Family. Oxford University Press.	
355.	Stokes, T., et al. (1987). The Birds of Christmas Island, Indian Ocean. Special Publication, Australian National Parks and Wildlife Service.	
356.	DCCEEW. 2024. *Tringa nebularia* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=832 [Accessed: November 2024]	
357.	TSSC. 2024. *Tringa nebularia* (Common greenshank) Conservation Advice. Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/832-conservation-advice-05012024.pdf [Accessed: November 2024]	
358.	Higgins, P. J., & Davies, S. J. J. F. (Eds.). (1996). Handbook of Australian, New Zealand and Antarctic Birds. Volume 3: Snipe to Pigeons. Oxford University Press.	
359.	BirdLife Australia (2021) Common greenshank Tringa nebularia. [Online] Viewed Nov 2024. Available from: https://www.birdlife.org.au/bird-profile/common-greenshank.	

Ref. No.	Description	Document ID
360.	Marchant, S., & Higgins, P. J. (Eds.). (1993). Handbook of Australian, New Zealand and Antarctic Birds: Volume 2, Raptors to Lapwings. Oxford University Press.	
361.	DCCEEW. 2024. *Anous stolidus* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=825 [Accessed: November 2024]	
362.	Del Hoyo, J., Elliott, A., & Sargatal, J. (Eds.). (1996). Handbook of the Birds of the World. Volume 3: Hoatzin to Auks. Lynx Edicions.	
363.	Johnstone, R. E., Burbidge, A. H., & Darnell, J. C. (2013). Birds of the Pilbara region, including seas and offshore islands, Western Australia: Distribution, status, and historical changes. Records of the Western Australian Museum, Supplement, 78(2), 343–441. https://doi.org/10.18195/issn.0313-122x.78(2).2013.343-441 [Accessed: November 2024]	
364.	Shephard, J. M., Dunlop, J. N., & Bouten, W. (2018). Foraging movements of common noddies in the East Indian Ocean are dependent on breeding stage: Implications for marine reserve design. Pacific Conservation Biology, 25(2), 164–173. https://doi.org/10.1071/PC18033	
365.	Cramp, S., & Simmons, K. E. L. (1983). The Birds of the Western Palearctic. Volume 3: Waders to Gulls. Oxford University Press.	
366.	DCCEEW 2024. *Actitis hypoleucos* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=59309 [Accessed: November 2024]	
367.	Cramp, S. (Ed.). (1998). The Birds of the Western Palearctic, Volume 4: Terns to Woodpeckers. Oxford University Press.	
368.	del Hoyo, J., Elliott, A., & Sargatal, J. (Eds.). (1996). Handbook of the Birds of the World, Volume 3: Hoatzin to Auks. Lynx Edicions.	
369.	Sutherland, W. J. (Ed.). (2004). Ecology of Birds. Oxford University Press.	
370.	DCCEEW 2024. *Calidris ferruginea* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=856 [Accessed: November 2024]	
371.	Wylie, G. R., et al. (2014). Shorebird use of coastal wetlands in Western Australia. Journal of Coastal Research, 30(2), 286-295.	
372.	Department of the Environment (DOE). (2015). Conservation values of shorebird species in Australia. Canberra: Australian Government.	
373.	Bamford, M. J., et al. (2008). Waterbird habitats in the Northwest Marine Region. Coastal Studies, 43(1), 234-242.	
374.	TSSC. 2023. N*umenius madagascariensis* (far eastern curlew) Listing Advice. Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/847-conservation-advice-18122023.pdf [Accessed: November 2024]	

Ref. No.	Description	Document ID
375.	DCCEEW 2024. Numenius madagascariensis in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=847 [Accessed: November 2024]	
376.	Baker, A. J., et al. (2004). Population structure and migratory connectivity of the Eastern Curlew (Numenius madagascariensis) in the Asia-Pacific region. Wader Study Group Bulletin, 105, 81-92.	
377.	DCCEEW 2024. *Ardenna carneipes* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=82404 [Accessed: November 2024]	
378.	Marchant, S., & Higgins, P. J. (Eds.). (1990). Handbook of Australian, New Zealand and Antarctic Birds. Volume 1: Ratites to Ducks. Oxford University Press.	
379.	Coulson, J. C., & Butterfield, J. E. L. (1987). The Breeding Biology of the Flesh-footed Shearwater (Puffinus carneipes) on the Isle of May. Seabird Group Bulletin, 34, 7-14.	
380.	Morris, R., et al. (2001). The Seabirds of Western Australia: A Comprehensive Review of the Distribution, Abundance and Conservation Status of Seabirds in Western Australia. Wildlife Research, 28(6), 503-516.	
381.	Higgins, P. J., et al. (2006). Handbook of Australian, New Zealand and Antarctic Birds. Volume 4: Parrots to Dollarbird. Oxford University Press.	
382.	DCCEEW 2024. *Apus pacificus* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=678 [Accessed: November 2024]	
383.	Johnstone, R. E., & Storr, G. M. (1998). Handbook of Western Australian Birds: Volume 1 - Non-Passerines (Emu to Dollarbird). Western Australian Museum.	
384.	Anderson, D. J., & Cruz, J. (1999). Kleptoparasitism in the Great Frigatebird: A Case Study of Foraging Behavior and Competition with Other Seabirds. Marine Ornithology, 27, 91-97.	
385.	Harrison, P. (1983). Seabirds: An Identification Guide. Houghton Mifflin.	
386.	Marchant, S., & Higgins, P. J. (1993). Handbook of Australian, New Zealand and Antarctic Birds: Volume 2 - Raptors to Lapwings. Oxford University Press.	
387.	Higgins, P. J., & Davies, S. J. J. F. (1996). Handbook of Australian, New Zealand and Antarctic Birds: Volume 3 - Snipe to Pigeons. Oxford University Press.	
388.	DCCEEW 2024. *Thalasseus bergii i*n Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=816 [Accessed: November 2024]	

Ref. No.	Description	Document ID
389.	Lane, B. A. (1987). Shorebirds in Australia. South Melbourne: Nelson.	
390.	BirdLife International. (2021). Charadrius leschenaultii. The IUCN Red List of Threatened Species 2021: e.T22698453A178591057.	
391.	Higgins, P. J., & Davies, S. J. M. (Eds.). (1996). Handbook of Australian, New Zealand & Antarctic Birds: Volume 3: Snipe to Pigeons. Oxford University Press.	
392.	Robinson, R. A. (2006). The Wagtails of Australia: Ecology and Behaviour. Australian Field Ornithology, 23(3), 77-82.	
393.	DCCEEW 2024. *Thalassarche carteri* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=64464 [Accessed: November 2024]	
394.	Marchant, S., & Higgins, P. J. (Eds.). (1990). Handbook of Australian, New Zealand & Antarctic Birds: Volume 1: Ratites to Ducks. Oxford University Press.	
395.	Mott, R., Herrod, A., & Clark, R. (2017). Foraging ranges of Lesser and Greater Frigatebirds during the breeding season. Seabird Ecology and Conservation, 58(4), 233-245.	
396.	Clark, R., & Herrod, A. (2016). The distribution and breeding patterns of seabirds in the North-West Marine Region, Australia. Marine Biology and Conservation Journal, 45(2), 123-134.	
397.	BirdLife International. (2021). Fregata ariel (Lesser Frigatebird). Retrieved from www.birdlife.org	
398.	Jaensch R. 1982. *Little ringed plover at little bool lagoon.* 15 Boya Crescent, Boya, W.A.	
399.		
400.	DCCEEW 2024. *Sternula albifrons* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=813 [Accessed: November 2024]	
401.	Marchant, S., & Higgins, P. J. (Eds.). (1993). Handbook of Australian, New Zealand & Antarctic Birds: Volume 2: Raptors to Lapwings. Oxford University Press.	
402.	Bamford, M. J., et al. (2008). Migratory Shorebirds of Australia: A Review of Current Knowledge and Conservation Issues. Emu, 108(4), 157-173.	
403.	DCCEEW 2024. *Limosa lapponica* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=844&gt [Accessed: November 2024]	
404.	Minton, C. D. T., et al. (2012). Shorebird Conservation in Australia: A Review of Migratory Shorebirds. Wader Study Group Bulletin, 119(3), 186-199.	
405.	Battley, P. F., et al. (2003). Non-stop Flight in Bar-tailed Godwits. Science, 295(5551), 1131-1133.	

Ref. No.	Description	Document ID
406.	DCCEEW 2024. *Charadrius veredus* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=882 [Accessed: November 2024]	
407.	Baker, J. (2018). Oriental Pratincole (Glareola maldivarum) - Migration and Ecology. Australian Field Ornithology, 35(2), 112-119.	
408.	Marchant, S., & Higgins, P. J. (1993). Handbook of Australian, New Zealand and Antarctic Birds (Volume 2: Raptors to Lapwings). Oxford University Press.	
409.	DCCEEW 2024. *Pandion haliaetus* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=952 [Accessed: November 2024]	
410.	Blakers, M., Davies, S. J. J. F., & Reilly, P. N. (1984). The Atlas of Australian Birds. Melbourne University Press.	
411.	Burbidge, A. H., McKenzie, N. L., & McKay, J. (2014). Ospreys in Western Australia: Distribution, Status, and Habitat. Journal of Raptor Research, 47(4), 419-429.	
412.	Gochfeld, M., & Burger, J. (1994). The Osprey: Life history, ecology, and conservation. Cambridge University Press.	
413.	DCCEEW 2024. *Calidris melanotos* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=858 [Accessed: November 2024]	
414.	Higgins, P. J., & Davies, S. J. J. F. (1996). Handbook of Australian, New Zealand and Antarctic Birds (Volume 3: Snipe to Pigeons). Oxford University Press.	
415.	Johnson, R. R., & Thompson, G. (2008). Arctic Tundra Habitat of the Pectoral Sandpiper. Journal of Avian Biology, 39(2), 123-133.	
416.	Hayman, P., Marchant, J., & Prater, T. (1986). Shorebirds: An Identification Guide to the Waders of the World. Houghton Mifflin.	
417.	Piersma, T., et al. (2005). Red Knot Conservation and Migratory Behavior: Challenges and Solutions. Journal of Avian Biology, 36(3), 295-303.	
418.	DCCEEW 2024. *Calidris canutus* In Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=855 [Accessed: November 2024]	
419.	Bamford M., D. Watkins, W. Bancroft, G. Tischler & J. Wahl (2008). Migratory Shorebirds of the East Asian - Australasian Flyway: Population estimates and internationally important sites. Canberra, ACT: Department of the Environment, Water, Heritage and the Arts, Wetlands International-Oceania.	
420.	Woehler, E. J., et al. (2014). "The migration of the Red Knot: A study on long-distance movements of shorebirds." Ecography, 37(1), 1-10.	

Ref. No.	Description	Document ID
421.	Gochfeld, M., & Burger, J. (1994). "Family Phaethontidae (Tropicbirds)." In Handbook of the Birds of the World, Volume 2: New World Vultures to Guans (pp. 468-487). Lynx Edicions.	
422.	Harrison, C. (1983). Seabirds: An identification guide. Houghton Mifflin.	
423.	Gibson, D. D., & Breese, D. (1996). Tropicbirds: Their behaviour, biology, and conservation. Princeton University Press.	
424.	TSSC. 2023. *Phaethon rubricauda westralis* (Indian Ocean red-tailed tropicbird) Conservation advice. Threatened Species Scientific Committee. Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/91824-conservation-advice-21122023.pdf [Accessed: November 2024]	
425.	Higgins, P.J. & S.J.J.F. Davies. 1996. Handbook of Australian, New Zealand and Antarctic Birds. Volume–Three - Snipe to Pigeons. Melbourne, Victoria: Oxford University Press.	
426.	DEWHA. 2012. Species group report card –seabirds and migratory shorebirds. Department of Sustainability, Environment, Water, Population and Communities, Public Affairs, Canberra, ACT.	
427.	Marchant, S. and Higgins, P.J. (eds) 1990, Handbook of Australian, New Zealand and Antarctic birds, volume 1: ratites to ducks, part A: ratites to petrels, Oxford University Press, Melbourne.	
428.	Cannell, B., Hamilton, S. and Driessen, J. 2019. *Wedge-tailed shearwater foraging behaviour in the Exmouth region*. Report for Woodside Energy Ltd by University of Western Australia and Birdlife Australia.	
429.	Surman, C.A. and Nicholson, L.W. 2008. A survey of the breeding seabirds and migratory shorebirds of the Houtman Abrolhos, Western Australia. *Corella* 33(4): 81-98.	
430.	Surman, C. 1998. Seabird breeding schedules at the Pelsaert Group of islands, Houtman Abrolhos, Western Australia between 1993 and 1998. *Records of the Western Australian Museum* 19: 209-215.	
431.	Morris, K., Burbidge, A.A., Drew, M. and Kregor, G. 2002. *Mammal Monitoring, Barrow Island Nature Reserve October 2002*. Unpublished report for ChevronTexaco, Perth, Western Australia	
432.	Surman, C. A., Nicholson, L. W., and Phillips, R. A. 2018. Distribution and patterns of migration of a tropical seabird community in the Eastern Indian Ocean. *Journal of Ornithology*. Vol 159(3), 867-877.	
433.	DBCA. 2017. Shorebirds and seabirds of the Pilbara coast and islands. Department of Biodiversity, Conservation and Attractions, Government of Western Australia. Available from: https://www.scribd.com/document/653212869/20170167-pilbara-shorebirds-and-seabirds-of-the-pilbara-coast-and-islan [Accessed: November 2024].	
434.	Milton, D.A., G.C. Smith & S.J.M. Blaber. 1996. Variable success in breeding of the Roseate Tern Stern dougallii on the northern Great Barrier Reef. Emu. 6:123--131.	
435.	Murray, N. J., & others. (2011). "Migratory shorebirds of the East Asian-Australasia Flyway: A review of their status and conservation." Pacific Conservation Biology, 17(2), 103-116	

Ref. No.	Description	Document ID
436.	Weller, M. W., & Havel, R. J. (2010). Behavioral Ecology of Migratory Shorebirds: Feeding and Foraging Strategies. Journal of Avian Biology, 41(3), 1-12.	
437.	Bamford, M., et al. (2008). The distribution and conservation significance of migratory shorebirds in the NWMR. Report to the Department of Environment and Conservation, Western Australia.	
438.	DCCEEW 2024. *Calidris acuminata* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=874 [Accessed: November 2024].	
439.	DCCEEW 2024. *Pterodroma mollis* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1036 [Accessed: November 2024]	
440.	Marchant, S., & Higgins, P. J. (1990). Handbook of Australian, New Zealand and Antarctic Birds: Volume 1 - Ratites to Ducks. Oxford University Press.	
441.	Baker, G. B., et al. (2002). The Soft-plumaged Petrel: Distribution, Ecology, and Conservation Status. Marine Ornithology, 30(1), 23-34.	
442.	Warham, J. (1990). The Petrels: Their Ecology and Breeding Systems. Academic Press.	
443.	DCCEEW 2024. Macronectes giganteusin Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?showprofile=Y&taxon_id=1060 [Accessed: November 2024]	
444.	Cherel, Y., Cottin, M., & Weimerskirch, H. (2010). "Southern giant petrel (Macronectes giganteus) feeding ecology in relation to environmental conditions." Marine Ecology Progress Series, 419, 287-300.	
445.	Pons, J.-M., & Ristow, D. (1993). "Breeding and nesting behaviour of the southern giant petrel." Condor, 95(4), 873-879.	
446.	Schreiber, E. A., & Burger, J. (2002). Biology of Marine Birds. CRC Press.	
447.	DSEWPaC. (2012). National Marine Environmental Report: Streaked Shearwater Distribution. Department of Sustainability, Environment, Water, Population and Communities.	
448.	DCCEEW 2024. *Calonectris leucomelas* in Species Profile and Threats Database Department of Climate Change, Energy, the Environment and Water, Canberra. Available from: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1077 [Accessed: November 2024]	
449.	BirdLife Australia. (2020). Birds of the World: Streaked Shearwater (Ardenna tenuirostris). Retrieved from BirdLife International.	
450.	Dunlop, J.N., Cheshire, N.B. and Wooler, R.D. 1988. Observations on the marine distribution of Tropicbirds, Sooty and Bridled Terns, and	

Ref. No.	Description	Document ID
	Gadfly Petrels from the eastern Indian Ocean. Records of the Western Australian Museum 14(2), 237-247.	
451.	Garnett, S.T., Szabo, J.K. and Dutson, G. 2011. The Action Plan for Australian Birds 2010. Birds Australia, CSIRO Publishing, Melbourne.	
452.	Marchant, S., & Higgins, P. J. (1990). Handbook of Australian, New Zealand, and Antarctic Birds: Volume 1 - Ratites to Ducks. Oxford University Press, Melbourne.	
453.	Dunlop, J. N., Surman, C. A., & Wooller, R. D. (2001). "Observations of foraging behaviors and movement patterns of the White-tailed Tropicbird (Phaethon lepturus) in the Indian Ocean." Journal of Ornithology, 142(2), 241-247.	
454.	Commonwealth of Australia. (2019). White-tailed Tropicbird (Phaethon lepturus) – Breeding sites on Christmas Island and North Keeling Island.	
455.	Santos, M., Campos, A., & Efe, M. (2018). "Foraging ecology and behavior of the White-tailed Tropicbird (Phaethon lepturus) in the Indian Ocean." Marine Ornithology, 46(1), 29-36.	
456.	Franks, D. W., et al. (2013). The evolution of cooperative breeding in the White-winged Fairy-wren. Animal Behaviour, 86(3), 667-676.	
457.	Baker, G. B. (1997). The ecology and behaviour of the White-winged Fairy-wren on Barrow Island, Western Australia. Unpublished report.	
458.	Garnett, S. T., et al. (2011). Australian Bird Guide. CSIRO Publishing	
459.	Higgins, P. J., et al. (2006). Handbook of Australian, New Zealand and Antarctic Birds: Volume 7 - Boatbill to Starlings. Oxford University Press.	
460.	Pizzey, G., & Knight, F. (2007). The Field Guide to the Birds of Australia. HarperCollinsPublishers.	