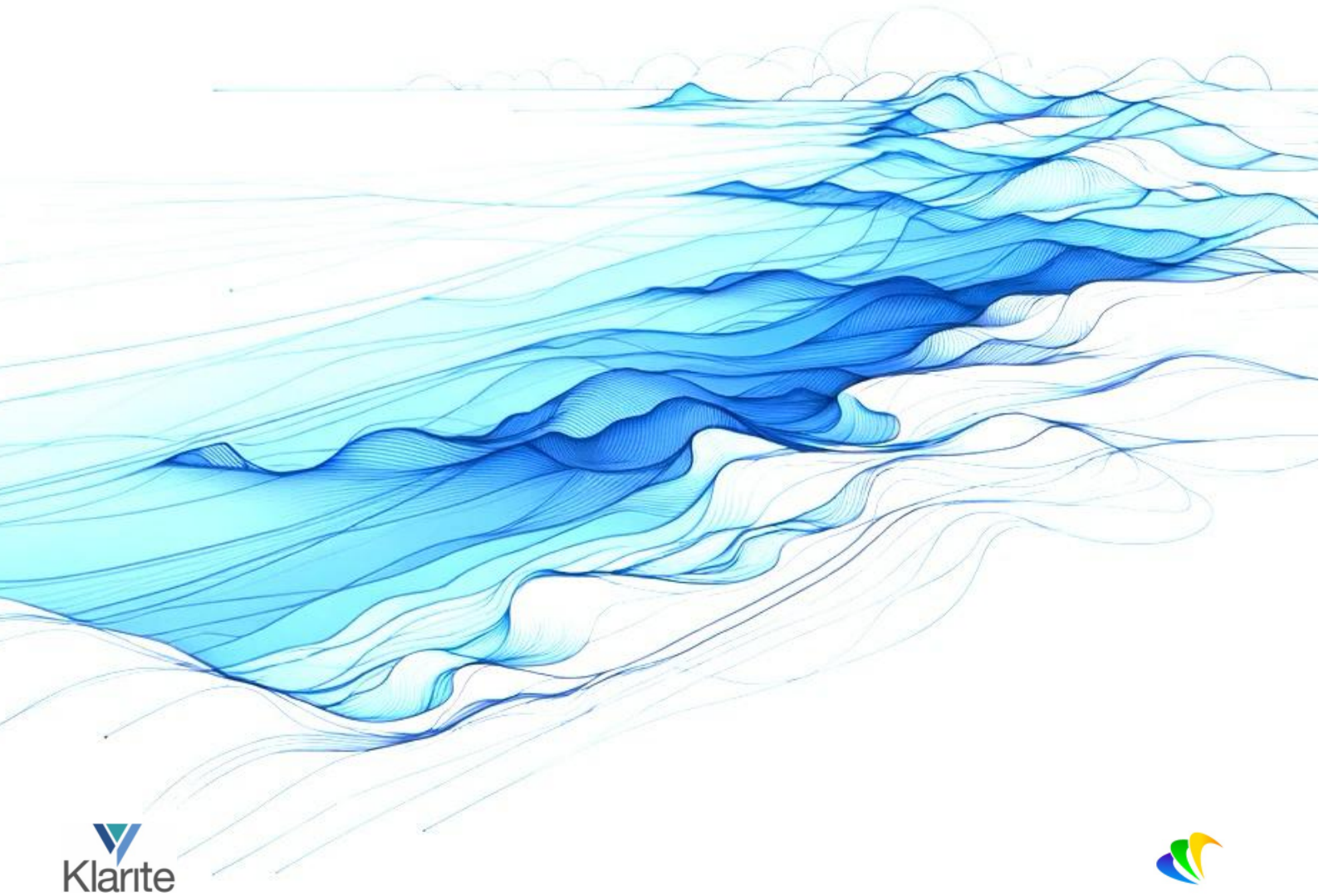
REGIA
Marine Seismic Survey

Otway Cumulative Impact Assessment

Appendix F1: REG-EP-029-F1

Rev 5

December 2025



Klarite

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1 Introduction

The National Offshore Petroleum Safety and Environmental Management Authority (**NOPSEMA**) defines cumulative environmental impacts in the context of offshore petroleum activities, as successive, additive, or synergistic impacts of collectively significant activities or projects with material impacts on the environment that have the potential to accumulate over temporal and spatial scales (NOPSEMA Environment Plan Decision Making Guideline, N-04750-GL1721).

The focus of this Cumulative Impact Assessment (**CIA**) is to further build on these assessments by considering the impacts of the proposed activity on key environmental values and sensitivities in conjunction with the impacts from other reasonably foreseeable future projects.

The types of activities and projects typically considered in CIA are large in scale and are of relevance in terms of potentially contributing to or compounding material impacts in the operational area of the Regia MSS.

2 Consultation Input

CGG carried out the consultations required by the regulations to:

- Improve the predictive quality of this assessment by seeking relevant person input into the preparation of the EP.
- To verify the description of the environment that CGG produced as part of its environmental assessment process through information provided to CGG by relevant persons.
- Receive objections or claims about the adverse effects of the activity on a relevant person's functions, interests, or activities.

The information received from relevant persons can be found in each relevant person consultation report. It has been considered in the preparation of this assessment.

Objections or claims about the adverse of the effects of the activity can also be found in each relevant person's consultation report. They have been assessed for merit and CGG has written a statement of its response to each objection or claim. Any objection or claim relevant to this assessment and subsequently considered in its preparation can be found in Annex 1.

3 Methodology

Cumulative impacts were inherently considered in Stage 2 of the environmental assessments by virtue of considering the existing environment as a dynamic place inclusive of other natural and anthropogenic pressures. Specifically, the effects of past projects and activities, and currently operating projects, are captured when describing the existing condition of environmental values and sensitivities, inclusive of any pressure or threats affecting that value or sensitivity.

This baseline condition and understanding of the capacity of the receiving environment and receptors to accommodate changes, considering existing pressures and threats, informs the environmental impact assessments conducted in the Preliminary Environmental Impact and Risk Assessment (**PEIRA**) (Appendix B4) and more extensively in Appendices E1 – E9.

However, during consultation in preparation of the Environment Plan (EP), explicit consideration of future activities in the context of cumulative impacts was requested.

There are many ways of considering cumulative impacts and the following guidelines have been used as the basis of this assessment:

- United Kingdom National Infrastructure Planning Advice Note Seventeen: Cumulative effect assessment relevant to nationally significant infrastructure programs (UK Gov 2019)
- New South Wales Cumulative Impact Assessment (CIA) Guidelines for State Significant Projects (NSW 2022).

Both guidelines are intended to apply to large-scale national and state significant projects, respectively which have a greater potential for long term cumulative impacts than the Regia MSS. The guidelines are rigorous and have merit for application to the shorter-term, smaller scale, Regia MSS.

3.1 Scoping the Assessment

Scoping considerations identified for CIAs include:

- Successive, additive, or synergistic material impacts.
- Effects on key environmental matters within the relevant spatial extent.
- The pathways for impacts to accumulate over the relevant temporal extent.

Material impacts are impacts of the project and other reasonably foreseeable future projects and activities that may not align with the defined acceptable levels, for example, threats of wide-scale, serious or irreversible damage due to cumulative impacts.

Successive impacts are those that occur one after the other.

Additive impacts are those where the combined impact is the sum of the separate impacts.

Synergistic impacts are those where the combined impact is greater than the sum of the separate impacts.

Key environmental matters are features of the environment (ecological, socio-economic, and cultural values and sensitivities) that are valued because of their rarity or importance, including the critical role they play in supporting systems which are essential for the environment, people and / or the economy (NSW 2022), for example, commercial fisheries and threatened species undertaking biologically important behaviours.

The relevant **spatial extent** depends on the key matter. For example, for ecological impacts the spatial extent may be based on the range and distribution of a listed threatened species when undertaking biologically important behaviour. The NSW guideline recommends that while the study area chosen for each matter must be broad enough to capture all relevant cumulative impacts, it should not be unnecessarily large or include areas where the cumulative impacts are likely to be negligible relative to the baseline condition of the relevant matter.

Temporal extent is dependent on the key matter and the scale and nature of potential impacts on the matter (NSW 2022). For example, for commercial fishers the temporal extent may be based on a part of a season or several seasons depending on how long the impact may occur. For this CIA the

temporal extent selected has been aligned to reasonably foreseeable timeframes associated with the project and other reasonably foreseeable projects and activities within the Otway Basin.

3.2 Identifying Reasonably Foreseeable Future Projects and Activities

Table F1-1 shows the projects and activities that are reasonably foreseeable within the spatial and temporal extent of the assessment. The activities for which CGG were able to obtain shapefiles are shown in Appendix B12 MAP-REG-EPM-169_A, along with the Regia Operational Area and Acquisition Area.

Table F1-1 - Reasonably foreseeable ongoing and future projects and activities in the offshore Otway region.

Titleholder	Activity Type	Sound Sources and Exposures for Each Activity	Status	Window (Activity)
Beach Energy	Production - Thylacine	Geophysical surveys (10 days once a year though more likely to be between two and five years) Platform resupply via helicopter (2 days every 3 months ~6 hrs per day) Standby vessel at platform when working over water (Twice per year ~ 6 hrs per day) Geographe and Thylacine subsea infrastructure and wells (Choke valve operation, ~1- 2 hours if required) Maintenance and Repair (Subsea tree choke replacement, ~1- 2 hours if required) IMR campaigns	Ongoing	Ongoing
Beach Energy	Production - Geographe		Ongoing	Ongoing
(Previously Cooper Energy) Amplitude Energy	Production – CHN	Geophysical surveys (MBES, Sidescan sonar, or Sub bottom profiler, 4 – 6 hrs per structure and 1 – 2 days for pipelines, totalling circa 2 – 4 weeks at sea for an entire inspection program) Platform resupply Helicopter Operations (1-2 times per week during IMP activities) Inspections (4 – 6 hrs per structure and 1 – 2 days for pipelines, totalling circa 2 – 4 weeks at sea for an	Ongoing	Ongoing

Titleholder	Activity Type	Sound Sources and Exposures for Each Activity	Status	Window (Activity)
		entire inspection program)		
ConocoPhillips Australia	Otway Drilling	Geophysical surveys (maximum of 9 surveys with each survey taking one week) and Vertical Seismic Profiling (VSP) (three 250 cubic inch air gun configuration, 12 hours per well for a maximum of 2 wells), with up to 130 shots) Anchor prelay and collection 24-46 days Mooring the MODU (connection and disconnection) (15 days) Drilling with vessel on standby (180-540 days) Drilling with vessel on standby and resupply (30 days)	Ongoing	2024-2028 (Typically, 30-40 days per well, max 6 wells)
(Previously Cooper Energy) Amplitude Energy	Production Drilling and tie-in	Geophysical survey: ~ 7 days (No VSP) Well construction activities- logging Pre-lay moorings: ~ 7 – 14 days Well drilling and suspension or P&A: ~ 60 days Well Integrity Monitoring: ~ 2 days per inspection	Proposed	2024-2026 1 January 2025 and be completed no later than 1 January 2030. Each drilling campaign is expected to take up to 60 days excluding environmental and operational delays.
Woodside Energy	Minerva Decommissioning	Generation of underwater noise from project vessel, ROV, subsea cutting and infrastructure deburial activities (45 to 60 days), noise from helicopter operations, and underwater noise from acoustic survey equipment within operational area.	Proposed	2024-2025 three to five months,)
Beach Energy	Drilling and tie-in	Drilling: 300 days for the full drilling and P&A activities Resupply: 3 hours per day	Accepted	2024-2027 Drilling: 30 - 40 days per well. Plug and abandonment: 15 – 20 days per well.

Titleholder	Activity Type	Sound Sources and Exposures for Each Activity	Status	Window (Activity)
		Helicopter Operations: 11 seconds on take-off and landing at the drill rig up to 7 times per week. Wellhead Cutting: ~1 - 2 hours though may take up to 6 hours for more complex wells		
CGG	Seismic Survey (Regia MSS)	2630 cubic inches over 60 days	Proposed	2023-2028 (60 days)
Beach Energy	Seismic Survey (Calico MSS)	Between 250 and 750 cubic inches	Proposed	2025 (Between February and May)

This defines the boundaries of the assessment by including projects and activities that have a realistic likelihood of occurring and could contribute to cumulative impacts.

To identify these projects and activities a search was conducted of the NOPSEMA and DEECA (Vic) Environment Plan website to identify any relevant projects and activities. In addition, titleholders within the Otway Basin have been meeting regularly to discuss environmental management in the region, including processes for improved CIA. This has provided a more accurate representation of projects and activities and the potential for cumulative impacts, ensuring these are appropriately assessed and managed.

The NOPSEMA, DECCA (Vic), and DCCEW Environmental Plan websites were checked again on the 10/03/2025 and there are no new proposed activities scheduled in the Otway region. It should be noted the Beach Energy Seismic Survey was due to commence in February 2025, CGG understand this did not happen and its current start date is unknown. Projects and activities that are not reasonably foreseeable or speculative have been excluded from the assessment scope to maintain practicality and relevance in decision-making processes. These included an offshore wind declared area that is unlikely to be developed within 24 months of the end of operation of the Regia MSS EP.

Further, there was another seismic survey proposed in the region that was withdrawn from NOPSEMA's assessment process in September 2024. CGG understands that this activity will not progress. This activity has been removed from this assessment.

Information on projects and activities is typically accessible once consultation commences and relevant technical supporting information is submitted for public comment or assessment. Information relevant to this CIA has been discussed at the ongoing Otway Basin Petroleum Titleholder meetings. Where project/activity-specific data is not yet available, data from similar projects has been used as a proxy prior to technical information being made available. Given the similarity of impacts, there is a high level of certainty in the prediction of cumulative impacts in most cases.

Assumptions around specific timings for projects or activities have been made as there is some level of flexibility in schedules and timing of approvals. Consequently, a conservative approach has been adopted whereby credible worst-case scenarios (e.g. concurrent activities with overlapping environments that may be affected (EMBAs)) are assessed.

3.2.1 Temporal Overlap

For proposed activities that are reasonably foreseeable, and following consultation between the titleholders in this region, there is:

- A high likelihood of consecutive drilling (exploration, appraisal, or plug and abandonment (P&A)) activities given the titleholders are all planning on using the same rig.

- A very low likelihood that there will be concurrent drilling activities.
- Some likelihood that there will be concurrent seismic survey and drilling activities.
- A very low likelihood that there will be concurrent seismic operations.
- A slightly higher likelihood that seismic surveys may be consecutive.

3.2.2 Spatial Overlap

Annex 2 shows a matrix of the ongoing and reasonably foreseeable activities in the region. This analysis was completed considering the spatial extent of impacts from the projects and activities rather than just an overlap of activity locations. This analysis revealed that there is:

- An extremely remote likelihood of direct spatial overlap of seismic survey areas.
- An extremely remote likelihood of direct spatial overlap of drilling/P&A areas.
- A possible overlap of a drilling activity over petroleum title VIC/P79.
- A possible likelihood of overlap of light EMBAs associated with drilling/P&A at a single location.
- An extremely remote likelihood of overlap of sound EMBAs associated with concurrent drilling/P&A at a single location.

3.2.3 Identified Aspects and Extents

During the environmental assessment process, components of the environment and aspects of the ongoing and reasonably foreseeable projects and activities were identified where there was the potential for successive, additive, or synergistic impacts to reasonably accumulate over temporal and spatial scales, when considered in the context of ongoing and reasonably foreseeable future projects or activities. There were some terminology differences between titleholders. These have been assessed and are not material to this CIA.

The CIA Scoping Tool (Annex 3) details the assessment undertaken of the components of the environment and aspects of the reasonably foreseeable projects and activities to identify where a potential cumulative cause-effect pathways may occur and, if it may occur, was likely to have a material impact. Where a potential cumulative cause-effect pathway and material impact was identified further assessment was undertaken.

The components of the environment and aspects identified during the CIA scoping process requiring further assessment include:

- Light – impacts on light-sensitive bird species.
- Underwater sound – impacts on noise-sensitive species.
- Birds – nocturnal behaviours of species such as the common diving petrel which has a breeding biologically important area (BIA)on Lady Julia Percy Island, and the orange-bellied parrot which may overfly the light EMBAs on migration.
- Marine Mammals – biologically important behaviours of species such as the blue whale and southern right whale within relevant BIAs that overlap underwater sound EMBAs.
- Commercial Fisheries – displacement from within relevant fishery management zones.

It was also identified that the conservation values and sensitivities of the Zeehan Marine Park and the First Nations cultural heritage values associated with the above environmental components could be affected by cumulative impacts.

4 Assessment Process for Cumulative Impacts

For those components of the environment and aspects where a potential cumulative cause-effect pathway and material impact was identified, a CIA process was applied in general alignment with the activity-specific methodologies of titleholders, in accordance with NOPSEMA guidelines and the cumulative impact assessment guidelines previously referenced.

The CIA process applied to each aspect and component of the environment is provided below which includes a discussion that identifies other reasonably foreseeable ongoing future projects where the environmental aspect has both a temporal and spatial overlap. Then each identified area of potential cumulative impact is assessed by looking at the:

- Conservation (or other) values or sensitivity.
- Management Plans or legislation that applies to the value or sensitivity.
- Threatening processes to the value or sensitivity.
- Relevant spatial and temporal extent of cumulative impact.
- Recovery (or other) actions that apply.
- Baseline environment condition.
- Defined acceptable level of impact.
- Predictive certainty of the assessment.

Once the assessment of cumulative impacts had been completed and the titleholders with ongoing and future activities in the Otway Basin have discussed the outcome and agreed to adopt control measures (individually and collectively) for effects to commercial fishers, light sensitive birds, low frequency hearing whales, and cultural heritage values of First Nations peoples.

5 Cumulative Impact Assessments

5.1 Interference with Commercial Fishers

Cumulative impacts could occur from the occurrence of one seismic survey occurring concurrently with a drilling activity, and/or consecutive drilling activities with operational exclusion boundaries overlapping fishery management zones.

Commercial fishers with fishing activity in the Regia MSS operational area may be displaced within their Fishery Management Zones in the offshore Otway Basin. This may lead to multiple applications for compensation to be lodged with a range of titleholders and a reduction in the area available to be fished.

The Regia MSS operational area overlaps with:

- Commonwealth fisheries:
    - Bass Strait Central Zone Scallop Fishery (0.29% overlap with this fishery)
    - Eastern Tuna and Billfish Fishery (0.22% overlap with the fishery)
    - Southern and Eastern Scalefish and Shark Fishery SSKK (1.28% overlap with the fishery)
    - Southern and Eastern Scalefish and Shark Fishery SSKN (1.12% overlap with the fishery)
    - Southern and Eastern Scalefish and Shark Fishery SCTR (1.15% overlap with the fishery)
    - Southern and Eastern Scalefish and Shark Fishery SCDS (2.32% overlap with the fishery)
    - Southern and Eastern Scalefish and Shark Fishery SSCK (0.95% overlap with the fishery)
    - Southern Squid Jig Fishery SSJF (1.99% overlap with the fishery)
    - Southern and Eastern Scalefish and Shark Fishery SCSQ (1.31% overlap with the fishery)
    - Small Pelagic Fishery (0.12% overlap with the fishery)
    - Western Tuna and Billfish Fishery (0.04% overlap with the fishery)
- Victorian fisheries:
    - Wrasse (Ocean) Fishery (Victorian) (1.33% overlap with the fishery)
    - Giant Crab (39.85% overlap with the fishery)
    - Rock Lobster (14.81% overlap with the fishery)
    - Octopus (3.69% overlap with the fishery)
    - Ocean General (5.62% overlap with the fishery).

Cumulative impacts could occur from the occurrence of two successive seismic surveys, one seismic survey occurring concurrently with drilling/P&A activities and/or consecutive drilling/P&A activities with operational exclusions zones overlapping fishery management areas, in addition to existing pressures.

Table F1-2 - Assessment of cumulative impacts for interference with commercial fishers.

Conservation (or other) value	Socio-economic value to local communities and the national economy. Some operational areas overlap moderate or high fishing intensity areas.
Management Plans	Southern and Eastern Scalefish and Shark Fishery (SESSF) Species Summaries (AFMA 2023). Western Victorian rock lobster zone RLAG annual assessment,
Threatening Processes	Nil, other than unintentional fishing pressure on school shark.
Relevant Spatial and Temporal Extent	Fishery management zones focusing on fisheries with evidence of activity in the operational areas.
Recovery (or other) Action	Compensation for evidence-based claims for loss of gear, reduced catch or increased costs due to displacement.
Baseline Environment Condition	Some fisheries overlap with the existing shipping channel and areas with existing oil and gas activity. The fisheries with historical activities in the operational areas have sustainable stock status. However, school sharks are listed as Conservation Dependent (fishing pressure) in the SESSF – Shark Gillnet Sector. The fisheries are "Quota" managed and harvesting is limited to a set amount of "Total Allowable Catch" (TAC) annually.
Acceptable Level	That commercial fishers are not worse off because of petroleum activities in the offshore Otway Basin.
Comparison of Predicted Level of Impact with Defined Acceptable Levels	Predicted impacts are temporary and in most cases avoidable. A compensation process will be implemented in the event that interference with commercial fishers cannot be avoided, and claimants provide supporting evidence.
Predictability/ Certainty of Assessment	Given the intensity of fishing in the area, and the overlap of fishery management zones with the proposed activities of multiple titleholders, the assessment of cumulative impacts is made with a high level of predictability and certainty.

5.2 Effects of Elevated Levels of Artificial Light to Albatross, Petrels and Shearwaters

There is a potential cumulative impact for birds with foraging BIAs, and it is identified that there is a potential for overlap when considering a single seismic survey and a single drilling operation, as well as with sequential drilling activities. However, when examining the breeding BIAs for the short-tailed shearwater, predictions indicate no significant overlap from multiple projects. The only exception is for drilling within the T/49P area, where the activity impact assessment has forecasted no behavioural impacts or injury/mortality to the species. Consequently, no cumulative impact pathway has been identified.

For the wedge-tailed shearwater breeding BIA, the overlap is anticipated only with flaring from exploration drilling and light from other consecutive drilling activities. Concurrent activities do not contribute to this overlap. With respect to the Common diving-petrel, a species particularly sensitive to coastal light impacts, disturbances to adult nest attendance are a concern when these birds are returning to or leaving their nesting colony. The Regia MSS and ConocoPhillips Australia Otway Drilling Program in the north of VIC/P79 are scheduled in such a way that they do not coincide, thereby minimising potential impacts. These operations are also planned to be more than 18 months apart in this area, and no cumulative impact pathway has been identified for them.

In evaluating the potential for cumulative impacts, it is important to consider the limited spatial extent of effects in comparison to the available area for foraging. Most species conduct foraging activities during daylight hours. The National Recovery Plan for Albatrosses and Petrels has classified interactions with marine infrastructure, including those associated with artificial light, as posing no risk priority, and affecting no species within the Australian jurisdiction.

Specifically for the breeding BIA of the wedge-tailed shearwater, overlap is only by flaring from ConocoPhillips Australia's Otway Exploration Drilling activity, which is restricted to 120 hours per well. Since this species is not listed as threatened and since periodic changes in ambient light within the area affected are unlikely to induce behavioural changes or result in injury/mortality, the effect is low.

Overall, the cumulative impact of light emissions from petroleum activities in the Otway area is assessed to be low, especially when compared to the light emissions from existing shipping and fishing operations. It is also noted that most of these vessels do not follow a Light Management Plan.

Table F1-3 - Assessment of cumulative impacts for elevated levels of artificial light to Albatross, Petrels and Shearwaters.

Conservation (or other) value	Antipodean, southern royal, wandering, northern royal, Sooty, Buller's, shy, grey-headed, Campbell, black-browed, Salvin's, Indian yellow-nosed, and white-capped albatrosses; southern and northern giant, common diving and white-faced storm-petrels; short-tailed and wedge-tailed shearwaters. Endangered, Vulnerable, not listed, some with foraging BIAs, common diving petrel (nocturnal), short-tailed shearwater and wedge-tailed shearwater with breeding BIAs within EMBAs. Short-tailed shearwater also identified cultural value.
Management Plans	National Recovery Plan for Albatrosses and Petrels (DCCEEW 2022e). Wildlife Conservation Plan for Seabirds (DCCEEW 2020). National Light Pollution Guidelines for Wildlife (CoA 2023).
Threatening Processes	Light emissions are identified as a threat in the National Recovery Plan for Albatrosses and Petrels but marine infrastructure interactions, including those associated with artificial light, are classified as having no risk category priority and affecting 'Nil' species in Australian jurisdiction. The National Recovery Plan for Albatrosses and Petrels also states that light associated with coastal developments at or adjacent to breeding sites represents a moderate threat to short-tailed shearwater. Light pollution, including from gas flaring, is listed as a threat to seabirds in the Wildlife Conservation Plan for Seabirds, with potential for consequences affecting individuals but not whole populations.

Relevant Spatial and Temporal Extent	Foraging BIAs for Antipodean, black-browed, Buller's, Campbell, Indian yellow-nosed, shy and wandering albatross, white-faced storm petrel, short-tailed shearwater and common diving-petrel within operational light and flaring EMBAs. Only common diving-petrel identified as foraging at night. Breeding BIAs for short-tailed shearwater and wedge-tailed shearwater within flaring EMBA. Breeding BIA for common diving petrel within operational light and flaring EMBAs.
Recovery (or other) Action	National Recovery Plan for Albatrosses and Petrels: no relevant actions. Wildlife Conservation Plan for Seabirds: Mitigate against impacts of light pollution around breeding colonies. National Light Pollution Guidelines for Wildlife recommend: Always using Best Practice Lighting Design to reduce light pollution and minimise the effect on wildlife. Undertaking an Environmental Impact Assessment for effects of artificial light on listed species for which artificial light has been demonstrated to affect behaviour, survivorship or reproduction.
First Nations Cultural Heritage	Short-tailed shearwaters (mutton birds) are identified as being culturally significant to the Gunditjmara People and are used in harvesting practice (GMTOAC, 2023). It is considered that the potential for cumulative impacts to short-tailed shearwater) may prevent First Nations people's obligations to maintain spiritual connections and care for culturally significant species. Where a potential impact to culturally important species has been identified and assessed as acceptable from an ecological impact point of view – the corresponding impact to cultural heritage is likely to be the same. Impacts to culturally important species of birds, including shearwaters have been assessed acceptable from an ecological perspective, as detailed in EP Appendix E9. Cumulative impacts from drilling and P&A activities resulting in elevated light levels to birds species that are identified as cultural values are at a very small scale, which is not predicted to be material to contribute to cumulative impacts. Cumulative impacts to culturally significant bird species arising from seismic surveys is not expected as the only other seismic survey scheduled to occur in close proximity to the Regia MSS has not received approval yet and it's status is unknown.
Baseline Environment Condition	Existing lighting in the area includes fishing vessels, shipping traffic, existing offshore oil and gas platform and coastal developments. The shipping channel for vessels coming from Melbourne to Tasmania is one of the busiest shipping routes in offshore Australia.
Acceptable Level	Cumulative light does not impact breeding colonies of short-tailed shearwaters, wedge-tailed shearwaters or the common diving petrel, or populations of other species that forage in the area.
Comparison of Predicted Level of Impact with Defined Acceptable Levels	Cumulative light impacts to breeding colonies of short-tailed shearwaters, wedge-tailed shearwaters or the common diving petrel, or populations of other species that forage in the area are not predicted based on the rig and vessels will have a Light Management Plan to reduce light emission to as low as reasonably practicable for safe navigation and work and that flaring will be for short durations.
Predictability/ Certainty of Assessment	The overlap of light affected areas with foraging and breeding BIAs is predicted to be limited to only two concurrent activities at a time (e.g. seismic survey and drilling/P&A at one location – Lady Julia Percy Island) and then only consecutively from individual drilling activities. This assessment of cumulative impacts is made with a high level of predictability and certainty.

5.3 Effects of Elevated Levels of Artificial Light to Orange-bellied Parrot

The only interaction between the Otway projects is with light affected areas, rather than any illuminated structures or vessels. Spatially, there's a potential one-season overlap of the Regia MSS and a single drilling operation within light affected areas along the likely migration path. This overlap is temporal as well, with consecutive drilling operations potentially creating light affected areas over this migration route for several years.

The seismic-related cumulative impact of light emissions on the migration path would be brief, occurring only at night when work is carried out on the eastern side, in conjunction with a single drilling operation. The seismic program is confined to a maximum of 90 days, with active acquisition for 60 of those days.

Over the years, a single drilling rig may emit light that intermittently overlaps with various portions of the migration route. However, there has been no evidence of the orange-bellied parrot offshore during Beach Energy's 18-month drilling campaign in the region, nor in the last decade of Beach Otway Operations. Despite continuous petroleum activities in the Otway Basin, the parrot populations are on the rise.

Overall, the cumulative impact of light emissions from petroleum activities in the Otway area is assessed to be very low, especially when compared to the light emissions from existing shipping and fishing operations along the migration route. It is also noted that most of these vessels do not follow a Light Management Plan.

Table F1-4 - Assessment of cumulative impacts for elevated levels of artificial light to Orange-bellied Parrot.

Conservation (or other) value	Listed as Critically Endangered and Marine under the EPBC Act and noted as a species of cultural significance.
Management Plans	National Recovery Plan for the Orange-bellied Parrot (DoE 2016)
Threatening Processes	Illuminated boats and structures within the migration route as a barrier to migration (weak evidence for impact, moderate risk rating) when overflying the light affected areas.
Relevant Spatial and Temporal Extent	Probable Migration Route September-November (Southward); February-mid-March (northwards). The light affected areas of the reasonably foreseeable activities do not overlap with the Migration Route.
Recovery (or other) Action	Assess the risk of barriers, being illuminated structures or boats, on the probable migration route. Manage threat if the risk rating warrants action. National Light Pollution Guidelines for Wildlife recommends: Always using Best Practice Lighting Design to reduce light pollution and minimise the effect on wildlife. Undertaking an Environmental Impact Assessment for effects of artificial light on listed species for which artificial light has been demonstrated to affect behaviour, survivorship or reproduction.
Baseline Environment Condition	The orange-bellied parrot probable migration route is within the shipping channel for vessels coming from Melbourne to Tasmania - one of the busiest shipping routes in offshore Australia.
Acceptable Level	Light from cumulative sources does not affect migration of the orange-bellied parrot at a population level.
Comparison of Predicted Level of Impact with Defined Acceptable Levels	Cumulative light impacts are not predicted to affect the migration of the orange-bellied parrot at a population level based on the rig and vessels will have a Light Management Plan to reduce light emission to as low as reasonably practicable for safe navigation and work and that flaring will be for short durations.

Predictability/ Certainty of Assessment	There is no published information available on the sensitivity of the orange-bellied parrot to light, and only anecdotal evidence exists regarding the impact of barriers to migration (DELWP 2016). This introduces some uncertainty into the assessment of cumulative impacts.

5.4 Effects of Elevated Levels of Sound to Blue Whales

With the current uncertainty on the timing of some other projects and the distance of underwater sound affected areas, there is the potential for cumulative impact if the following occur within the migration BIA during the biologically relevant periods (nominally November to May):

- Overlap between one drilling activity for one season.
- Consecutive drilling/P&A activities over several seasons.
- Consecutive seismic surveys in one season or over several seasons.

Without appropriate detection and actions in place there is the potential that blue whales could be exposed to underwater sound from two sources (seismic and drilling) within the foraging BIA that could result in them expending more energy to move away from the sound source to forage or restrict the area of foraging. This could also occur for consecutive years whilst drilling activities are undertaken within the Otway Basin.

Cumulative impacts resulting in an increase in the likelihood of PTS and TTS for foraging blue whales are not predicted due to the distances to the PTS and TTS noise criteria for activities.

Table F1-5 - Assessment of cumulative impacts for elevated levels of sound on Blue Whales.

Conservation (or other) value	Listed as Endangered under the EPBC Act.
Management Plans	Conservation Management Plan for the Blue Whale (DoE 2015c) Guidance on key terms within the Blue Whale Conservation Management Plan (DAWE 2021a)
Threatening Processes	Conservation Management Plan for the Blue Whale identifies anthropogenic noise interference as a threat.
Relevant Spatial and Temporal Extent	Underwater sound affected areas overlap Foraging and Annual High Use Foraging BIAs. Blue whales are typically present within the BIAs between November to June, peaking in February and March.
Recovery (or other) Action	Conservation Management Plan for the Blue Whale states that anthropogenic noise in BIAs must be managed so that blue whales can continue to utilise the area without injury and [are] not displaced from a foraging area. DAWE (2021a) details that underwater anthropogenic noise should not: Stop or prevent any blue whale from foraging Cause any blue whale to move on when foraging, or Stop or prevent any blue whale from entering a foraging area

First Nations Cultural Heritage	Although there is the potential for foraging blue whales to be present in the sound EMBA, the proposed activity is not inconsistent with the Conservation Management Plan for the blue whale, which recognises the cultural values of cetaceans for the people of the South Pacific. EP Appendix E7 stated underwater sound emissions will be managed in a manner to not impact on the recovery of the blue whales and will ensure impacts are of an acceptable level. Cumulative impacts from drilling and P&A activities resulting in elevated sound levels to blue whales are at a very small scale, which is not predicted to be material to contribute to cumulative impacts. Cumulative impacts to blue whales arising from seismic surveys is not expected as the only other seismic survey scheduled to occur in close proximity to the Regia MSS has not received approval yet and it's status is unknown
Baseline Environment Condition	The BIAs overlap existing shipping channel, area of high commercial fishing effort, and existing oil and gas activity.
Acceptable Level	Each activity will be carried out in a manner that will not be inconsistent with the Conservation Management Plan for the Blue Whale such that blue whales can continue to utilise the area without injury and [are] not displaced from a foraging area.
Comparison of Predicted Level of Impact with Defined Acceptable Levels	Cumulative impact to Blue Whale's are not predicted as each titleholder will be required to undertake their activity in a manner that will not be inconsistent with the Conservation Management Plan for the Blue Whale such that blue whales can continue to utilise the area without injury and [are] not displaced from a foraging area.
Predictability/ Certainty of Assessment	There is a high level of predictability and certainty in the limited potential for cumulative impacts, given the requirements in place for each activity to prevent impacts.

5.5 Effects of Elevated Levels of Sound to Southern Right Whales

Cumulative impacts from current and reasonably foreseeable activities to the SRW migration and reproductive BIA are not predicted as the sound affected areas do not simultaneously overlap with these areas.

With the current uncertainty on the timing of some other projects and the distance of underwater sound affected areas, there is the potential for cumulative impact if the following occur within the migration BIA during the biologically relevant periods (nominally April and October):

- Overlap between one drilling activity for one season.
- Consecutive drilling/P&A activities over several seasons.

Without appropriate detection and actions in place there is the potential that SRWs could be exposed to underwater sound from two sources (seismic and drilling) within the migration BIA that could result in them expending more energy to move away from the sound source when migrating to and from coastal breeding areas. This could also occur for consecutive years whilst drilling activities are undertaken within the Otway Basin.

Cumulative impacts resulting in an increase in the likelihood of PTS and TTS for a migrating SRW is not predicted due to the small distances to the PTS and TTS noise criteria for drilling activities.

Table F1-6 - Assessment of cumulative impacts for elevated levels of sound on Southern Right Whales.

Conservation (or other) value	Listed as Endangered under the EPBC Act and noted as a species of cultural significance in the National Recovery Plan for the Southern Right Whale (DCCEEW 2024).
Management Plans	Conservation Management Plan for Southern Right Whale (DSEWPaC 2012b) National Recovery Plan for the Southern Right Whale (DCCEEW 2024)
Threatening Processes	Conservation Management Plan for the Southern Right Whale and National Recovery Plan for the Southern Right Whale identify noise interference as a threat.
Relevant Spatial and Temporal Extent	Overlap of underwater sound affected areas with migration and reproductive BIAs. Southern right whales are typically within the migration BIA from April to October.
Recovery (or other) Action	National Recovery Plan for the Southern Right Whale: " Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that it does not prevent any southern right whale from utilising the area or cause auditory impairment"," and "Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that the risk of behavioural disturbance is minimised".
First Nations Cultural Heritage	Although there is the potential for migrating southern right whales to be present in the sound EMBA, the proposed activity is not inconsistent with the with the Recovery Plan for southern right whales which recognises the cultural significance of this species as totemic ancestors to some groups, the importance of coastal bays, known resting/feeding sites for mothers and calves and the importance of the arrival of southern right whales to communities and people following a songline or ancient memory code, and will not affect the ability of locals to gather on Gunditjmara Sea Country to welcome koontapool back to her traditional birthing waters. EP Appendix E7 stated underwater sound emissions will be managed in a manner to not impact on the recovery of southern right whales and will ensure impacts are of an acceptable level. Cumulative impacts from drilling and P&A activities resulting in elevated sound levels to southern right whales are at a very small scale, which is not predicted to be material to contribute to cumulative impacts. Cumulative impacts to southern right whales arising from seismic surveys is not expected as the only other seismic survey scheduled to occur in close proximity to the Regia MSS has not received approval yet and it's status is unknown
Baseline Environment Condition	The BIAs overlap existing shipping channel, area of high commercial fishing effort, and existing oil and gas activity.
Acceptable Level	The activity will be carried out in a manner that will not be inconsistent with the National Recovery Plan for the Southern Right Whale (DCCEEW 2024) such that Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that it does not prevent any southern right whale from utilising the area or cause auditory impairment, and ensure the risk of behavourial impacts are minimised.
Comparison of Predicted Level of Impact with Defined Acceptable Levels	Cumulative impact to Southern Right Whales are not predicted as each titleholder will be required to undertake their activity in a manner in a manner that will not be inconsistent with the National Recovery Plan for the Southern Right Whale (DCCEEW 2024) such that Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that it does not prevent any southern right whale from utilising the area or cause auditory impairment and and ensure the risk of behavourial impacts are minimised. .

Predictability/ Certainty of Assessment	There is a high level of predictability and certainty in the limited potential for cumulative impacts, given the requirements in place for each activity to prevent impacts.

Notes:
1. Legal definition of 'Should' means expected course of action or policy to be followed unless inappropriate for a particular circumstance. No habitat critical to the survival of SRWs have been identified.

5.6 Effects of Elevated Levels of Sound to Fin, Sei Whales, and Pygmy Right Whales.

While there are no BIAs for Fin, Sei and Pygmy Right Whales within Australian waters, Fin, Sei, and Pygmy Right Whales are considered likely to be foraging in the area that may be affected by underwater sound at a similar time as Blue Whales, i.e. predominately between January and April. While the Regia MSS will not take place during this period, with the current uncertainty on the timing of some other projects and the distance of underwater sound affected areas, there is the potential for cumulative impact if the following occur during the biologically relevant periods (nominally November to May):

- Overlap between one drilling activity for one season.
- Consecutive drilling/P&A activities over several seasons.
- Consecutive seismic surveys in one season or over several seasons.

Without appropriate detection and actions in place there is the potential that fin, sei, and pygmy right whales could be exposed to underwater sound from two sources (seismic and drilling) within the foraging BIA that could result in them expending more energy to move away from the sound source to forage or restrict the area of foraging. This could also occur for consecutive years whilst drilling activities are undertaken within the Otway Basin.

Cumulative impacts resulting in an increase in the likelihood of PTS and TTS for foraging fin, sei, and pygmy right whales are not predicted due to the distances to the PTS and TTS noise criteria for activities.

Table F1-7: - Assessment of cumulative impacts for elevated levels of sound on Fin, Sei, and Pygmy Right Whales.

Conservation (or other) value	Fin and Sei Whales are listed as Vulnerable under the EPBC Act, the Pygmy right whale (PRW) not listed as threatened under the EPBC Act.
Management Plans	Conservation Advice Balaenoptera physalus (fin whale) (TSSC 2015a). Conservation Advice Balaenoptera borealis (sei whale) (TSSC 2015b). There are no management plans or conservation advice for the PRW.
Threatening Processes	Conservation advice *Balaenoptera physalus* (fin whale) identifies anthropogenic noise and acoustic disturbance as a minor threat. Conservation *advice Balaenoptera borealis* (sei whale) identifies anthropogenic noise and acoustic disturbance as a minor threat. There are no threats identified for the PRW.
Relevant Spatial and Temporal Extent	There are no BIAs or habitat critical to the survival of the fin whale and sei whale were identified within the underwater sound EMBAs. Presence within EMBAs for fin and sei whales is listed as known to occur within the area and may be undertaking foraging or feeding-related behaviour, PRW is listed as likely to occur within the EMBA and may be undertaking foraging or feeding-related behaviour
Recovery (or other) Action	The Conservation Advices for Balaenoptera physalus (fin whale) and for Balaenoptera borealis (sei whale) identify anthropogenic noise and acoustic disturbance as a minor threat. There are no management plans, conervation advice, or recovery plans listed for PRW.
Baseline Environment Condition	The areas of use by fin, sei and pygnmy right whales overlap existing shipping channel, area of high commercial fishing effort, and existing oil and gas activity.

Acceptable Level	Fin, Sei and Pygmy Right Whales can continue to the area, with the risk of injury and disturbance minimised.
Comparison of Predicted Level of Impact with Defined Acceptable Levels	Cumulative impact to Fin, Sei and Pygmy Right Whales are not predicted as each titleholder will be required to undertake their activity in a manner in which the risk of injury and disturbance minimised.
Predictability/ Certainty of Assessment	There is a high level of predictability and certainty in the limited potential for cumulative impacts, given the requirements in place for each activity to prevent impacts.

5.7 Industry Standard Control Measures

The following sections outline the standard measures which any titleholder relying on this CIA would adopt, with environmental performance suitable for their activities and management systems specified in their Environment Plan. Titleholders may choose to collaborate with one another on any of the measures noting the likely need to specify environmental performance on their own terms.

5.7.1 On-Water Communication Protocol

All titleholders in the region will likely apply the industry standard of adopting communication protocol (or similar) to manage interactions with commercial fishing activities.

5.7.2 Petroleum SIMOPS Plan

Titleholders with ongoing or planned activities in the Otway region are in regular consultation with each other and are working collaboratively to manage potential cumulative impacts. Details about this plan can be found in Appendix B3.

5.7.3 Compensation/Adjustment Protocol

Each titleholder will adopt a compensation/adjustment protocol to manage cumulative impacts to commercial fishers. Titleholders may collaborate to reduce the burden on affected fishers and standardise the processes for making evidence-based claims.

5.7.4 Light Management Plan

Titleholders predicting elevated levels of artificial light overlapping or adjacent to bird foraging or breeding BIAs, or the orange-bellied parrot migration routes are required to have a light management plan that meets the requirements of the National Light Pollution Guidelines. It is likely that all titleholders will have some form of assurance processes associated with the contracting of rigs and vessels to ensure this control measure in adopted and project rigs and vessels comply with all maritime laws.

5.7.5 Fauna Management Plans

It is expected that each titleholder will carry out observations, report incidents, and share opportunities for improvement with other petroleum titleholders in the Otway Basin regarding underwater sound management and whale interactions. Titleholders in the region are all individually responsible for ensuring the acceptable level of impact for Blue Whales and Southern Right Whales is not exceeded and titleholders have agreed to collaborate with the aim of minimising the potential for cumulative impacts associated with underwater sound, should activity timings overlap biologically important periods for Blue Whales and or Southern Right Whales.

5.8 Identification of Additional Control Measures

Additional measures have been considered because of this CIA to support titleholders in the Otway region to demonstrate cumulative impacts have been reduced to as low as reasonably practical (**ALARP**) and meet acceptable levels for cumulative impacts.

Additional measures may include a review and strengthening of existing measures, investigating the feasibility of additional mitigation measures or adaptive management processes, refining the activity description to reduce impact, and working with the proponents of other relevant reasonably foreseeable future projects to develop holistic mitigation strategies that consistently improve outcomes.

6 Outcome of CIA

The potential for cumulative impacts is considered low, with lower-order effects, given:

- The contracting of a single rig to conduct drilling related activities in the region which has eliminated the potential for concurrent cumulative impacts associated with multiple rig and support vessel operations.
- The physical overlap of a drilling activity within a seismic acquisition area has not been predicted and would make one, or the other activity unworkable.

6.1 CIA Outcome on Conservation Values and Sensitivities

Based on the outcome of the CIA, it is considered that cumulative impacts associated with the each of the projects and activities in this CIA both individual and collectively will not affect the representativeness of the South-east Commonwealth Marine Reserves Network, nor the conservation values of the Zeehan Marine Park associated with seabirds, the white shark and marine mammals, or sea-floor features.

6.2 Cumulative Impacts Reduced to ALARP

The residual cumulative impacts are considered to be of lower order because the cause effect pathways to impact have been identified and can be reduced with the adoption of industry standard control measures specified in Section 5.7, plus the additional measures in Section 5.8.

6.3 Cumulative Impacts Reduced to Acceptable Levels

Following completion of the CIA process, the residual cumulative impacts are of lower order because good practice controls are defined and will be implemented and each of the activities will be managed in accordance with relevant company, Commonwealth, international, and Industry standards, guidelines, and requirements.

7 References

TSSC. 2015a. Conservation Advice Balaenoptera physalus Fin Whale. Threatened Species Scientific Committee.
TSSC. 2015b. Conservation Advice Balaenoptera borealis Sei Whale. Threatened Species Scientific Committee.

8 Document Control

Date	Revision	Update
5 January 2024	1	EP submission to NOPSEMA
14 May 2024	2	Reviewed and update following public comment and rerun of the PSMT searches.
30 October 2024	3	Updated following NOPSEMA's assessment.
16 April 2025	4	Updated following NOPSEMA OMR 1 Letter
9 December 2025	5	Updated following NOPSEMA OMR 2 Letter

Annex 1

Objections and Claims Raised from Consultation

During the consultation process relevant persons were invited to raise objections and claims about the adverse effects of the activity. An assessment of merit of each objection or claim has been made by CGG which can be found in the consultation report using the Feedback ID number shown in Table F1-8. If an objection or claim had merit and was relevant to this assessment it has been included in the table below.

Table F1-8 - Objections and Claims raised from consultation.

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4067	Concern regarding the repeated seismic blasting in the area, which may have effects on marine life. Stakeholder is questioning the impact of multiple blasts and the potential for further exploration by other companies, particularly regarding the sale of seismic data.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable. Cumulative impacts are also assessed as negligible.	879
4151	Potential cumulative impacts upon species are addressed.	The titleholder responded by informing the stakeholder that the Regia MSS team were currently undertaking the cumulative impact assessment and will ensure that it covers previous and planned seismic surveys within the area and assesses impacts to cetaceans (behaviour, PTS, TTS) and their food source (krill).	653
4152	Potential harm to marine species like dolphins and whales due to disorientation caused by intense noise.	The Regia EP has conducted a thorough assessment of the literature which is both aspect-focused and also receptor- focused for those taxa of increased public concerns. Marine mammals, Blue Whale and Southern Right Whale in particular, have been subject to increased levels of assessment which have been used to decide outcomes.	1263
4173	Seismic blasting has adverse effects on the marine environment, with critical gaps in understanding the effects on individual species and the marine environment as a whole.	The titleholder responded with an explanation of the information sources used to inform the Regia MSS impact and risk assessments, and explained how these information sources and resulting measures are specific to the potential impact. The titleholder also referred to documents relevant to this claim within the environment plan (Event ID 4092).	4091
4489	Claims that CGG cannot determine what constitutes an “acceptable” level of impact or risk to Gunditjmara cultural values in Nyamat Mirring. States the April 2025 Environment Plan contains flawed cumulative impact assessments due to this lack of consultation.	CGG rejects GMTOAC’s claim that inadequate consultation prevents CGG from determining “acceptable” levels of cultural impact, asserting that it fully met its consultation obligations. CGG argues that the legal test is whether the Environment Plan demonstrates impacts and risks are reduced to ALARP and to an acceptable level. It maintains that GMTOAC’s critiques conflate subjective opinion with the regulatory standard under Regulation 34	EVT352

	GMTOAC identifies several shortcomings: CGG's interpretation of potential impacts to Gunditjmara and other First Nations cultural heritage is too narrow; CGG wrongly assumes that acceptable ecological impacts equate to acceptable cultural impacts; and CGG's cumulative impact assessment for Karntubul (Southern Right Whale), previously criticised by NOPSEMA in its February OMR, remains unchanged.	and emphasises that the law does not grant stakeholders a veto over design decisions. In response to the assertion that its interpretation of cultural heritage is too narrow, CGG maintains that GMTOAC has already articulated its cultural values clearly and extensively through published materials and received during consultation. These values, encompassing ceremony, obligations, kinship systems, spiritual relationships, and ecological connections are thoroughly integrated across the EP. The EP references the Nyamat Mirring Plan 2023–2033, incorporates cultural values and sensitivities into Appendix F3, and identifies culturally significant species and places as sensitive receptors with tailored management measures, for example, timing restrictions to avoid birthing seasons. CGG states that it has incorporated analysis of cumulative effects on Sea Country, including those arising from the survey in combination with other activities. It confirms that Karntubul is included in cumulative risk assessments with corresponding mitigation commitments.	
4491	Claims about the SRW and BW BIAs. States proposed activity will cause unacceptable impacts to all Karntubul species, including temporary & permanent hearing loss, displacement from BIAs, vessel strike, prey depletion during peak feeding/migration period, calving interruption, and impact to ecosystems and cultural landscapes as a result of the cumulative impact of these.	CGG has identified all Biologically Important Areas (BIAs) relevant to blue whales (BWs) and southern right whales (SRWs) and incorporated seasonal BIA use into the survey design through substantial temporal and spatial restrictions detailed in the EP. Predicted underwater-sound impacts on these Karntubul species, along with mitigation measures presented in Appendices E7 and F3, demonstrate impacts will remain acceptable and will avoid auditory impairment or displacement from BIAs or Habitats Critical to Survival (HCTS). CGG further notes that vessel-strike risk is already extremely low during seismic surveys and that additional controls in Appendix D2 ensure this risk is prevented and acceptable. It concludes that no changes to ecosystem structure, diversity, or function are expected from the one-off survey, with sound exposure too limited in extent and duration to affect prey, food webs, or predator–prey relationships. A cumulative impact assessment found residual cumulative effects to be low, reduced to ALARP, and acceptable, with no impacts predicted for regional marine parks. CGG also asserts consistency with the National Recovery Plan for Southern Right Whales and the Blue Whale Conservation Management Plan, stating that their objectives and recommended measures have been incorporated. Finally, CGG maintains that all marine mammal species likely to occur in the region have been adequately assessed using up-to-date EPBC Protected Matters data, and that mitigation measures ensure impacts to all listed species	EVT352

		will remain acceptable and not inconsistent with EPBC Act protection provisions.	
4492	Claims that the eastern population of the Southern Right Whale, estimated at only 200–300 individuals, is at particularly high risk because its migration and reproduction Biologically Important Areas (BIAs) overlap directly with CGG's Operational Area and sound propagation footprint. According to the Southern Right Whale Recovery Plan, these whales use the affected region for reproduction between May and September and for migration between April and October. The Recovery Plan also notes that Southern Right Whales do not feed in coastal waters but are expected to feed, and possibly conceive, within the Australian Whale Sanctuary—an area entirely overlapped by the proposed Regia MSS activity. As a result, the seismic survey could occur within, or affect, conceiving, calving, and feeding grounds for this critically endangered sub-population. The species is particularly vulnerable to human impacts due to its low reproductive rate, long lifespan, and strong site fidelity to key habitats. The submission therefore emphasises the relevance of underwater noise, habitat degradation, and vessel-strike risks in the context of the proposed seismic activities.	The Recovery Plan explains that BIAs can be designated for key behaviours such as reproduction, foraging, migration, and resting. While Southern Right Whale BIAs in the Plan cover reproduction and migration, the Plan notes that foraging occurs across a much broader offshore latitudinal range (30°S–65°S) and is not linked to these BIAs. Because the Regia MSS is not located in Antarctic waters, it will not affect cetaceans that forage there. CGG states the survey will avoid peak SRW abundance in the mapped BIA and apply mitigation measures to ensure no SRWs are harmed, injured, or interfered with.	EVT352
4496	GMTOAC objects to CGG removing a previous control measure limiting seismic discharge in the Pygmy Blue Whale foraging BIA during periods of low whale presence, replacing it with a vague condition requiring CGG to determine whether whale presence is "compatible" with proceeding. GMTOAC argues this new measure lacks detail on how whale presence or "unacceptable disturbance" will be	CGG has further reduced the likelihood of interactions with marine mammals by excluding the April–June period and commencing the survey only after 15 September. Because blue whales typically do not arrive from Western Australia until November, CGG argues that most of the survey will occur when blue whales are absent from the area. It adds that sighting data show very few blue whales in November and December, with peak abundance occurring later, from January to March during the Bonney Upwelling.	EVT352

	assessed, and that it fails to reference Recovery Plans which define unacceptable impacts. GMTOAC warns that the proposed survey timing (April–June 2026) coincides with peak Pygmy Blue Whale foraging season and Southern Right Whale migration and calving periods, meaning the seismic survey is likely to occur when both species are using their BIAs. Preventing whales from accessing these areas, or exposing them to injury while they remain, would constitute unacceptable impacts inconsistent with Recovery Plan objectives.		

Annex 2

Spatial overlap analysis

	Thylacine (Beach)	**Geographe (Beach)**	**CHN (Cooper/Amplitude)**	**Otway Drilling (Conoco)**	**Production Drilling (Cooper/Amplitude)**	**Minerva Decom**	**Production Drilling (Beach)**	~~**Seismic Survey (Otway 3D MSS)**~~	**Seismic Survey (Regia MSS)**	**Seismi Survey (Calico – Beach)**
Thylacine (Beach)		None	None	Light[1]	None	None	None	~~None~~	Sound[3]	None
Geographe (Beach)	None		None	Light[1]	None	None	Light, Sound[2, 3]	~~None~~	Sound	None
CHN (Cooper/Amplitude)	None	None		None	Light, Sound[2, 3]	None	None	~~None~~	None	None
Otway Drilling (ConocoPhillips)	Light[1]	Light[1]	None		None	None	Light, Sound[2, 3]	~~None~~	Light, Sound[2, 3]	None
Production Drilling (Cooper/Amplitude)	None	None	Light, Sound[2, 3]	None		None	None	~~None~~	Sound[3]	Sound[3]
Minerva Decommissioning	None	None	None	None	None		None	~~None~~	Sound[3]	Sound[3]
Production Drilling (Beach)	None	Light, Sound[2, 3]	None	Light, Sound[6]	None	None		~~None~~	Sound[3]	None
~~**Seismic Survey (Otway 3D MSS)**~~	~~None~~	~~None~~	~~None~~	~~None~~	~~None~~	~~None~~	~~None~~		~~Sound[3]~~	~~None~~
Seismic Survey (Regia MSS)	None	Sound[3]	None	Light, Sound[2, 3]	Sound[3]	Sound[3]	Sound[3]	~~Sound[3]~~		None
Seismi Survey (Calico – Beach)	None	None	None	None	Sound[3]	Sound[3]	None	~~None~~	None	

1. This overlap is based on a 20 km area of effect from these activities noting that ConocoPhillips Australia have not identified final drilling locations.
2. This overlap is from the activities being proximate to the production facilities.

3. The overlap in sound is taking from a conservative estimate of 50 km between sound sources noting that distance is an inadequate but conservative measure to determine spatial overlap between projects and activities.

Annex 3

CIA Scoping Tool

Environmental Component	Sub-Component	Environmental Aspect (yellow = drilling specific)									CIA Scoping					
		Physical Presence	Seabed Disturbance	Artificial Light - Operational	Artificial Light - Flaring	Atmospheric Emissions	Underwater Sound - Continuous	Underwater Sound - Impulsive	Routine Discharges	Drilling Discharges	Acceptable Levels (Effect) Ecological integrity and biodiversity conservation (Temporary/reversible/recoverable, small scale and/or low intensity) Assessing scale and nature	Potential for Cumulative Impact - Spatial Extent	Potential for Cumulative Impact - Temporal Extent	Predictability and Certainty	Scoping Assessment Outcome	Cumulative Cause-effect Pathway
Physical Environment	Water Quality		✓						✓	✓	Temporary, small-scale, and recoverable impacts.	N - Limited to individual activity discharge location	N - Limited to duration of individual activity	High for individual and cumulative impacts.	No cumulative impact cause-effect pathway identified. Impacts to water quality from activities are predicted to rapidly disperse given the open ocean environment and prevailing currently within 500 m to 2 km of the discharge, thus there is no potential to accumulate over spatial or temporal scales.	None identified
	Sediment Quality		✓							✓	Temporary, small-scale, and recoverable impacts.	N - Limited to individual activity discharge location	N - Limited to months - year after individual activity	High for individual and cumulative impacts.	Cumulative impact cause-effect pathway identified but impacts not material. No impacts to sediment quality are predicted for seismic surveys. Impacts to sediment quality drilling activities are predicted to be localised within 500 m of each well. Though there is the potential for an increase in potential impact as each area is very small (500 m) material impacts are not predicted.	Identified but impacts not material nor added to by the Regia MSS. No further assessment required.
	Air Quality					✓					Temporary, small-scale, and recoverable impacts.	N - Limited to individual activity discharge location	N - Limited to duration of individual activity	High for individual and cumulative impacts.	No cumulative impact cause-effect pathway identified. Impacts to air quality from activities are predicted to be localised, and atmospheric emissions will rapidly disperse to background levels close to the emissions source given the open ocean environment and prevailing wind. Emissions are not predicted to affect the achievement of the National Environmental Protection Measure for Ambient Air Quality (NEPM AQQ) (NEPC 2021) protection goals., with no potential to accumulate over spatial or temporal scales.	None identified
	Climate					✓					Small-scale and low intensity impacts.	N - Global climate	N - Indeterminable	High for individual and cumulative impacts.	Although GHG emissions from activities will add to the global atmospheric levels of GHG emissions, the quantities estimated to be released are insignificant on a global scale.	None identified
	Ambient Light - Operational			✓							Temporary, small-scale, and recoverable impacts.	Y - Bioregion, BIAs, and biologically important behaviours for sensitive species	Y - Consecutive activities, and seismic and single drilling operation may occur concurrently	High for individual and cumulative impacts.	There is potential for cumulative impacts depending on location of activities and sensitive receptors. Although changes in ambient light are restricted to typically 20 km radius of individual activities, activities may occur consecutively over several years within the Otway Basin and seismic and drilling at a single location have the potential to occur concurrently	Identified and further assessment required to determine if impacts are material.
	Ambient Light - Flaring			✓	✓						Temporary, small-scale, and recoverable impacts.	N - Only single drilling operation at any one time	Y - Consecutive activities if others are flaring in similar location	High for individual and cumulative impacts.	There is potential for cumulative impacts depending on location of activities and sensitive receptors. Although flaring light impacts are restricted to typically 50 km radius of individual short-term operations (max. 120 hours per well), flaring may occur consecutively over several years within the Otway Basin.	Identified and further assessment required to determine if impacts are material.

Environmental Component	Sub-Component	Environmental Aspect (yellow = drilling specific)									CIA Scoping					Cumulative Cause-effect Pathway
		Physical Presence	Seabed Disturbance	Artificial Light - Operational	Artificial Light - Flaring	Atmospheric Emissions	Underwater Sound - Continuous	Underwater Sound - Impulsive	Routine Discharges	Drilling Discharges	Acceptable Levels (Effect) Ecological integrity and biodiversity conservation (Temporary/reversible/recoverable, small scale and/or low intensity) Assessing scale and nature	Potential for Cumulative Impact - Spatial Extent	Potential for Cumulative Impact - Temporal Extent	Predictability and Certainty	Scoping Assessment Outcome	
	Ambient Sound						✓	✓			Temporary, small-scale, and recoverable impacts.	Y - Bioregion, BIAs, and biologically important behaviours for sensitive species	Y - Consecutive activities Seismic and single drilling operation may occur concurrently	Moderate for individual and cumulative impacts.	There is potential for cumulative impacts depending on location and timing of activities and sensitive receptors. Although sound impacts are restricted to within typically 10s of kms around individual activities, activities may be occurring consecutively over a period and seismic and drilling (at a single location) have the potential to occur concurrently.	Identified and further assessment required to determine if impacts are material.
Ecological Environment	Benthic Habitats and Communities		✓							✓	Temporary, small-scale, and recoverable impacts.	N - Limited to individual activity area	N - Limited to weeks-months after individual activity	High in individual and cumulative impacts.	No cumulative impact effect pathway identified. The area of impact is relatively small compared to the extent of the distribution of benthic habitats and associated benthic fauna found within the Otway Basin. Widespread changes to the benthic environment or ecosystem functioning or integrity are not predicted. No overlap with threatened ecological communities. Overlap with Zeehan AMP, which has benthic habitat as a value, only occurs one activity.	None identified
	Coastal Habitats and Communities										N/A for planned activities. (No impact to coastal areas from planned drilling operation impacts).					None identified
	Plankton						✓	✓	✓	✓	Temporary, small-scale, and recoverable impacts.	N - Limited to individual activity area	N - Recovery days post activity	Moderate for individual and cumulative impacts.	No cumulative impact effect pathway identified. Discharges to the water column are not predicted to impact water quality at a cumulative scale and therefore will not impact plankton at an ecological integrity level. Continuous noise from drilling and vessel operation is not predicted to impact plankton. The cumulative impact of impulsive sound from consecutive seismic operations has been assessed and controlled in relevant EPs. Impacts from VSP are short term (<20 hours per well and nor predicted to result in impacts at scale to contribute to cumulative impacts.	None identified
	Invertebrates		✓				✓	✓		✓	Temporary, small-scale, and recoverable impacts.	N - Limited to individual activity with exception of multiple seismic operations	N - Limited to weeks-months after individual activity	High for individual and cumulative impacts.	No cumulative impact effect pathway identified. Continuous noise from drilling and vessel operation and VSP is not predicted to impact invertebrates. The cumulative impact of impulsive sound from consecutive seismic operations has been assessed and controlled in relevant EPs.	None identified

Environmental Component	Sub-Component	Environmental Aspect (yellow = drilling specific)									CIA Scoping					Cumulative Cause-effect Pathway
		Physical Presence	Seabed Disturbance	Artificial Light - Operational	Artificial Light - Flaring	Atmospheric Emissions	Underwater Sound - Continuous	Underwater Sound - Impulsive	Routine Discharges	Drilling Discharges	Acceptable Levels (Effect) Ecological integrity and biodiversity conservation (Temporary/reversible/recoverable, small scale and/or low intensity) Assessing scale and nature	Potential for Cumulative Impact - Spatial Extent	Potential for Cumulative Impact - Temporal Extent	Predictability and Certainty	Scoping Assessment Outcome	
	Fish and Sharks						✓	✓			Not inconsistent with EPBC Act Management Plans, and Recovery Plans. Temporary, small-scale, and recoverable impacts.	N - Limited to individual activity with exception of multiple seismic operations	N - Periods of biologically important behaviours for sensitive species	High for individual and cumulative impact sense.	No cumulative impact cause-effect pathway identified. Underwater sound from drilling is predicted to be localised to within 190 m for recoverable injury and TTS for fish and sharks and within 450 m for VSP. The area of impact from concurrent seismic and drilling activities is small compared to the extent of the distribution of fish and shark species. The area of impact from concurrent seismic and drilling activities is small compared to the white shark distribution BIA but is considered moderate for the foraging BIA. However, seismic survey and drilling operations with the potential to affect the foraging BIA in the northern extent of VIC/P79 are mutually exclusive and cannot occur concurrently. Sound impacts are not identified as a threat within the Recovery Plan for the White Shark (Carcharodon carcharias) (DSEWPaC 2013a).	None identified
	Birds			✓	✓		✓	✓			Not inconsistent with EPBC Act Management Plans, and Recovery Plans. Temporary, small-scale, and recoverable impacts.	Y - BIAs for sensitive species (Bioregion)	Y - Periods of biologically important behaviours for sensitive species	High for individual and cumulative impacts.	There is potential for cumulative impacts associated with light depending on location of activities and sensitive receptors, i.e. foraging, migrating, and breeding birds. There is no cumulative effect pathway for underwater sound with the consequence of underwater sound on birds from drilling activities assessed as negligible. Regarding the potential for cumulative impacts to diving birds and little penguins associated with underwater sound from seismic activities, there is only one other seismic survey scheduled to occur in proximity to the Regia MSS. The Beach Energy Calico seismic survey was due to commence in February through to May 2025. CGG understands this project has yet to receive regulatory approval, it is not anticipated this survey will be occurring at the same time as the Regia MSS. Thus, cumulative impacts to diving birds and penguins as a result of one or more seismic surveys occurring in proximity to the Regia MSS operational area are not expected. Although changes in ambient light are restricted to typically 20 km radius of individual activities, activities may be occurring consecutively over several years throughout the region and seismic and drilling at one location have the potential to occur concurrently.	Identified and further assessment required to determine if impacts are material.
	Marine Reptiles			✓	✓		✓	✓			Not inconsistent with EPBC Act Management Plans, and Recovery Plans. Temporary, small-scale, and recoverable impacts.	N - No BIAs or critical habitat	N - No periods of biologically important behaviours for sensitive species	High for individual and cumulative impacts.	No cumulative effect pathway identified. Individuals in the area are expected to be transient, with no BIAs, critical habitat, or biologically important behaviours within the Otway Basin. Lighting doesn't impact in water navigation or behaviours and impacts from noise will be temporary and recoverable.	None Identified

Environmental Component	Sub-Component	Environmental Aspect (yellow = drilling specific)									CIA Scoping					
		Physical Presence	Seabed Disturbance	Artificial Light - Operational	Artificial Light - Flaring	Atmospheric Emissions	Underwater Sound - Continuous	Underwater Sound - Impulsive	Routine Discharges	Drilling Discharges	Acceptable Levels (Effect) Ecological integrity and biodiversity conservation (Temporary/reversible/recoverable, small scale and/or low intensity) Assessing scale and nature	Potential for Cumulative Impact - Spatial Extent	Potential for Cumulative Impact - Temporal Extent	Predictability and Certainty	Scoping Assessment Outcome	Cumulative Cause-effect Pathway
	Marine Mammals						✓	✓			Not inconsistent with EPBC Act Management Plans, and Recovery Plans. Temporary, small-scale, and recoverable impacts.	Y - BIAs for sensitive species (Bioregion)	Y - Periods of biologically important behaviours for sensitive species	Moderate for individual and cumulative impacts.	There is potential for cumulative impacts associated with underwater sound depending on location of activities and sensitive receptors, i.e. endangered species, foraging and migrating BIAs. Although sound impacts are restricted to within typically 10s of kms around individual activities, activities may be occurring consecutively over a period and seismic and drilling at one location have the potential to occur concurrently.	Identified and further assessment required to determine if impacts are material.
	Conservation Values and Sensitivities		✓			✓	✓	✓		✓	Not inconsistent with SE Marine Parks Network Management Plan. Temporary, small-scale, and recoverable impacts.	Y - Zeehan AMP	Y - Periods of biologically important behaviours for conservation values	High for individual and cumulative impacts.	The Zeehan Marine Park is overlapped by three proposed activities. See individual ecological receptors above for assessment of conservation values of the Zeehan Marine Park which include benthic habitats that supports animal communities and invertebrates, seabirds, the white shark and migrating blue whales and humpback whales.	Identified for seabirds and whales and further assessment required to determine if impacts are material.
Socio-economic Environment (Other marine and coastal users)	Coastal Communities and Onshore Tourism Activities	✓		✓	✓						Temporary, small-scale, and low intensity impacts.	N - Not predicted to see multiple activities from single vantage point (King Island, Victorian coast)	Y - May be able to see different activities over time from single vantage point (King Island, Victorian coast)	High for individual and cumulative impacts.	Cumulative effect pathway identified, associated with visibility of different activities over time, but impacts not material. The likelihood of visibility of multiple activities from a single vantage point is considered low given the distances offshore it is not predicted that rig and vessel would be distinguishable from other existing vessel traffic.	Identified but impacts not material. No further assessment required.
	Offshore Petroleum Activities	✓									Temporary, small-scale, and low intensity impacts.	N	N	High for individual and cumulative impacts.	Cumulative effect pathway identified but impacts not material. Other activities are scheduled and/or operate within their own exclusion zones/petroleum titles. Notice to mariners will provide advanced warning and opportunity to plan transit route. At most avoidance of a single seismic survey vessel and towed equipment, and a single drilling location at any given time with minimal impact.	Identified but impacts not material. No further assessment required.
	Offshore Renewable Energy Activities	✓									Temporary, small-scale, and low intensity impacts.	N	N	High for individual and cumulative impacts.	No cumulative impact effect pathway identified. There are no reasonably foreseeable future projects or activities in the offshore Otway Basin.	None Identified
	Defence Activities	✓	✓								Temporary, small-scale, and low intensity impacts.	Y - Displacement from concurrent and consecutive seismic and drilling areas	Y - Displacement from concurrent and consecutive seismic and drilling areas	High for individual and cumulative impacts.	Cumulative effect pathway identified but impacts not material. Industry standard controls in place such as notice to mariners will provide advanced warning and opportunity to plan transit route. At most avoiding a single seismic survey vessel and towed equipment, and a single drilling location at any given time with minimal impact. Impacts to maritime archaeological heritage are not predicted from seismic surveys. Drilling activities required to undertake seabed surveys prior to seabed disturbance. Impacts to UXO are not a planned event and therefore cumulative impacts are not predicted.	Identified but impacts not material. No further assessment required.

Environmental Component	Sub-Component	Environmental Aspect (yellow = drilling specific)									CIA Scoping					
		Physical Presence	Seabed Disturbance	Artificial Light - Operational	Artificial Light - Flaring	Atmospheric Emissions	Underwater Sound - Continuous	Underwater Sound - Impulsive	Routine Discharges	Drilling Discharges	Acceptable Levels (Effect) Ecological integrity and biodiversity conservation (Temporary/reversible/recoverable, small scale and/or low intensity) Assessing scale and nature	Potential for Cumulative Impact - Spatial Extent	Potential for Cumulative Impact - Temporal Extent	Predictability and Certainty	Scoping Assessment Outcome	Cumulative Cause-effect Pathway
	Shipping	✓									Temporary, small-scale, and low intensity impacts.	Y - Displacement from concurrent and consecutive seismic and drilling areas	Y - Displacement from concurrent and consecutive seismic and drilling areas	High for individual and cumulative impacts.	Cumulative effect pathway identified but impacts not material. The area of impact is small compared to the area available for shipping. Industry standard controls in place such as notice to mariners will provide advanced warning and opportunity to plan transit route. At most avoiding a single seismic survey vessel and towed equipment, and a single drilling location at any given time with minimal impact.	Identified but impacts not material. No further assessment required.
	Marine Tourism	✓									Temporary, small-scale, and low intensity impacts.	Y - Displacement from concurrent and consecutive seismic and drilling areas	Y - Displacement from concurrent and consecutive seismic and drilling areas	High for individual and cumulative impacts.	Cumulative effect pathway identified but impacts not material. The area of displacement is small compared to area available for tourism. Industry standard controls in place such as notice to mariners will provide advanced warning and opportunity to plan transit route. At most avoiding a single seismic survey vessel and towed equipment, and a single drilling location at any given time with minimal impact.	Identified but impacts not material. No further assessment required.
	Recreational Diving and Surfing						✓	✓			N/A for planned activities. No affect to divers and surfers from planned drilling operations are predicted.					None identified
	Recreational Fishing	✓									Temporary, small-scale, and low intensity impacts.	Y - Displacement from concurrent and consecutive seismic and drilling areas on-shelf area	Y - Displacement from concurrent and consecutive seismic and drilling areas	High for individual and cumulative impacts.	Cumulative effect pathway identified but impacts not material. The area of displacement is small compared to area available for recreational fishing. Industry standard controls in place such as notice to mariners will provide advanced warning and opportunity to plan activities. At most avoiding a single seismic survey vessel and towed equipment, and a single drilling location at any given time with minimal impact.	Identified but impacts not material. No further assessment required.
	Commercial Fisheries	✓	✓				✓	✓			Affected persons will not be worse off because of the activity.	Y - Displacement from concurrent and consecutive seismic and drilling areas	Y - Displacement from concurrent and consecutive seismic and drilling areas	High for individual and cumulative impacts.	Cumulative effect pathway identified. Displacement of fishers operating in fisheries with spatial extent that may be overlapped by several offshore activities, i.e. displaced by multiple exclusion zones (rig and seismic survey) or different exclusion zone over time. Although displacement impacts are restricted to within typically 2 kms around individual activities, drilling may be occurring consecutively over a period and seismic and drilling at one location have the potential to occur concurrently. Minor behavioural disturbances are predicted to commercial fish species from underwater sound and cumulative impacts are not predicted.	Identified and further assessment required to determine if impacts are material.
Cultural Environment	First Nations Peoples Heritage including but not limited to Sea Country, Song Lines, and totemic species.	✓	✓	✓	✓		✓	✓		✓	Not inconsistent with Indigenous Protected Area Plans. Temporary, small-scale, and recoverable impacts.	Y - Sea Country	Y - Over term of activities	Moderate in individual and cumulative impacts.	Cumulative effect pathway identified. Drilling and other activities may have the potential to cumulatively affect cultural values and sensitivities in the region.	Identified and further assessment required to determine if impacts are material.

Environmental Component	Sub-Component	Environmental Aspect (yellow = drilling specific)									CIA Scoping					
		Physical Presence	Seabed Disturbance	Artificial Light - Operational	Artificial Light - Flaring	Atmospheric Emissions	Underwater Sound - Continuous	Underwater Sound - Impulsive	Routine Discharges	Drilling Discharges	Acceptable Levels (Effect) Ecological integrity and biodiversity conservation (Temporary/reversible/recoverable, small scale and/or low intensity) Assessing scale and nature	Potential for Cumulative Impact - Spatial Extent	Potential for Cumulative Impact - Temporal Extent	Predictability and Certainty	Scoping Assessment Outcome	Cumulative Cause-effect Pathway
	Maritime Archaeological Heritage		✓								No disturbance of maritime cultural heritage.	N - Only single drilling operation at any one time	N - Control Measures in place to detect and prevent interactions	High for individual and cumulative impacts.	No cumulative effect pathway identified. Impacts to maritime archaeological heritage are not predicted from seismic surveys. Drilling activities required to undertake seabed surveys prior to seabed disturbance. Impacts to maritime archaeological heritage are not a planned event and therefore cumulative impacts are not predicted.	None Identified