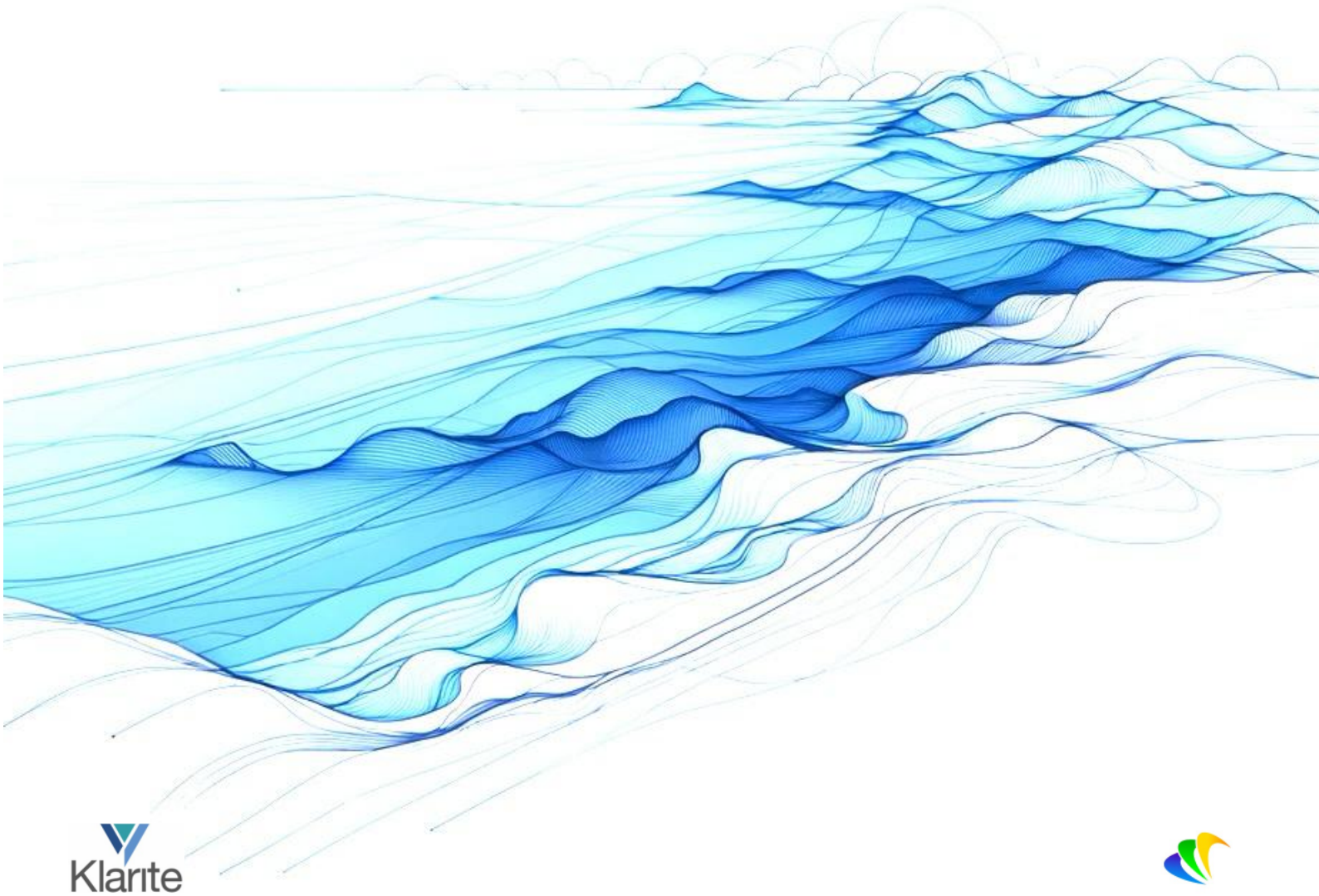
REGIA
Marine Seismic Survey

Impact Assessment
Underwater Sound: Birds

Appendix E5: REG-EP-024-E5

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Klarite

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1 Introduction

Underwater Sound was identified through the Preliminary Environmental Impact and Risk Assessment (PEIRA) (Appendix B4) as an aspect needing further assessment. Hence this document presents a detailed examination of **Underwater Sound**, as will typically be produced during the proposed Regia Marine Seismic Survey (**Regia MSS**), and its interaction with the environmental receptor we are collectively calling **Birds.**

This assessment is built on the information contained in the following four core studies, which should be read in the order they are listed:

1. PEIRA
2. Seismic Sound Studies Report (Appendix B8)
3. Sound Emissions Modelling Reports (Appendix B7)

1.1 Purpose and Scope

The purpose of this document is to assess all acceptable sources of information to provide clear outcomes around levels-of-impact, and any associated mitigation and management measures that may be needed.

This assessment is the second stage of the environmental assessment. Its purpose is to rank the impact according to the criteria set out in the Environmental Assessment Process found in Appendix B3. The purpose of this stage of the assessment is to demonstrate that the impact can be managed to an acceptable level through the adoption of mitigation measures and the setting of an appropriate environmental performance outcome.

The measures adopted because of consultation and because of the assessment will be carried through to the ALARP assessment which occurs in stage three of the overall assessment process. Recommendations will be made if there is any further assessment required in the third stage of the assessment.

1.2 Consultation in Preparation of the EP

This document was initially published in draft form and uploaded to the Document Library of the Regia MSS Consultation Hub on 11 September 2023 as a stand-alone document, rather than as part of the much more substantial total EP document. This was done to maximise the ability of interested members of the public to read, interpret and respond within the mandated 30-day public comment period.

As such, the public and relevant persons were invited to comment on the document with an explicit request for readers to provide feedback on:

- The accuracy of the described environment that may be affected.
- Any omissions of environmental values and sensitivities relevant to the environmental aspect.
- Any errors or omissions of scientific/peer reviewed literature that should be considered.
- Any errors or omissions of relevant legislation or documents of standing that should be considered.
- Any further mitigation or management measures that should be considered.

Up to 22 December 2023, there were no specific comments received on the content of the document.

1.3 Modifications Arising from Further Assessment

To ensure this environmental assessment remains contemporary, accurate, and reflects feedback from the regulator and relevant persons, this document will be updated from time-to-time. In

particular, the CGG environmental assessment process requires consideration of whether further assessment was needed to verify, or dive deeper into a topic, to further improve the predictive quality of the assessment. When this has occurred, reference to such changes will be communicated in Section 0 -

Recommendations and identified at relevant points in the assessment.

2 Aspect – Underwater Sound

2.1 How the Aspect Occurs

The primary sound source will be impulsive underwater acoustic emissions coming from the seismic source releasing compressed air (seismic pulse) and creating a sound wave directed downwards towards the seabed.

Secondary sound sources will include continuous underwater acoustic emissions generated by the survey and support vessels and helicopters. Sounds from vessels are generated by thrusters, engines, and propellers. Underwater acoustic emissions from helicopters are generated via the engine and rotors. Underwater acoustic emissions from Ultra-Short BaseLine positioning beacons are generated within the streamer spread.

2.2 Extent and Duration of the Aspect

Impulsive Sound

Duration: 60 days

Extent: Active Source Area + 55 m6 to 10.62 km. based on the furthest distance to modelled sound effect criteria. [Updated in response to Matter: F17]

Seismic acquisition where the seismic source will be active will occur for up to 60 days within the Active Source area.

3 Cause-Effect Pathway

The PEIRA (Appendix B4) identified a cause-effect pathway for underwater sound for the following environmental components and their social, cultural, and economic features:

- Diving birds and penguins.
- People and communities

Potential environmental impacts to bird identified from the PEIRA are:

- Change in fauna behaviour.
- Change in hearing capacity.
- Change in physical condition.

These were initially assessed as not requiring further assessment. However, during consultation with relevant persons it was determined that a detail assessment should be completed.

4 Description of the Existing Environment that may be Affected by the Activity

For a description of the baseline soundscape in the region relevant to the Regia MSS, refer to Section 1.1 of Appendix B8.

To identify diving birds and penguins that may be present within the area affected by underwater sound a PMST search was undertaken using the Active Source Area with a 50 km buffer. Note: the furthest distance to a sound effect criteria was updated to Active Source Area +.10.4 to 77 km for the Little Penguin. [Updated in response to Matter: F17]). The PMST report is available in Appendix B5. The updated furthest distances of 5.6 to 10.62 km have been derived from the most recent modelling study (Appendix B7c), and supersede previously defined predicted effect distances for this receptor group.

To ensure all diving bird species with biologically important behaviours were identified, a further review was undertaken of the Department of Climate Change, Energy, the Environment and Water National Conservation Values Atlas (NCVA) (now AMSIS).

A summary of all bird species identified from the PMST report and review of the NCVA/AMSIS is provided in Annex 3 of this document along with any relevant conservation advice or management plans.

The area above the sound effect criteria for diving birds overlaps the following marine protected areas that identified foraging birds as a value:

- Apollo Australian Marine Park for which one of the values are important foraging area for Black-browed and Shy albatross, Australasian Gannet, Short-tailed Shearwater, and Crested Tern.
- Zeehan Australian Marine Park for which one of the values are important foraging areas for Black-browed, Wandering and Shy albatrosses, and Great-winged and Cape Petrels.

PMST searches were run again prior to resubmission to ensure any changes to species or listings were identified to control for passage of time. A Breeding BIA for the Short-tailed Shearwater was added to the area potentially affected by underwater sound. As of 5th March 2025 the Little Tern has been assigned a threatened category (Vulnerable) under the EPBC Act. The Breeding BIA for the Wedge-tailed shearwater has been removed from area potentially impacted by underwater sound [Section added in response to Matters: I16 and I17].

These species are described below.

4.1 Albatrosses and Petrels

Twelve albatross and six petrel species are identified as having foraging, feeding or related behaviour and/or BIAs within the area potentially affected by underwater sound (Annex 3). These BIAs cover either most or all the South-east Marine Region (CoA 2015a). In addition, the Common Diving-petrel breeds on Lady Julia Percy Island which is within the area potentially affected by underwater sound.

Albatrosses and petrels are among the most oceanic of all seabirds and seldom come to land unless breeding (CoA 2022). Albatross and petrel species exhibit a broad range of diets and foraging behaviours, and hence at-sea distributions are diverse. Combined with their ability to cover vast oceanic distances, all waters within Australian jurisdiction can be considered foraging habitat, however the most critical foraging habitat is those waters south of 25° where many species spend much of their foraging time (CoA 2022).

Albatrosses have a widespread distribution throughout the southern hemisphere. They feed mainly on cephalopods, fish and crustaceans, using surface feeding or plunge diving to seize their prey (ACAP 2020). Albatrosses are colonial, usually nesting on isolated islands and foraging across oceans in the winter months with most observations along the edge of the continental shelf (CoA 2022).

Petrels are oceanic and have a widespread distribution throughout the southern hemisphere. They are colonial and breed on sub-Antarctic and Antarctic islands in a circumpolar band generally between 40°S and 60°S. Petrel species feed on small fish, cephalopods (octopus, squid and cuttlefish) and crustaceans along the edge of the continental shelf and open waters (CoA 2022).

4.2 Black-faced Cormorant (*Phalacrocorax fuscescens*)

The Black-faced Cormorant was identified as breeding known to occur within the area potentially affected by underwater sound (Annex 3). This species is found along the coast of Tasmania and Victoria with two independent populations one on the coast of southern Western Australia, the other on the coasts of South Australia (del Hoyo et al. 1992). Breeding usually occurs on rocky islands, but also on stacks, slopes, and sea cliffs in colonies of up to 2,500 individuals (del Hoyo et al. 1992). It feeds in coastal waters, sometimes in sheltered places such as bays and islets and can be found entering rivers along the coast (CoA 2020a) and thus is unlikely to feed within the area potentially affected by underwater sound.

4.3 Crested Tern (*Thalasseus bergii*)

The Greater-crested Tern was identified as breeding known to occur within the area potentially affected by underwater sound. Crested Terns are medium sized, slender terns that are widely distributed. They are commonly found in near-coastal environments and estuaries, but also inhabit lakes and rivers inland (GSA 2023). They dive from heights of five to eight metres when foraging but only penetrate a few centimetres below the surface of the water (GSA 2023). Their diet includes small fish such as Sardines, Australian Anchovies and Leatherjackets (GSA 2023).

4.4 Gannets (*Morus serrator* and *M. capensis*)

The Australasian Gannet was identified as breeding known to occur and both a foraging BIA and an aggregation BIA within the area potentially affected by underwater sound (Annex 3). The BIA is a 40 km buffer around Portland (Point Danger) where the Australasian Gannet breeds between July and March.

The Australasian Gannet generally feeds over the continental shelf or inshore waters. Their diet is comprised mainly of pelagic fish, but also squid and garfish. Prey is caught mainly by plunge-diving, but it is also seen regularly attending trawlers (CoA 2015a).

The Cape Gannet was identified as breeding known to occur within the area potentially affected by underwater sound (Annex 3). There is limited information on where this breeding location but it is likely that it is also at Point Danger (Portland) based on Pizzey (2007) that details that several birds have occasionally been found breeding on offshore Australian islands, together with Australasian Gannets, although the Cape species is never represented by more than a few pairs.

4.5 Little Penguin (*Eudyptula minor*)

The Little Penguin was identified as breeding within the area potentially affected by underwater sound (Annex 3). Initial investigations identified that breeding occurs on Lady Julia Percy (Deen Mar) Island and Middle Island. Consultation then identified an additional six breeding colonies of variable and unreliable size on the mainland between Portland to the West and Apollo Bay to the East: Gibson Steps, Lawrence Rocks, Griffith Island, London Bridge, the Twelve Apostles and Portland Harbour.

The Little Penguin is the smallest penguin species and endemic to Australia and New Zealand. In Australia, the species occurs from Western Australia (Carnac Island) to New South Wales (Broughton Island) and Tasmania. Their distribution is not continuous, with sections of the southern coast of Australia without occurrence of breeding colonies (CoA 2020a).

The Little Penguin breeds during the austral autumn to summer months and is the only truly nocturnal penguin species on land; adults always arrive after dusk and leave before dawn (CoA 2020a). Females typically lay 2 eggs in a season with most egg-laying occurring between September

and November, with chicks fledging some three months later (Dann et al. 2000), although egg-laying has been observed to start as early as July at Middle Island (Overeem and Wallis 2003).

This species is a generalist feeder, with large variability in diet amongst colonies and even between years at the same colony. They feed mainly on clupeids, such as anchovy and sardines, when feeding chicks, but they may also feed on krill and several species of cephalopods at all stages of breeding (CoA 2020a).

Using electronic tags Hoskins et al. (2008) examined the foraging range and diving behaviour of the Little Penguin from three breeding colonies (Rabbit Island, Kanowna Island and Phillip Island) in central northern Bass Strait, during the chick-guard stage. Although there were large overall differences between individuals, the mean maximum foraging range (16.9 to 19.8 km) and mean total distance travelled (41.8 to 48.0 km) were similar between the 3 colonies, despite different bathymetric environments. Individuals from all three colonies selected foraging habitats within a narrow sea surface temperature (SST) range (16.0 to 16.4°C). While there were significant differences in mean dive depths (5.4 to 10.9 m) and mean durations (13.2 to 28.6 s) between the different colonies, the mean diving effort (vertical distance travelled: 936.3 to 964.3 m h–1) was similar. These findings suggest little penguins from the three colonies employ relatively similar foraging efforts yet are flexible in their foraging behaviours.

McCutcheon et al. (2011) used satellite telemetry to determine the at-sea movements and foraging range of 47 Little Penguins from Phillip Island, south-eastern Australia, during the winter non-breeding period. Individuals conducting single-day trips (72% of individuals) typically foraged 8–14 km from the colony, whereas individuals conducting longer trips (28%; 2–49 days) foraged either within Port Phillip Bay or in the coastal waters of western Bass Strait at maximum distances of 62–147 km from the colony. McCutcheon et al. (2011) noted that the results of this study indicate that Little Penguins remain within continental shelf waters no more than several hundred kilometres from the breeding colony during the non-breeding period, suggesting food availability is adequate within this region throughout the year.

4.6 Little Tern (*Sternula albifrons*)

The Little Tern (vulnerable) was identified as breeding known to occur within the area potentially affected by underwater sound (Annex 3). Little Terns forage in shallow waters of estuaries, coastal lagoons, and lakes, frequently over channels next to spits and banks or entrances, and often close to breeding colonies (DCCEEW 2023). They also forage along open coasts, especially around bars off the entrances to rivers and lagoons, less often at sea, and usually within 50 m of shore (DCCEEW 2023). Little Terns are primarily diurnal, and feed by plunging in shallow water of channels and estuaries, or in surf on beaches, typically from 3–10 m above the surface though up to 13 m above water (DCCEEW 2023).

4.7 Shearwaters (*Ardenna tenuirostris* and *A. pacifica*)

The Short-tailed Shearwater was identified as breeding known to occur (Lady Julia Percy Island) and both a breeding BIA and a foraging BIA to be present within the area potentially affected by underwater sound (Annex 3). The Short-tailed Shearwater migrates to the Northern hemisphere for the austral winter and generally only present in Australian waters from September to May. They are common in the South-east Marine Region and largely found on numerous islands off Victoria and Tasmania during breeding (Baker and Hamilton 2013, Skira et al. 1996). During breeding they conduct a bimodal feeding strategy, alternating short foraging trips to local waters with long foraging trips (up to 17 days) to the Polar Frontal Zone. Short trips allow greater chick provisioning at the sacrifice of body condition, which is then recovered in richer subantarctic waters. Diet includes fish particularly mycotphids, crustaceans and squid (Weimerskirch and Cherel 1998). During consultation breeding colonies were also identified on Middle Island and Griffiths Island [Event ID 2023], and they are of significant value to local communities. These are not identified as BIAs, likely due to a lower number of breeding pairs in comparison to other offshore islands. [Paragraph updated in response to Matter: B07 and B08].

The Wedge-tailed Shearwater was identified as having a foraging BIA within the area potentially affected by underwater sound (Annex 3). The foraging BIA is associated with Muttonbird Island, however, a review of the DCCEEW Species Profile and Threats Database (SPRAT), Atlas of Living Australia and South-east Marine Region Profile did not provide any information on the Victorian Muttonbird Island Wedge-tailed Shearwater colony. The DCCEEW SPRAT profile does not show any locations for the Wedge-tailed Shearwater in Victoria, and Beaver (2018) details Montague Island in NSW was the southernmost known colony, however, in 2017 breeding individuals of Wedge-tail Shearwaters were discovered a couple of hundred kilometres further south on Gabo Island Lighthouse Reserve, Victoria near the NSW border.

Movement patterns of the Wedge-tailed Shearwater are poorly known but populations at the northern and southern extremities of the known range are migratory, departing nests in early April to early May and spending the nonbreeding season in the tropics (DCCEEW 2023a). In Australia, Wedge-tailed Shearwaters have been observed feeding along the junction between inshore and offshore water masses. There is no detailed analysis of the diet of Australian adult Wedge-tailed Shearwater's, however tropical residing Wedge-tailed Shearwater birds are known to mostly consume fish, some cephalopods, insects, jellyfish and prawns (DCCEEW 2023a). Food is taken by contact-dipping, dipping, surface-seizing and, rarely, deep-plunging up to 2 m deep (DCCEEW 2023a).

4.8 Silver Gull (*Chroicocephalus novaehollandiae*)

The Silver Gull was identified as breeding known to occur within the area potentially affected by underwater sound (Annex 3). The breeding area is between Port Fairy and Warrnambool (DCEEW 2023b). Sliver Gulls natural diet consists of insects, worms, fish, and crustaceans. They are not known to plunge dive and thus are unlikely to be affected by underwater sound.

4.9 People and Communities

4.9.1 Social and economic features

During consultation, as presented in Annex 2, objections and claims were raised regarding concerns of impacts on the local economy and environment, including tourism and local enjoyment of the area with recreational activities such as bird watching. Species that may be affected are described above in sections 4.1 to 4.8.

4.9.2 Cultural features

Short-tailed shearwaters (mutton birds), described above (section 4.7) are identified as being culturally significant to the Gunditjmara People and are used in traditional harvesting practice (GMTOAC, 2023). Shearwaters are also identified as culturally significant species to the Eastern Maar people, along with gannets (section 4.4) and Little Penguins (section 4.5) (Appendix F3, Section 3.16.1).

5 Relevant Legislative Requirements

CGG has considered all the relevant legislative requirements, conservation management and recovery plans for all bird species that may be affected (see Appendix B2). No measures were identified from this process.

6 Defining Acceptable Levels of Impact

There are no regulatory thresholds for understanding underwater sound effects on bird species. Thus, for assessing potential sound–induced impact of impulsive seismic source signals on diving birds, the least sensitive marine mammal hearing group, Other Carnivores in Water (OCW), from Southall et al. (2019), is used as a proxy. This hearing group has been selected due to similar hearing sensitivity in the frequency band of underwater hearing for diving birds and otariid pinnipeds, which are included in the group. This provides a conservative approach, as otariids are considered more sensitive to underwater sound at higher frequencies than diving birds. A very recent study has modelled sound thresholds for Little Penguins (*Eudyptyla minor*) from head scans of deceased birds (Wei & Erbe 2024). Their results indicate a potential disturbance threshold at 50-100 dB above the minimum hearing threshold of ~110 dB re.1 µPa at 200Hz (see Fig. 7 in Wei & Erbe 2024) which supports the use of the modelled thresholds used in CGG defined acceptable levels of impact and risk as part of its decision-making processes and published them as part of its consultation efforts, inviting relevant persons to comment on their appropriateness. During the preparation of the EP, it became clear that assessment specific statements would be necessary to create a stronger link between the defined acceptable level and the predictions of impacts and risks.

As such, Table E5-1 shows the general acceptable level statements which cover the whole of the activity (which are consistent across all environmental impacts and risks), and the corresponding assessment specific defined acceptable levels established for this assessment. This sets the foundation for relevant and targeted demonstration later in this assessment.

There are also no regulatory thresholds or criteria established to assess potential behavioural responses by diving birds to underwater sound. To allow for assessing the potential for such impacts, an onset criterion for behavioural responses of 120 dB re 1 µPa (SPL) for impulsive sources was used based on information from Sørensen et al. (2020). They exposed gentoo penguins (*Pygoscelis papua*) in a controlled exposure experiment to underwater noise bursts (impulsive signals) and demonstrated that the animals show a graded reaction depending on received sound levels.

Further information on studies in relation to seismic acoustic emission impacts to diving birds is provided in the Seismic Sound Studies Report (Appendix B8).

Table E5-1 - Defined acceptable levels of impact from underwater sound effects to birds

Category	Defined Acceptable Levels (General)	Defined Acceptable Levels (Specific)	Rationale
Principles of ESD	The petroleum activity results in temporary / reversible, small scale, and/or low intensity environmental damage.	Diving birds including little penguins are not exposed to sound levels that cause permanent auditory injury or mortality at any life stage. Any temporary hearing effects to diving birds including little penguins remain brief, recoverable, and do not impair essential functions such as foraging, navigation, chick provisioning, or juvenile development. Any behavioural responses to diving birds including little penguins are minor, short-lived, and do not reduce survival, reproductive success, access to nesting sites, or overall population viability.	Diving birds rely on intact hearing, precise underwater orientation, and highly efficient foraging to meet demanding daily energy budgets. Because permanent auditory injury could compromise prey detection, navigation, or predator avoidance for any diving species, a no-auditory injury threshold is the only defensible injury criterion. Allowing any degree of irreversible hearing loss would create a direct pathway to reduced survival or breeding performance. A separate TTS threshold is appropriate as temporary auditory fatigue occurs naturally across marine vertebrates and does not lead to population-level effects when it is brief and fully recoverable. The scientific evidence consistently shows that short-duration TTS does not impair essential functions for diving birds, provided it resolves quickly. Limiting TTS to this benign, recoverable range provides meaningful protection without imposing unnecessary or scientifically unsupported constraints.
	The impact and risk assessment process are based on sufficient information to understand if: Serious/irreversible environmental damage is predicted; or The application of the precautionary principle is applied in the presence of scientific uncertainty.		
	Environmental management of the activity must not be inconsistent with EPBC Act Management Plans and Recovery Plans.		
Biological	Impacts and risks to biological features will be temporary / reversible, small scale, and/or low intensity environmental damage at population levels.		

Category	Defined Acceptable Levels (General)	Defined Acceptable Levels (Specific)	Rationale
Ecological	Impacts and risks to ecological features will be temporary / reversible, small scale, and/or low intensity damage to the overall health, diversity, or functioning of the ecosystem.		A behavioural threshold is also essential because the ecological Risk for diving birds arises not only from injury but from disruptions that increase energetic costs or reduce access to foraging or breeding habitats. By restricting behavioural responses to minor, short-lived events, the threshold prevents sustained displacement or reduced provisioning success—outcomes that could otherwise affect reproductive performance across species. Together, these three thresholds—no Auditory injury, tightly bounded TTS, and only minor, transient behavioural responses—cover all biologically credible pathways through which underwater sound could affect diving birds at the population level. They provide comprehensive, proportionate protection while acknowledging that brief, recoverable sensory or behavioural responses are both natural and tolerable for all diving bird species, including Little Penguins.
Economic	Affected persons will not be worse off because of the activity.	Industries, livelihoods, and ecosystem services remain viable, with no sustained financial or operational consequences resulting from changes in species behaviour, abundance, or access to resources.	For species and sensitivities with social, cultural and/or economic values, if the potential ecological impact or risk is deemed acceptable, it is likely that the corresponding impact on social, cultural and/or economic values will also be considered acceptable, as the physical presence and health of these species are key for maintaining their social, economic and cultural roles. Therefore, predicted levels of impact for social, cultural and economic values for species will be assessed on a receptor level. Native Title will be assessed separately.
Cultural	Impacts and risks to cultural features including cultural values, traditions, or practices, will be temporary / reversible, small scale, and/or low intensity.	Culturally important species, places, and practices can continue without disruption to their role, accessibility, or long-term viability.	
Social	Measures have been adopted based on the consultation process to address relevant objections and claims of relevant persons.	People and communities can continue engaging with the natural environment, recreational activities, and heritage values without experiencing long-term or irreversible disruption.	
	The views of public have been considered in the impact and risk assessment.		

Category	Defined Acceptable Levels (General)	Defined Acceptable Levels (Specific)	Rationale
Company	Environmental impacts and risks are consistent with the CGG impact and risk assessment process such that for an impact or risk the effect/ consequence rating is medium or below.	As per the general levels.	CGG is a company familiar with managing the effects of seismic sound on the marine environment, and its global operational history supports the reliability of its internal assessment process. The use of CGG's impact and risk matrix, when consistently applied, has not resulted in unacceptable environmental outcomes, which indicates the process produces conservative and realistic assessment outcomes.

7 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 2.

8 Minimisation of Impacts Through Activity Design

As part of planning and design of the activity, several activity limitations were considered in accordance with the hierarchy of controls and through the consultation process (see Annex 2). These limitations were evaluated to determine whether the source of impact could be eliminated or substituted through changes in the timing, technology, or design of the activity. As described in Appendix F3, section 3.16.2, due to the interconnection between the tangible and intangible cultural values, all activity limitations are relevant to safeguarding social, economic, and cultural features and values, ensuring protection across all areas.

8.1 Elimination

Elimination involves removing the source of an impact or risk entirely through changes to the activity design. In the context of underwater sound, elimination involves removing the source of underwater sound or preventing its generation in the first place. One main option was considered and subsequently adopted:

No seismic acquisition within 17 km of Deen Maar/Lady Julia Percy Island

This island is known for its ecological significance, including bird habitats and potentially sensitive species that rely on the surrounding waters. The buffer zone was applied to provide spatial protection for species utilising this ecologically and culturally important area, thereby reducing potential impacts. For derivation of the 17km buffer please refer to Table 6 in the EP document.

8.2 Substitution

Where elimination is not viable, substitution involves altering the timing, location, or sequencing of the activity to reduce the likelihood or consequence of the impact. No substitution-based limitations were required in this case, as the elimination measures applied were sufficient (when applied with other measure types) to reduce the identified impact to an acceptable level.

9 Predicted Levels of Impact

To arrive at the predicted levels of impact of underwater sound on birds at this stage in the process requires the reader to have assimilated all prior relevant information that has been assessed on birds. The EP documentation is coded alphabetically to guide the reader through what is a natural process of temporal accumulation and review of evidence. The following documentation forms the evidence lineage for predictions on birds as described here.

- B5 – PMST Reports – The Protected Matter Search Tool was used to search for environmental values and sensitivities potentially located within the proposed Regia MSS planning area, with eight specific searches undertaken of which one was for Birds within the region defined by the Regia MSS Active Source Area with an included buffer area out to 50 km.
- B7 – Sound Modelling Reports - SLR performed a numerical modelling study of underwater sound levels associated with the planned Regia Marine Seismic Survey (MSS) to assist in understanding the potential acoustic impacts on key regional receptors including birds, marine mammals, fish, turtles, benthic invertebrates, plankton and recreational divers and swimmers. Acoustic thresholds derived from this document are used to guide assessments of impacts.
- B8 – Seismic Studies Report – This report provides a detailed assessment of the scientific literature related to sound (and specifically seismic) effects on birds and other fauna. This literature is the key evidence base from which impact levels are derived.

Therefore, all species identified through B5 have been assessed through the framework provided by B7 and B8. Because of commonalities among species/taxa/groups in their sensitivity to seismic it is not always necessary to describe effects to each species individually but rather as groups defined by their sensitivity to different frequency levels of sound and shared life-history behaviours.

9.1 Change in fauna behaviour, hearing capacity, and physical condition

There is very little known about the effects of intense underwater sound (i.e. seismic surveys) on marine birds. It is generally thought that noise produced from activities associated with seismic surveys may impact those species of birds that spend large quantities of time underwater, either swimming or plunge diving while foraging for food.

The acoustic modelling predicted that the criteria for temporary threshold shift (TTS) was reached for the per pulse criteria out to 68 m, and AUD INJ was reached out to 55 m from the sound source. The criteria for TTS was reached for the SEL 24hr criteria out to 1.02 km. The modelled distance to sound effect criteria for behavioural impacts ranged from 5.66 km to 10.62 km.

The predicted effect level to these species is assessed as minor as impacts are predicted to have some effect on birds, but the effect is not considered significant or at a level to affect the population given the following:

- Mortality and injury impacts are not predicted for birds. Though the TTS SEL 24hr criteria was reached within 1.02 km of the source it would be highly unlikely for a diving bird or penguin to be within that distance of the source for 24 hours. As the seismic source will be slowly ramped up to full power over 30 minutes this further reduces the risk of a diving bird or penguin being close to the seismic source at full power.
- Impacts to diving birds and penguins would be limited to behavioural impacts which could range from startle response to moving away from the seismic survey to forage in other areas.
- Seabirds feed on multiple prey species and have widespread foraging areas. Indirect impacts including displacement of prey species such as fish will be limited to the proximity of the sound source. While displacement of some prey species may result in the displacement of these birds, this impact is localised, temporary and recoverable in any one location after the survey vessel moves past. Given their widespread foraging areas (ACAP 2020) and the small area possibly affected by prey displacement, seabirds are not expected to be impacted by

reduced net foraging opportunities. [Paragraph has been added in response to Matters B09, B12, B13 and B14].

- Pichegru et al. (2017) who investigated the behavioural response of endangered African penguins and found that penguins foraging within 100 km of the active seismic operations showed a change of foraging direction during seismic periods, increasing their distance between their feeding area and the location of the seismic vessel from 77 km, compared to ca 65 km on average in the absence of seismic activity. The avoidance behaviour by penguins observed in this study may be explained by either a direct disturbance from the noise generated by the operation or a change in fish distribution during that period (possibly because of seismic activities). Small-scale acoustic fish surveys assessing distribution and MSS.
- The African penguins quickly reverted to normal foraging behaviour after cessation of seismic activities during this study, which suggest a relatively short-term influence of seismic activity on these birds' behaviour and/or that of their prey.
- Increasing energy expenditure at sea to locate food can negatively affect penguins' reproductive output. However, Little Penguins have been shown to travel large distances during chick-guard stage with mean total distance travelled of 41.8 to 48.0 km (Hoskins et al. 2008) and during non-breeding periods at maximum distances of 62–147 km from the colony. Suggesting that changes in areas and distances is dependent on food source and that a temporary increase in foraging distances associated with a seismic survey is unlikely to have a significant impact on individual penguins or the population.
- Little penguins prey mainly on Clupeiformes, including anchovy, pilchard, and sprat during the chick guard phase (Camprasse et al 2017) but they may also feed on krill and several species of cephalopods at all stages of breeding (CoA 2020a), Impacts to little penguin prey is discussed in EP Appendix E3 (Underwater Sound Fish) and E2 (Underwater Sound Plankton). Population impacts to fish and plankton are not expected. Sardines are a key food source in the Otway region hence evidence of significant changes in behaviour of this species and other clupeids in response to a seismic MSS could have flow-on effects to their predators. However, research does not support significant changes in the behaviour of clupeids in the presence of MSS. A key reference that is cited to support seismic effects on penguins (Pichegru et al 2017) found there were no significant changes in distribution and/or abundance of small pelagic fish in the region compared to a few months prior to or after the seismic operations (Pichegru et al 2017). An even more targeted study that exposed herring schools to a full-scale 3D seismic survey off Northern Norway found no changes in the behaviour of herring schools from a transmitting seismic vessel as it approached from a distance of 27 km to as close as 2 km (Pena et al 2013). The schooling behaviour of sardines is complex and varies within and among locations, days, months and years at both spatial and temporal scales (Ward et al 2011). This variability is clearly intrinsic to their behaviour and would influence feeding strategies and adaptability of those species that target them as a food source.
- If the potential ecological impact or risk to a culturally important species is deemed acceptable, it is likely that the corresponding impact on cultural heritage will also be considered acceptable, as the physical presence and health of these species are key for preserving their cultural significance. Therefore, the predicted level of impact on the cultural features of the short-tailed shearwater is assessed as minor, as per the points above.

The uncertainty level for impact to birds from seismic sound is assessed as medium based on:

- There are no sound effect criteria for underwater sound for bird species.
- There are limited published studies on the effects of seismic on diving birds, with only one study relevant to penguins.
- An absence of long-term monitoring data of the effects of seismic on birds in the presence of frequent seismic surveys, and other anthropogenic sound generating activities, in the region.

The predicted level of impact based on the effect (minor) and uncertainty (medium) is assessed as medium. For birds the predicted level of impact is clearly below the defined acceptable levels of impact as detailed in Section 10. The mitigation and management measures detailed in the Section 9.2 provide sufficient confidence in the predicted effect levels.

9.2 Measures Adopted to Manage Environmental Impacts

The following measures have been adopted to ensure that the impacts associated with elevated levels of underwater sound from the survey and support vessels on birds will be of an acceptable level.

These measures have been taken through to the ALARP assessment in the next stage of the CGG assessment process. This assessment can be found in Appendix F2.

Measure	Measure Type	Details and Justification
The seismic source will shut down if flocks of foraging birds are observed within 500 m of the source.	Practice	Full power can commence when the seismic source is > 500 m from flocks of foraging birds. This will ensure no Diving Bird specifically little penguin is exposed to sound which would result in mortal injury.
Ramp up of sound source to full power over 30 minutes.	Practice	Mobile marine fauna (including demersal and pelagic fish, octopus, squid, diving birds, penguins, and turtles) are expected to move away from the source before it is at full power, providing them a level of protection. However, once the source passes, animals will be free to move back into the habitat that they departed from. [Paragraph updated in response to Matter I04, I05, E08].

10 Demonstration Impacts Will Be of an Acceptable Level

10.1 Principles of ESD, Biological and Ecological Categories

Temporary, Reversible, Small Scale and Natural variation

The Regia Marine Seismic Survey will generate underwater acoustic emissions primarily from seismic pulses and vessel operations, which are expected to result in short-term and reversible behavioural effects on marine birds. For species such as the Little Penguin and Short-tailed Shearwater, behavioural disturbance may occur within 5.66 km to 10.62 km of the source, with temporary threshold shifts (TTS) possible within 1.02 km and PTS possible within 55m.. These effects are limited to short-term foraging displacement or temporary avoidance, which are not anticipated to disrupt critical life stages or affect population viability. Seabirds in the area are wide-ranging and behaviourally flexible, allowing them to adjust their foraging patterns as needed. The survey area does not intersect with core breeding sites, Biologically Important Areas (BIAs), or key marine protected zones. Ecosystem-level effects, such as prey displacement, are considered negligible and localised, with no disruption to biodiversity, species interactions, or ecological processes. Overall, the impact is temporary, reversible, spatially limited, and of low ecological consequence.

Little Penguins

Temporary and Reversible

Potential impacts of sound exposure on little penguins during the Regia MSS are expected to be temporary, reversible, and of small spatial and population scale. Across all life stages, little penguins are known for their behavioural flexibility, which allows them to maintain essential activities even in the presence of short-term disturbances.

As described in the impact assessment, Pichegru et al. (2017) found penguins altered foraging direction within 100km of a seismic source but reverted back to normal behaviour after seismic ceased, foraging adults little penguins may exhibit temporary avoidance or minor changes in foraging effort in response to sound, but these responses are brief and do not affect survival or breeding output. Even older individuals (senescent penguins) are able to sustain essential behaviours such as resting and feeding without experiencing undue energy expenditure or elevated predation.

As described in the impact assessment, Hoskins et al. (2008) noted little penguions have the ability to increase their foraging ranges, therefore during the chick-rearing period (September to December), adult little penguins can continue to provision their young successfully, and juvenile development proceeds without hearing impairment. While temporary behavioural changes may occur, such as altered foraging patterns, these do not affect chick survival or population viability.

As described in the impact assessment, changes in abundance or distrubution to little penguin prey (i.e Clupeiformes, including anchovy, pilchard, and spratand krill) are not expected, as described by Pichegru et al. (2017). Impacts to little penguin prey is discussed in EP Appendix E3 (Underwater Sound Fish) and E2 (Underwater Sound Plankton). Population impacts to fish and plankton are not expected. Knock on effects to little penguins are not expected.

Reproductive behaviours such as courtship and pair bonding occur on land and are therefore not expected to be affected by the Regia MSS. Similarly, egg formation, incubation, and nest attendance take place within terrestrial nesting sites, where penguins remain protected from underwater acoustic exposure. As such, these critical life stages are not predicted to experience disturbance or injury from the activity.

Overall, the available evidence supports the conclusion that any behavioural responses by little penguins to sound generated during the Regia MSS will be short-lived, non-injurious, and will not result in biologically significant impacts to the species.

Natural variation

The activity will be managed to prevent injury to birds including little penguins and so that areas and periods important to biologically important to foraging and reproduction are avoided or prevented.

Therefore, it is not possible for impacts to important foraging locations to be greater than natural variations of these ecological processes. The Regia MSS does not overlap with any little penguins BIAs.

There may be temporary behaviour impacts to little penguins during the chick rearing. Given little penguins have the ability to increase their foraging distances based on prey availability (Hoskins et al. (2008) and prey distribution is not expected to be impacted by the MSS (Pichegru et al. 2017), any foraging displacement as a result of a behavourial disturbance would not result in little penguins increasing their foraging distances outside of their natural abilities.

Based on sufficient information

The assessment drew upon SLR acoustic modelling, species presence data (PMST and NCVA), and peer-reviewed literature including studies on underwater hearing in birds (Wei & Erbe 2024) and behavioural thresholds (Sørensen et al. 2020). While specific data on seismic sound effects on birds is limited, particularly for penguins, appropriate proxies were used to adopt a precautionary approach. Behavioural thresholds were conservatively set, and modelling results indicated that predicted exposure levels remained below thresholds for serious harm. Consequently, while some uncertainty remains, the assessment was based on a sufficient body of evidence and did not necessitate invoking the precautionary principle.

Activity not inconsistent with EPBC Act

CGG reviewed relevant conservation advice, management, and recovery plans for all identified species. There are no regulatory thresholds for underwater sound impacts on birds, but the assessment incorporated acceptable levels of impact based on the best available science. The approach is consistent with EPBC conservation advice for species such as the Little Tern and Short-tailed Shearwater. Mitigation and performance measures address concerns raised through consultation and are aligned with legislative requirements, ensuring consistency with the EPBC Act and associated planning instruments.

10.2 Economic, Cultural and Social Categories

The cultural heritage review, desktop research and consultation with relevant persons, cultural representatives, and the public identified concerns regarding potential impacts to seabird populations, birdwatching activities, tourism, and culturally significant species such as the Little Penguin and Short-tailed Shearwater.

These concerns were addressed by refining species presence data, incorporating literature on behavioural responses and foraging flexibility, and improving the clarity of exposure thresholds. Although some short-term behavioural responses are predicted, no injury, mortality, or disruption to breeding or foraging success is expected. Mitigation measures adopted in response to feedback include the potential reduction of source power if foraging birds are observed within 500 m of the vessel. As these values are closely tied to the physical presence and health of the species, the corresponding social, cultural and economic impacts are likewise considered acceptable.

Public submissions prompted further clarification of species listings, foraging ranges, and criteria used in the risk assessment. These inputs were reviewed, assessed for merit, and integrated where appropriate, demonstrating a transparent and responsive approach to relevant person engagement. Therefore, industries, livelihoods, and ecosystem services remain viable, with no sustained financial or operational impacts; culturally significant species, places, and practices continue without disruption; and people and communities maintain ongoing access to the natural environment, recreational activities, and heritage values without long-term or irreversible effects and no person or group is expected to be materially worse off due to the activity.

10.3 Discussion on Consistency with Company Processes

The impact assessment followed the methodology outlined in Appendix B3 and applied defined thresholds for both physiological and behavioural effects. For birds, the effect level was assessed as minor, with an uncertainty rating of medium, resulting in a final predicted impact level of medium. The predicted sound footprint was compared against the distribution and foraging ranges of identified bird species, including the Little Penguin and Short-tailed Shearwater. All mitigation measures required by regulation and good industry practice, such as ramp-up protocols and source

power reduction in proximity to foraging birds, were incorporated. No exceedance of injury thresholds or high consequence outcomes was identified, and the final consequence rating remains within company limits.

This impact assessment has demonstrated that the effect of underwater sound to birds has a:

- **Predicted level of effect of minor (2).**
- **An uncertainty of medium (3).**
- **Predicted level of impact of medium (6).**

11 Environmental Performance Outcomes

Environmental Performance Outcomes (EPOs) are measurable and activity-specific outcomes that describe the environmental performance the titleholder must achieve to ensure impacts and risks are managed to acceptable levels. EPOs are critical to the structure of an Environment Plan because they form the clear link between the defined acceptable level of impact and the predicted level of environmental consequence. Each EPO must be measurable, achievable, and within the control of the titleholder to implement, providing a transparent and enforceable statement against which performance can be assessed.

Table E5-2 - Environmental Performance Outcomes and Justifications

Defined Acceptable Level (From Table E5-1)	Environmental Performance Outcome	Rationale
Diving birds including little penguins are not exposed to sound levels that cause permanent auditory injury or mortality at any life stage.	**No death or injury to fauna, including listed threatened or migratory species, from the activity.**	This EPO can be demonstrated through pre-activity acoustic modelling, exclusion zone design, and shutdown protocols when birds are observed in zones where threshold exceedance is predicted.
Any temporary hearing effects to diving birds including little penguins remain brief, recoverable, and do not impair essential functions such as foraging, navigation, chick provisioning, or juvenile development.		
Any behavioural responses to diving birds including little penguins are minor, short-lived, and do not reduce survival, reproductive success, access to nesting sites, or overall population viability.		
Industries, livelihoods, and ecosystem services remain viable, with no sustained financial or operational consequences resulting from changes in species behaviour, abundance, or access to resources.	**Social, cultural, and economic features are protected, sustaining their value for people and communities.**	This EPO ensures that the activity is managed in a way that prevents unacceptable impacts to social, cultural, and economic values associated with marine mammals.
Culturally important species, places, and practices can continue without disruption to their role, accessibility, or long-term viability.		
People and communities can continue engaging with the natural environment, recreational activities, and heritage values without experiencing long-term or irreversible disruption.		

Defined Acceptable Level (From Table E5-1)	Environmental Performance Outcome	Rationale
Environmental impacts and risks are consistent with the CGG impact and risk assessment process such that for an impact or risk the effect/ consequence rating is medium or below.	**The activity is conducted such that environmental impacts and risks remain within the range assessed as medium or lower, with mitigation measures in place and functioning as intended.**	This EPO enables ongoing assessment of effectiveness through internal reviews and operational audits. It provides a clear link between the risk assessment process and implementation strategy, supporting regulatory compliance and continuous improvement without requiring environmental outcome monitoring.

12 Recommendations

For most species/taxa/groups of birds reviewed, this document provides the final assessment of impacts. However, despite an extensive review of the relevant literature around the effects of seismic on birds, there has been a high level of concern voiced throughout consultation with relevant persons, around the prevalence of Little Penguin colonies in the region and the potential impact of seismic on their activities. High levels of engagement on an aspect are a trigger for CGG to undertake additional assessment. In this case looking at the effects of the activity on interfering with the ability of Little Penguins to undertake their normal behaviours. This additional assessment is detailed in Appendix F3 – Further Assessment of Key Values and Sensitivities under Section

- 3.4 Little Penguins

It is important to note that F3 is a response to further information requests and/or clarification and not a reflection of any prior assessment being insufficiently thorough. It is a recognition that more explanation and detail was sometimes necessary to better inform all groups involved in the consultation process, including the regulatory authority.

Hence F3 does not provide further assessment on all aspects and values identified through the EP process only those that were identified as

- Having some residual uncertainty about whether impacts or risks were of an acceptable level; and/or
- Contained environmental values and sensitivities (species) of key importance due to their protection status or commercial value; and/or
- Consultation with relevant persons revealed a particular value or sensitivity required further attention and material to support the consultation.

13 Document Control

Date	Revision	Update
6 August 2023	A	Draft prepared for initial comment
28 August 2023	B	Update based on comments and relevant person feedback
12 Sept 2023	0	Approved for release on Regia MSS website
20 Dec 2023	1	EP submission to NOPSEMA
14 May 2024	2	Updated after public comment and rerun of the PMST searches.
23 October 2024	3	Updated following NOPSEMA assessment.
16 April 2025	4	Updated following NOPSEMA OMR 1 Letter
6 December 2025	5	Updated following NOPSEMA OMR 2 Letter

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Annex 1

Public Comment

The following consultation feedback was received since the beginning of the public comment period starting 25 January 2024. Table E5-3 shows how this feedback has been incorporated into the environmental assessments.

Table E5-3 - Public comment input.

Matter	Matter ID	Changes made arising from public comment
Matter: Flawed argument regarding animals moving away	I04	CGG has considered these claims and has updated the EP Impact Assessments (Appendices E, and F where relevant) to clarify that, while some displacement is expected from mobile taxa during the Regia MSS, the survey will not preclude animals from the Operational Area in its entirety. Instead, animals are expected to temporarily move away from the active acoustic source, but once the source passes, animals will be free to move back into the habitat that they departed from.
Matter: Acknowledgement of breeding colonies	B07	EP Appendix E5 has been updated to include specific mention of the Short-tailed Shearwater.
Matter: Underwater sound impacts on shearwaters	B08	Information has been added to EP Appendix E5 regarding the shearwater colony on Griffiths Island, Victoria.
Matter: Impacts on prey species	B09	Information has been added to EP Appendix E5.
Matter: Impacts to diving birds and their prey	B12	Information has been added to EP Appendix E5.
Matter: Consideration of olfactory foraging in seabirds	B13	Information has been added to EP Appendix E5.
Matter: Community level and cumulative impacts	B14	Information has been added to EP Appendix E5.
Matter: Mitigating sound exposure impacts to seabirds	B15	Clarification has been provided in EP Appendix E5 (Impact Assessment – Underwater Sound: Birds) that the acoustic source will be reduced to the low power setting if flocks of foraging birds are observed by the Marine Fauna Observer within 500 m of the source. Full power can commence when the seismic source is > 500 m from any flocks of foraging birds.
Matter: Impacts to dive-based fisheries	F17	CGG has considered this claim and, based on the updated secondary sound modelling, has updated EP Appendix E8 (Impact Assessment – Underwater Sound: Surfers, Divers and Swimmers), Appendix A2 (Description of the Activity) and the following Activity limitation: the sound source will not be discharged at full power from areas which have been predicted to result in an exceedance of the safety criterion human health safety criterion for recreational divers, surfers and swimmers along the coastline CGG has also made updates to modelling in Appendices (E1, E2, E3, E4, E5, E6, E7, F3, G1 and G2).
Matter: Geographic range and all species need to be defined and considered	I16	CGG has considered these claims and has rerun the PMST reports to ensure that all information on the likely/known presence of relevant species within the area, as well as information on their protection status, Biologically Important Areas (BIAs) and behaviours is up to date. The updated PMST reports are provided in full in EP Appendix B5.
Matter: Lack of detail on EPBC-listed species and enforceable measures	I17	CGG has considered these claims and has rerun the PMST reports to ensure that all information on the likely/known presence of relevant species within the area, as well as information on their protection

		status, Biologically Important Areas (BIAs) and behaviours is up to date. The updated PMST reports are provided in full in EP Appendix B5.

Annex 2

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 E5-4. If an objection or claim had merit and was relevant to this assessment it has been included in the table below.

Table E5-4 - Objections and Claims raised from consultation.

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4023	Behavioural Response Threshold & Seismic Sound Avoidance: If CGG conducts seismic blasting within 82.8 km of any Fairy Penguin colony during the breeding season, the penguins may experience discomfort and hearing interference, leading them to alter their behaviour to avoid the seismic source. This distance combines the maximum foraging range for a single day trip and the modelled distance for behavioural response thresholds.	CGG has included the study by Pichegru et al. (2017) on penguins in the EP and has referred to this study multiple times across multiple documents See specific examples below: B8 Seismic Study Report, Section 7, Birds: E5 Underwater Sound- Birds Section 6 F3 Section 4.4.1, 4.4.3 and 4.4.4.	5117
4226	The email expresses concerns about the adverse effects of blasting the southern ocean and its creatures, particularly mentioning the geologically sensitive Bonney upwelling.	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 in place to reduce any impacts to as low as practicable.	2940
4230	The feedback asserts that seismic testing is harmful to oceans and marine life, highlighting detrimental effects on the ecosystem.	We acknowledge that the Regia MSS will have some short-term, localised and recoverable effects on some parts of the environment. We will try demonstrating to our independent regulator that these impacts are of an acceptable level and not as detrimental as you claim. We welcome any evidence you can share so that we can consider it fully prior to our submission.	2080
4356	Concerns about the harm and damage to the marine ecosystem.	Titleholder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the marine environment within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	2831

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4024	Birds and the little Penguin Colony having to travel further away for food and shelter during seismic testing times, causing stress and fatigue.	The titleholder acknowledged the feedback, noting that impacts and risks to penguins are assessed in the Environmental Plan (EP) and can be found in E5 and F3. F3 focuses on foraging capabilities in the area and the potential overlap with the Regia MSS. There is an overlap between the foraging range of little penguins at Deen Maar and the Regia MSS. This overlap is ~5.3 hours spread over 3.5 weeks; therefore, we do not believe little penguins will be displaced from foraging areas.	1784
4357	The stakeholder raised an objection to seismic surveys as they negatively affect the fishing industry, local economy and environment.	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 commercial fish species and sensitive species within the area of operation. The MSS will also not impact the local economy. Mitigation plans are in place to reduce any impacts to as low as practicable.	424
4030	CGG's email on September 14 indicated that the project's timing has changed to two separate 3-month windows: April-June and September-November. AMCS is concerned that the December sound speed profile may not accurately reflect the physical conditions during these new survey periods. Since acoustic propagation modelling is critical for subsequent analyses and for setting thresholds for mitigation measures required for NOPSEMA approval, AMCS requests an explanation of how the December sound speed profile differs from those in April-June and September-November.	We acknowledge this concern and agree that acoustic propagation modelling is the foundation of subsequent analysis. We will complete another modelling report prior to submission to cover the changed timeframes of the proposed survey.	3384
4033	Claim that seismic testing is proven to damage and kill marine life.	The titleholder 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.	1024
4050	Concern about the destruction of smaller sea life and the wounding of larger marine animals due to seismic blasting.	Regia EP has conducted thorough assessments of the literature for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine mammals. The Regia MSS is required to define acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information	1669

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures are outlined in the EP.	
4051	Concern about the detrimental impacts on marine animals.	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.	1452
4053	Concern about the impact on marine creatures due to noise pollution from seismic surveys.	The titleholder acknowledged the feedback, noting that potential impacts from underwater sound to relevant receptors, including plankton, fish, invertebrates, birds, turtles, and marine mammals, are assessed in the Environmental Plan (EP) and can be found in E2, E3, E4, E5, E6, and E7. Measures to minimise adverse impacts on biological receptors are outlined in the EP also and can be found in G2.	3237
4055	Concern about the impact on shearwater birds and their breeding ground at Griffith Island.	Titleholder has conducted a thorough assessment of the literature, with potential impacts to birds assessed in the Environmental Plan (EP) (E5). Measures to minimise potential adverse impacts birds are also outlined in the EP (G2).	2908
4056	Concern about the impact on the Penguin colony at Middle Island.	This effects of sound on penguins were initially assessed in E4 and was later subject to further assessment in F3. The conclusion is that the measures adopted to protect foraging penguins will mean that impacts are of an acceptable level (See G 1 for a list of measures adopted).	2908
4061	Concern about the welfare of whales, seals, and birds due to the activity.	The titleholder acknowledged concerns outlined in email regarding welfare of whales, seals and birds due to the activity. Outlined approach to assessment that included demonstrating that impacts to these species will be of an acceptable level and advised that it had been determined that is acceptable to have a temporary behavioural change such as moving away from the survey vessel and that injury or long-term impacts were not acceptable.	835

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4063	Concern for various birds and little penguins and the effects of sound and light.	Impacts from underwater sound and artificial light on birds, including little penguins, are assessed in the Environmental Plan (EP) and can be found in E5 and E9. Further assessment of little penguins was also undertaken by CGG to demonstrate that environmental impacts and risks arising from the activity will be of an acceptable level. Measures to minimise adverse impacts on birds in the region are also outlined in the EP.	1783
4064	Concern raised by the stakeholder regarding the potential damage/kill of marine life due to seismic testing.	Titleholder responded to individual advising that CGG would not propose an activity that would lead to unacceptable impacts to marine life and advised that environmental impact assessments for each aspect of the proposed activity that has the potential to impact marine life were currently being prepared and that they would be based on scientific literature and published shortly for consultation and feedback.	1024
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
4068	Concerned about the harm being inflicted on oceans by unnecessary gas exploration.	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.	1656
4069	Concerned about the harm being inflicted on oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1673

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4073	Concerns about impacts both reputational and physical to the region if the activity is allowed.	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.	1244
4075	Concerns about marine life and ecosystems.	The effects of underwater sound have been extensively assessed based on the latest scientific literature. CGG has committed to a variety of protective measures for various marine fauna (see G1)	2117
4076	Concerns about potential disturbance to the marine environment, including marine parks and areas of Biological Importance.	The titleholder acknowledged this concern and noted that potential impacts to the marine environment including marine parks and biologically important areas as a result of the Regia MSS is assessed in E1 to E9 and F3 of the EP. There will be no activities with Australian Marine Parks. All areas of biologic importance have been identified and assessment in the respective impact and risk assessments.	2278
4077	Concerns about potential harm to zooplankton, whales, dolphins, sharks, seals, the Bonney Upwelling, rock lobster fishery and other local fishing industries.	Titleholder has undertaken a comprehensive assessment of all available scientific literature to develop an appropriate EP. All potential risks have been identified with appropriate mitigation methods applied where necessary. There are no identified levels of harm that would endanger the population stability of any taxa.	722
4078	Concerns about seismic testing and drilling rigs impacting marine life and fishing activities.	Titleholder has undertaken a comprehensive assessment of all available scientific literature to develop an appropriate EP. All potential risks have been identified with appropriate mitigation methods applied where necessary. There are no identified levels of harm that would endanger the population stability of any taxa.	917
4080	Concerns about the impact of seismic testing on various marine species.	Titleholder has undertaken a comprehensive assessment of all available scientific literature to develop an appropriate EP. All potential risks have been identified with appropriate mitigation methods applied where necessary. There are no identified levels of harm that would endanger the population stability of any taxa.	2179
4081	Concerns about the impact on whale habitat, endangered marine life, and commercial fisheries	Titleholder acknowledged this concern and noted that potential impacts to whales and relevant endangered marine species is assessed in the EP Chapters on underwater sound and light (E2-E7, and E9). Any interactions	4551

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		with seismic are mitigated and managed through spatial boundaries and a comprehensive fauna management plan. Advised that control measures to reduce impacts to commercial fishers as a result of displacement are outlined in the EP and include Adjustment Protocol stipulates an adjustment process will be implemented if a commercial fisher has a financial loss due to the Regia MSS. The adjustment process will be developed in consultation with the fishery associations that represent the commercial fishers that fish within the Operational Area.	
4085	Concerns of damage to the marine environment by seismic blasting and gas extraction	All available scientific evidence is used to inform the environmental assessment on seismic impacts. There are no impacts identified that will affect the population stability of any taxa.	825
4088	Condemns seismic testing, asserting that it is deadly to marine life and unacceptable for ocean ecosystems. Call for a total ban, citing the large number of marine animals harmed by the practice. Argument that the destruction of marine ecosystems and the fishing industry is unjustifiable and express frustration, telling the parties responsible to stop.	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. Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	422
4093	Doubted the effectiveness of mitigation measures and believed the reports/information provided were absent of action /intention.	The mitigations applied by CGG are industry standard and comply with government policy. They have been proven to be as effective as reasonably practical for a number of years. The measures adopted to protect species from the aspects of the activity are found in the respective impact and risk assessments.	2830
4094	Effects of seismic testing on birds and the little Penguin Colony and their ability to return to chick, leading to a decimation in colony numbers.	The titleholder responded with some information relating to the large distances normally travelled by some seabird species to search for food sources for their chicks (Event ID 2910).	1784

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4096	Environmental Risk: Concerns about the environmental impact of seismic testing on marine life and the clash between business interests and environmental protection.	Regia EP has conducted thorough impact assessments for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine mammals, in relation to underwater sound and artificial light as aspects of the activity. Other marine users have also been considered in another impact assessment that considers physical presence as an aspect of the activity. The Regia MSS is required to define acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures are outlined in the EP.	2766
4118	Impact on marine animals, which are the livelihood of the community.	Regia EP has conducted thorough impact assessments for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine mammals. The Regia MSS will not impact the population stability of any taxa within the area of operation. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures have been outlined in the EP.	2274
4119	Implications For Hearing Interference: This persistent loud noise from the proposed activity poses stress to the Fairy Penguin colonies in Western Victoria, potentially interfering with their hearing. Such interference may hinder prey detection and foraging success, affect predator detection and avoidance, disrupt environmental assessment while swimming, and impair essential communication between individuals. Penguins rely on vocalizations to communicate with mates and for parents to locate their young. Ongoing stress and hearing interference could harm individuals, populations, and reproductive success within the colonies.	The following statements can be found in Section 5: Sound Effect Criteria of the document titled Impact Assessment for Underwater Sound: Birds (E5): “There are no regulatory thresholds for underwater sound for bird species. Thus, for assessing potential sound–induced impact of impulsive seismic source signals on diving birds, the least sensitive marine mammal hearing group, other carnivores in water (OCW), from Southall et al. (2019), is used as a proxy. This hearing group has been selected due to similar hearing sensitivity in the frequency band of underwater hearing for diving birds and otariid pinnipeds, which are included in the group. This provides a conservative approach, as otariids are considered more sensitive to underwater sound at higher frequencies than diving birds.” “There are also no regulatory thresholds or criteria established to assess	5117

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		potential behavioural responses by diving birds to underwater sound. To allow for assessing the potential for such impacts, an onset criterion for behavioural responses of 120 dB re 1 µPa (SPL) for impulsive sources was used based on information from Sørensen et al. (2020). They exposed gentoo penguins (Pygoscelis papua) in a controlled exposure experiment to underwater noise bursts (impulsive signals) and demonstrated that the animals show a graded reaction depending on received sound levels." These statements relate to the complexity surrounding the assessments of impacts of sound on bird species due to gaps in scientific literature and research available to date. These statements also present how best efforts have been made to understand how birds, including the Little Penguin, may be impacted by the seismic survey, given the limited information currently available. The above-mentioned impact assessment has stated our prediction that impacts from the seismic activity are expected to have some effect on birds, but that this effect is predicted as minor and is not considered significant or at a level to affect any bird population. CGG are therefore in agreement with you that some ecological and biological-related impacts to Little Penguin individuals may occur. CGG does not believe however, that potential impacts to this species would be at a significant or population level if they were to occur. The reasons for this assessment are stated and explained in this above-mentioned document and so CGG encourages you to read this for a fully comprehensive explanation. Some of the explanations that CGG believe relate to your concerns can be found in Section 6: Predicted Levels of Impact where explanations are made as to why mortality and injury are not predicted in relation to survey design and soft-start implementation, why impacts to birds are predicted to be behavioural only, and why this behaviour-related displacement is not expected to impact foraging opportunities. Some references to findings from relevant studies on penguins and seismic activity have also been discussed here to aid in the assessment of predicted levels of impacts on penguins from the seismic survey. To summarise, CGG believe the concerns you have raised on this matter have been addressed both in this response and in the referenced section of the document.	

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4123	Insufficient information about potential damage from seismic testing.	The titleholder is confident that sufficient relevant and available information has been used to inform this this EP and to complete a comprehensive assessment of relevant aspects of the activity. Information used based around sound, peer reviewed scientific literature.	4190
4127	Lack of Acknowledgement of the Fairy Penguin Breeding Colonies in Western Victoria in CGG's Environment Plan, as well as No Acknowledgement of their Biologically Important Foraging Areas.	We believe there is some confusion here on what Biologically Important Areas are. Biologically Important Areas are regions where aggregations of individuals of a particular species are known or likely to display important behaviours such as breeding, foraging, nesting or migration. They have been identified from the literature and using expert scientific knowledge about species' distribution, abundance and behaviour (Australian Marine Parks, 2024). Biologically Important Areas were established to guide decision-making under the Environmental Protection and Biodiversity Conservation Act of 1999. These areas have been designated for a specific group of protected species, selected based on their conservation status and the availability of dependable spatial and scientific data. There are two sources we would use to identify Biologically Important Areas, the Protected Matters Search Tool and the National Conservation Values Atlas website. The closest Fairy Penguin BIA is around Christmas Island (off the northeast coast of King Island), and it is a designated foraging BIA. Nonetheless, just because the colonies are not BIA's doesn't mean they don't deserve consideration in our Environmental Plan. Little Penguins are discussed in detail in E56 Section 4.5, here we have acknowledged the breeding colonies on both Middle Island and Lady Julia Percy Island. See excerpt from E5 below: "The Little Penguin was identified as breeding known to occur within the area potentially affected by underwater sound (Annex 3). Within this area, breeding occurs on Lady Julia Percy Island and Middle Island." CGG will amend the Environmental Plan to include references to fairy penguins located at London Bridge, Gibson Steps and Lawrence Rocks.	5117
4130	Lasting and unrecoverable damage mentioned.	The titleholder acknowledged the feedback, noting that risks and impacts are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise	4808

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		adverse impacts on marine life are outlined in the EP in G1.	
4133	Mass destruction of marine populations through the blasting process.	Regia EP has conducted thorough impact assessments for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine mammals. The Regia MSS will not impact the population stability of any taxa within the area of operation. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures have been outlined in the EP.	2274
4136	Mention of considerable damage to marine life outweighing the benefits of mapping seafloors for gas drilling.	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.	1389
4142	Non-specific Sound Modelling & Hearing Damage: Current sound modelling for Fairy Penguins is based on their hearing sensitivity but relies on comparisons to the least sensitive marine mammal group, "Other Carnivores In Water," which includes much larger species like the Australian Fur Seal. This comparison is questionable, as these seals can weigh up to 360 kg—360 times the size of a Fairy Penguin—and have distinct ear structures that allow them to close their ear openings underwater. Thus, using such morphologically different species to assess safe sound levels for Fairy Penguins raises significant concerns about the appropriateness of the assumptions being made regarding potential impact risks.	The following statement can be found in Section 5: Sound Effect Criteria of the document titled Impact Assessment for Underwater Sound: Birds (E5) of the Regia MSS EP in reference to choosing the least sensitive marine mammal hearing group, Other Carnivores in Water, as a proxy for diving birds in assessing potential sound-induced impact of impulsive seismic source signals on diving birds: “This hearing group has been selected due to similar hearing sensitivity in the frequency band of underwater hearing for diving birds and otariid pinnipeds, which are included in the group. This provides a conservative approach, as otariids are considered more sensitive to underwater sound at higher frequencies than diving birds.” CGG acknowledges that sound modelling information in relation to diving birds was a proxy, due to insufficient information and regulatory thresholds currently available to accurately conduct this modelling using diving bird data. CGG does however believe that a well-justified and conservative approach has been taken to assess the relevant impact. As highlighted in this concern, CGG does not believe that the association of the Little Penguin with the “least sensitive marine mammal hearing group” is a problem as it has been made evident that the use of this proxy is a conservative approach as this group of marine mammals are more sensitive to underwater sound at higher frequencies than diving birds. CGG agrees that otariid pinnipeds are morphologically physiologically distinct	5117

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		from Little Penguins, but as explained above, despite these differences these marine mammals are considered more sensitive to underwater sound at higher frequencies than Little Penguins. This is evidence that morphological and physiological differences does not necessarily dictate sensitivity and susceptibility to underwater noise.	
4145	Opposes seismic exploration claiming it is dangerous to all marine life. Cannot ensure zero risk.	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. Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	427
4146	Opposes seismic testing, claiming it will have catastrophic effects on marine life due to high decibel blasting sounds. States activities can harm various marine species and may cause whales to beach themselves from the pain, making them unacceptable in a whale sanctuary area.	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. Regia EP has found seismic impacts to cetaceans can be mitigated and managed through appropriate timing of the survey and a comprehensive fauna management plan	537
4154	Questions a previous statement that indicated there would be no mortal effects from seismic activities.	The titleholder acknowledged the feedback, noting that impacts and risks to the marine environment are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts on the marine environment are outlined in the EP in G1.	2088
4155	Raised concerns about sound levels from the survey and associated effects on marine mammals and other species.	Acknowledged concerns and outlined the predicted effects of sound levels of different species of marine mammals including difference between high and	3697

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		low frequency cetaceans, sound propagation and modelling, and different effect level thresholds. Also outlined the whale management and mitigation measures in place for Southern Right Whales and Blue Whales including timing of the activity, vessel-based monitoring (MMO's and PAM Operators), detection technology trails, and citizen science program access. Also outlined the effects on zooplankton and the case for acceptability of these	
4158	Reference to the destruction and degradation of the marine environment observed during diving trips.	The titleholder acknowledged the feedback, noting that impacts and risks to the marine environment are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts on the marine environment are outlined in the EP in G1.	2830
4161	Related to the effects of seismic testing on various birds, in particular the Little Penguin colony at Middle and Griffith Islands.	The titleholder provided information regarding the update of the environment plan to reflect the inclusion of various seabirds, including the Little Penguin, at the location of concern, not previously accounted for in the environment plan. The titleholder responded with some summarised information from the paper the stakeholder provided about foraging penguins and its relevance to the Regia MSS (Event ID 2910).	2908
4162	Related to the effects of seismic testing on various birds, particularly the Little Penguin colony.	The titleholder responded with a provision of a document link to the titleholder's preliminary impact and risk assessment relevant to shorebirds, some information regarding light being a likely cause of effect on nesting seabirds, and the titleholder has explained the process by which they conducted the relevant impact assessment in line with government guidelines (Event ID 1792). The titleholder provided information regarding the update of the environment plan to reflect the acknowledgement of various seabirds, including the Little Penguin, not previously accounted for in the environment plan (Event ID 2910).	1783
4173	Seismic blasting has adverse effects on the marine environment, with critical gaps in understanding the effects on individual species and the marine environment.	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

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4175	Seismic blasting is harmful and disruptive to marine life of many species.	The titleholder acknowledged the feedback, noting that impacts and risks to marine life are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts on marine life are outlined in the EP in G1.	3343
4176	Seismic blasting negatively affects not only whales but also crucial marine life, including fish, crustaceans, and zooplankton, all of which play vital roles in the marine ecosystem.	The titleholder acknowledged the feedback, noting that impacts and risks to marine life are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts on marine life are outlined in the EP in G1.	2074
4177	Seismic blasting would have a significant negative effect on marine creatures and ecosystems.	The titleholder acknowledged the feedback, noting that impacts and risks to marine life are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts on marine life are outlined in the EP in G1.	3343
4179	Seismic sounds have far-reaching effects on the marine environment, causing damage and suffering to species.	The titleholder acknowledged the feedback, noting that impacts and risks to marine life are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts to marine life are outlined in the EP in G1.	3237
4180	Seismic testing and gas exploration/drilling pose undeniable risks to marine fauna, flora, ecosystems, local fishing, and tourism industries.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	2118
4182	Seismic testing's impact on migratory seabirds and their flight path movements.	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 birds within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable.	1247
4186	Stakeholder expressed concern about the destruction and	Petroleum activities do not operate to a no-impact standard. Instead, the Regia	2963

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	depletion of the ocean due to the activity.	MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	
4187	Stakeholder expressed concern about the potentially devastating impact of seismic testing on ocean marine life.	The titleholder acknowledged the feedback, noting that impacts and risks to marine life are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts to marine life are outlined in the EP in G1.	3209
4189	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1653
4190	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1655
4191	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels.	1659

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		Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	
4192	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1661
4193	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1662
4194	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1663

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4195	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1665
4196	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1667
4197	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1670
4198	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to	1672

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		make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	
4199	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	2586
4200	Stakeholder noted that dolphins use clicks and whistles as a complex form of communication, with observations of bottlenose dolphins using distinctive whistles for individuals within their pod, similar to how humans use names. Claimed that blasts from seismic testing could cause temporary and permanent hearing loss in dolphins and whales, citing instance near Peru, where some 900 long-beaked common dolphins and black porpoises washed up dead along a stretch of beach, shown to have had fractures in their ear bones and signs of bleeding from their middle ears. - LINK provided.	A Preliminary Environmental Impact and Risk Assessment is undertaken during an impact assessment process (our PEIRA is available here). The PEIRA is compiled to identify environmental values and sensitivities, to provide an evaluation of the environmental impacts and risks associated with the project. The PEIRA is then used to inform the environmental assessment documents, and as above, the environmental impact and risk treatments, which are being uploaded in the document library. The draft Environmental Impact Assessments are in the document library now, for review and feedback. For transparency we are uploading the entire documents, however if there is a concern you would like a summary or specific information on, please let us know. Further information on marine mammal treatments are covered below in response to concern 6.	2886
4202	Stakeholder objects to the proposed blasting activity due to its detrimental effects on marine ecosystems.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	2255

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4211	Stakeholder stated they were extremely concerned about the risks, damage and destruction caused by exploration activities in the marine environment.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan.	1049
4217	Strong objection to the proposal for 3D seismic blast in the Otway Basin due to harm to oceans and unacceptable environmental impact or risk.	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.	1656
4218	Strong opposition to seismic testing in the ocean due to its effects on both wildlife and the fishing industry. Individual firmly disapproves of the practice.	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. Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan.	425
4226	The email expresses concerns about the adverse effects of blasting the southern ocean and its creatures, particularly mentioning the geologically sensitive Bonney upwelling.	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 in place to reduce any impacts to as low as practicable.	2940
4228	The EP uses inaccurate and misrepresented data and subsequent assumptions regarding	We appreciate the effort you have undertaken to understand the EP however, page 195 of the	5117

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
	the assessment of Fairy Penguins and their behaviours.	Environmental Plan which you have referenced is part of the PEIRA (Preliminary Environmental Impact and Risk Assessment). For context, the PEIRA was written in March 2023 and is only the first step when preparing an Environmental Plan. The purpose of the PEIRA is to a priori, identify key environmental sensitivities and provide an initial evaluation of the environmental impacts and risks associated with the Regia MSS. This is a 'first pass' to support the consultation efforts, it is not the full impact assessment. The full assessment reflects all the feedback from consultation and contains extra assessment as identified. The Fairy Penguin exemplifies the importance of public consultation in the Environmental Plan process. The PEIRA was drafted before public consultation began, and since the colonies along the western Victorian coastline were not designated as BIA's, they were not identified in the PEIRA. However, the Middle Island population of Fairy Penguins was identified through public consultation and subsequently discussed in the Impact Assessment (E5 - Underwater Sound - Birds). It is crucial to read the Environmental Plan in its entirety to fully understand the impact assessment and mitigation measures. Little Penguins are discussed in detail in E56 Section 4.5, here we have acknowledged the breeding colonies on both Middle Island and Lady Julia Percy Island. See excerpt from E5 below: "The Little Penguin was identified as breeding known to occur within the area potentially affected by underwater sound (Annex 3). Within this area breeding occurs on Lady Julia Percy Island and Middle Island." CGG will amend this section of the EP to include the other breeding colonies mentioned above. Regarding the information on the Australian Wildlife website, the table you produced is accurate. However, it's important to note that CGG has not misrepresented the science here. Context is crucial: while it is stated that during the non-breeding season, penguins may forage up to 700 km, the majority remain within 20 km. 700 km foraging trips are not undertaken by most animals and represent the extreme range of travel for this species. Therefore, we consider the average foraging distance to be 20 km. We would recommend you read E5 of the Environmental Plan, we have discussed in detail the fairy penguin and	

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		information regarding foraging, see excerpt below: "Hoskins et al. (2008) examined the foraging range and diving behaviour of the Little Penguin from three breeding colonies (Rabbit Island, Kanowna Island and Phillip Island) in central northern Bass Strait, during the chick-guard stage using electronic tags. Although there were large overall differences between individuals, the mean maximum foraging range (16.9 to 19.8 km) and mean total distance travelled (41.8 to 48.0 km) were similar between the 3 colonies, despite different bathymetric environments. Individuals from all three colonies selected foraging habitats within a narrow sea surface temperature (SST) range (16.0 to 16.4°C). While there were significant differences in mean dive depths (5.4 to 10.9 m) and mean durations (13.2 to 28.6 s) between the different colonies, the mean diving effort (vertical distance travelled: 936.3 to 964.3 m h–1) was similar. These findings suggest little penguins from the three colonies employ relatively similar foraging efforts yet are flexible in their foraging behaviours. McCutcheon et al. (2011) used satellite telemetry to determine the at-sea movements and foraging range of 47 Little Penguins from Phillip Island, south-eastern Australia, during the winter non-breeding period. Individuals conducting single-day trips (72% of individuals) typically foraged 8–14 km from the colony, whereas individuals conducting longer trips (28%; 2–49 days) foraged either within Port Phillip Bay or in the coastal waters of western Bass Strait at maximum distances of 62–147 km from the colony. McCutcheon et al. (2011) noted that the results of this study indicate that Little Penguins remain within continental shelf waters no more than several hundred kilometres from the breeding colony during the non-breeding period, suggesting food availability is adequate within this region throughout the year." Multiple studies across spatially distant locations all found that average foraging distances for birds during nesting season were within 20km with a few km of variance around this. There is still extended foraging by individual birds on occasion, but this is not the norm. Feeding ranges are ultimately constrained by availability of food and we have reported the health and abundance of sardines and squid in the region adjacent to the Regia MSS. It has also been noted by Norman et al (2017) that the presence of upwelling in the nearby region equates to greater	

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		productivity and hence why penguins in this area do not have to travel as far to obtain food. We recognize the (Berlincourt & Arnould, 2015) is more up to date than the references use in E7, and as a result CGG undertook a literature review to ensure the most up to date information is used in the EP.	
4230	The feedback asserts that seismic testing is harmful to oceans and marine life, highlighting detrimental effects on the ecosystem.	We acknowledge that the Regia MSS will have some short-term, localised and recoverable effects on some parts of the environment. We will try demonstrating to our independent regulator that these impacts are of an acceptable level and not as detrimental as you claim. We welcome any evidence you can share so that we can consider it fully prior to our submission.	2080
4232	The feedback expresses frustration over repeated seismic blasts in the same area, emphasising the significant environmental impacts associated with these activities. It calls for accountability from NOPSEMA to prevent future occurrences, highlighting the ongoing threat to the environment.	The Regia MSS is targeting areas that have not been surveyed before though we acknowledge there may be some overlap with previous surveys. We have to show that the environmental impacts are short-term, localised, or recoverable and that they are controllable with appropriate measures in place.	2104
4237	The feedback questions whether the potential impact of seismic blasting on the local food supply, including fish and zooplankton essential to the marine ecosystem, has been considered, expressing concern over the ability of penguins and other marine life to feed if these populations are diminished.	The titleholder is studying the little penguins and will put in place protections for them. The titleholder ensures detail of the impact assessment of the effects of elevated levels of sound will be published shortly. The titleholder ensures they will consider all life-cycle stages of the penguin and the ecosystem effects, including those pressures on the food chain.	2079
4238	The feedback raises concern about the foraging distance penguins travel at night to feed themselves and their young, urging consideration of this range in seismic planning.	We are studying the little penguins and will put in place protections for them. The detail of our impact assessment of the effects of elevated levels of sound will be published shortly. We will consider all life-cycle stages of the penguin and the ecosystem effects, including those pressures on the food chain (Event ID 2079).	2079
4253	The possible effects to marine life and ecosystems is my primary concern	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact	2117

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	
4259	The proposed works will harm and damage the climate and ocean life.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	2256
4260	The protection of wildlife in the Otway Basin is directly affected by drilling and seismic surveying.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan.	1901
4265	The seismic process is going to affect local marine life, ecosystems, and the climate in the community.	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 defined acceptable levels and as low as reasonably practicable.	1259
4267	The Stakeholder also objected to the project on the basis that it would impact every marine creature and sea bird.	Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan. Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not	2064

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		impact the population stability of any taxa within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	
4268	The stakeholder argues that it is impossible to ensure zero risk from seismic activities, emphasising that only zero risk is acceptable. This position reflects a strong concern regarding the potential negative impacts of seismic exploration on the marine environment.	The legislative framework in Australia permits some impact from offshore petroleum if it is managed and of an acceptable level. We believe that responsible development of gas is essential for maintaining the current quality of life we all enjoy and ensuring we pass that quality of life on to future generations. Gas is part of the Labour governments energy transition plan.	2107
4270	The stakeholder asserts seismic surveying has been proven to be harmful and disruptive to marine life of many species.	Regia EP has conducted thorough impact assessments for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine mammals. The Regia MSS will not impact the population stability of any taxa within the area of operation. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures have been outlined in the EP.	3343
4271	The stakeholder asserts that seismic blasts will have a direct negative impact on marine life, specifically mentioning that an “exclusion zone” will not effectively prevent the effects of the blasts from travelling through the ocean.	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 in place to reduce any impacts to as low as practicable. The titleholder is aware of the environmental, cultural, and spiritual importance of Deen Maar and will talk with local traditional owners to learn more about Deen Maar and understand how to protect and preserve the values of this site.	2108
4272	The stakeholder asserts that the survey will have a harmful effect on millions of sea creatures.	It would be unacceptable to have long-term or permanent/unrecoverable impacts, fortunately, impacts from marine seismic surveys are short-term, temporary, and recoverable. (Event ID: 3419)	3343
4274	The stakeholder claims that seismic exploration poses a significant danger to marine life in general. This claim suggests a strong opposition to the practice due to its perceived harmful effects on the marine ecosystem as a whole.	The titleholder publicly responded to this interactive map comment explaining that legislative framework in Australia permits some impact from offshore petroleum if it is managed and of an acceptable level. We believe that responsible development of gas is essential for maintaining the current quality of life we all enjoy and ensuring we pass that quality of life on to future generations. Gas is part of the Labour governments energy transition plan.	2107
4276	The stakeholder does not accept the blasting activity as beneficial or	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the	2255

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
	more important than existing marine life and structures.	acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	
4278	The stakeholder expresses an active interest in the wellbeing of the coastline and its flora and fauna, indicating a general concern for environmental conservation.	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 in place to reduce any impacts to as low as practicable.	1325
4285	The stakeholder noted their concern as a resident of Port Fairy: noise (land and sea), impact on marine life, potential impacts on the environment and the future potential if gas is found.	We are also concerned about the welfare of marine fauna. We have undertaken an impact assessment process that includes whale, seals, pelagic and shorebirds. As part of this assessment, we must show that impacts to these species will be of an acceptable level. We have determined that it is acceptable to have temporary behavioural changes, such as moving away from the survey vessel, and no injury or long-term impacts. Our Preliminary Environmental Impact and Risk Assessment document has been published on the project website and is available here. We are also publishing environmental impact, risk and mitigation documents as they are completed, in the document library. We are publishing the entire documents in order to remain transparent, but I have also attached a summary document.	1747
4287	The stakeholder objected to the activities due to sound levels/acoustic trauma experienced by sea creatures	The scientific literature supports that marine fauna may potentially be displaced due to a seismic survey but that these impacts are typically short term with no impact to ecosystem function. Large scale studies undertaken in Australia that you may be interested in are: Australian Institute of Marine Science. North West Shoals to Shore Marine Noise Monitoring and Impacts https://www.aims.gov.au/research-topics/monitoring-and-discovery/north-west-shoals-shore Behavioural Response of Australian Humpback whales to Seismic Surveys	2389

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		https://www.brahss.org.au/ Assessing the impact of marine seismic surveys on southeast Australian scallop and lobster fisheries https://www.frdc.com.au/project/2012-008 Marine Seismic Survey Impacts on Fish and Invertebrates: Final Report for Gippsland Marine Environmental Monitoring Study https://ecat.ga.gov.au/geonetwork/srv/api/records/2292f4a7-ba2e-3533-e053-12a3070aaf2c Maxima 3D Marine Seismic Survey at Scott Reef https://www.sciencedirect.com/science/article/abs/pii/S0025326X13006528 https://www.sciencedirect.com/science/article/abs/pii/S0025326X18300687 Regarding Marine Fauna Observer's (MFOs), companies that contract MFOs such as Blue Planet Marine and RPS Group provide training for MFOs. As part of contracting MFOs we will ensure that the persons provided meet the requirement of the Australian Government EPBC Act Policy Statement 2.1 – Interaction between offshore seismic exploration and whales, that requires MFOs to be trained and experienced in whale identification and behaviour, distance estimation, and be capable of making accurate identifications and observations of whales in Australian waters. The Regia MSS Implementation Strategy, which will form part of the environment plan to be submitted to NOPSEMA, details the competency requirements for MFOs and ongoing awareness (page 23 and 24). The Regia MSS Implementation Strategy is available on the Regia MSS Website Document Library see https://klarite.mysocialpinpoint.com.au/regiamss/document-library As detailed in the Regia MSS Implementation Strategy, which will form part of the environment plan to be submitted to NOPSEMA, CGG will only use appropriately experienced MFOs as determined by a review of their CVs (page 23). The Regia MSS Implementation Strategy also details how CGG will monitor the performance of the control measures during the activity (page 25). For example: Audits and Inspections	

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		Post acceptance of the EP, conformance will be monitored on an at least quarterly basis by the Client Site Representative, or delegate, via audits and inspections, as well as through the commitments under the Management of Risk, Management of Change, and Management of Knowledge parts of this Implementation Strategy. During the activity, conformance will be monitored on an at least fortnightly basis by the Client Site Representative, or delegate, via audits and inspections during the activity. Conformance auditing or inspection while the EP is in-force will be based on the Conformance Register and will target the following: • Conformance with regulatory requirements detailed in the accepted EP. • Management strategies and procedures to ensure EPOs and EPSs are being implemented, monitored, measured, and evaluated. • Emissions and discharges are being monitored, measured, and documented As stated in the previous email, matters of national energy policy are not within the purview of CGG or the Regia MSS. We will however register claims related to the ongoing need for gas and provide those to NOPSEMA. Please find attached a brochure from NOPSEMA that describes this and may be of use to you.	
4288	The stakeholder objected to the project on the basis that it would impact the Stakeholder personally and every person in the community who love the ocean. Stakeholder noted that they do not support the activity and find it distressing to even think about the damage that could be caused for thousands of creatures and the future of herself, other people of Port Fairy and the greater community.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan.	2064
4301	The stakeholder stated that the proposed activity is environmentally unsound irrespective of the assessment process and predicted environmental risk.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-	1747

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	
4306	The stakeholder was concerned about potential negative impacts of gas exploration and development on Country, the marine and coastal environment, the local economy, Traditional Owners, and local communities.	The titleholder acknowledged the feedback, noting that all relevant impacts are assessed in the Environmental Plan (EP) and can be found in E1-E9. Measures to minimise adverse impacts on functions, interests and activities on relevant receptors are also adopted and can be found in G1.	3152
4309	The stakeholder was concerned about the impact on marine life sensibilities and populations.	Regia EP has conducted thorough impact assessments for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine mammals. The Regia MSS will not impact the population stability of any taxa within the area of operation. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures have been outlined in the EP.	2273
4315	The statement suggest that the significant harm caused by seismic activity to marine life and commercial fisheries, along with the existing natural gas supplies and climate change issues, renders the industrialisation of Port Fairy's coastline unacceptable. It emphasises community disapproval of allowing major oil companies to profit at the expense of the local environment and tourism.	We believe impacts from our activity can be managed to below acceptable levels. Further development of the offshore area would be subject to multiple future approvals. The visual impact from this survey would be temporary and similar to the shipping/fishing activity that already occurs in the region (Event ID 2076).	2076
4323	There will be potential permanent damage to marine life due to sonic testing and drilling.	Titleholder responded and listed various information needs related to the activity, environmental assessment process, environmental aspects, predicted levels of environmental impact and risk, environmental management, consultation processes, and regulations or regulatory processes. Links to the project website and document library was provided.	1046
4331	This feedback raises concerns about the negative impact of seismic blasting on local commercial rock lobster and scallop fishing industries.	This claim has been thoroughly assessed in E1, E5, and F3 for southern rock lobsters. There is no commercial scallop industry in the region. The known effects to individual lobsters are not predicted to have any measurable effect on population levels or dynamics.	2097

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4345	The stakeholder asked how we can be sure that seismic blasting will not harm penguins when conducted 60 meters away, expressing concern that this distance might be insufficient for safety.	The titleholder has acknowledged this feedback relating to underwater sound and penguins. The results from the underwater sound modelling (see E5 Section 6) show the TTS criteria was reached within 60 m of the source. This is a 24-hour cumulative result, meaning the penguin would have to remain within 60m of the sound source to experience TTS. It would be highly unlikely for a diving bird or penguin to be within that distance of the source for 24 hours. As the seismic source will be slowly ramped up to full power over 30 minutes this further reduces the risk of a diving bird or penguin being close to the seismic source at full power.	2079
4346	Requested details on the proximity of seismic blasting to Middle Island, with a specific concern for the range penguins travel offshore to forage at night.	The titleholder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions relating to penguins. The MSS will not impact the foraging abilities of fairy penguins within the area of operation, and CGG has acknowledged breeding colonies of Fairy Penguin along the coast of Victoria (EP E7 Section 4 and 8). CGG undertook an additional assessment of Fairy Penguins in EP F3 and outlined the overlap of foraging colonies along the coast with the Regia MSS. The foraging range of the Middle Island colony does not overlap with the Regia MSS. There is a small overlap with one of the breeding colonies and the Regia MSS, the overlap equates to only ~5.3 hours spread over 3.5 weeks. Mitigation plans are in place to reduce any impacts to as low as practicable.	2079
4347	Enquired about whether the potential impacts on the Fairy Penguin colony have been evaluated, specifically regarding how far they travel to forage and the depths to which they dive. Raises concerns about the effects of seismic activity on this important wildlife species.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions relating to penguins. The MSS will not impact the foraging abilities of fairy penguins within the area of operation, and CGG has acknowledged breeding colonies of Fairy Penguin along the coast of Victoria (EP E7 Section 4 and 8). CGG undertook an additional assessment of Fairy Penguins in EP F3 and outlined the overlap of foraging colonies along the coast with the Regia MSS. There is a small overlap with one of the breeding colonies and the Regia MSS, the overlap equates to only ~5.3 hours spread over 3.5 weeks. Mitigation plans are in place to reduce any impacts to as low as practicable.	2077
4348	Asks if the seismic blasting will occur during the breeding season of the Fairy Penguin colony, emphasising that the penguins forage after dusk, making them	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions relating to penguins. The MSS will not impact the foraging abilities of fairy	2077

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
	less visible at night. It highlights the need to consider the timing of the project to avoid disrupting this vulnerable wildlife population.	penguins within the area of operation. The Regia MSS is scheduled to take place outside of the Fairy Penguin breeding season. CGG undertook an additional assessment of Fairy Penguins in EP F3 and outlined the overlap of foraging colonies along the coast with the Regia MSS. There is a small overlap with one of the breeding colonies and the Regia MSS, the overlap equates to only ~5.3 hours spread over 3.5 weeks. Mitigation plans are in place to reduce any impacts to as low as practicable.	
4349	Raises a concern about whether the sound levels from seismic blasting could be harmful or uncomfortable for Fairy Penguins during their foraging activities.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the foraging abilities of fairy penguins within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	2077
4352	Asked if low-power zones or shut-down zones could be applied to penguins and seabirds.	The titleholder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of penguins or seabirds within the area of operation (see E5). Although there were no mitigation measures through the impact assessment, to address concerns to penguins as a result of consultation CGG has agreed to implement the following measure: The seismic source will be reduced to the low power setting if flocks of foraging birds are observed within 500 m of the source.	2006
4354	Uncertainty about the full extent of damage to the marine ecosystem.	Titleholder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the marine environment within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	2831
4358	The stakeholder was concerned about the impacts on flora and fauna being damaged and killed away from the coastline.	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 flora or fauna within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	2821
4362	Concerns about the lack of environmental reviews of seismic surveys at necessary scales to assess, mitigate and monitor impacts.	The titleholder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The titleholder responded providing links to large scale studies on seismic undertaken in Australian waters and offered to provide individual	1389

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		with impact assessments when they became available.	
4363	Stakeholder noted opposition to the harmful effects on marine life and the pristine coast.	The titleholder provided information on identifying potential impacts and risks and putting mitigations in place such as, conducting survey during time of year marine mammals are less likely to be in area, reducing sound source to lowest setting and reducing number of times activated, implementing marine mammal and fish monitoring programs, exclusion zones, following strict NOPSEMA guidelines. Provided link to PEIRA and document library on website.	786
4364	Concern about the future of ocean health for children and sea life, including whale children.	Titleholder responded in Event ID: 1416, describing CGG's commitment to safeguarding marine mammals, the assessment process, regulations and measures currently in place. The stakeholder was provided with consultation information and invited to engage.	1410
4365	Concerns about the lack of definitive clarification on how seismic testing affects the marine environment and the clash between economic interests and environmental risks.	The titleholder acknowledged the feedback, noting that they have undertaken a thorough analysis and assessment of all relevant literature to inform the impact assessments conducted to assess potential impacts from underwater sound to relevant receptors, including plankton, fish, invertebrates, birds, turtles, and marine mammals in the Environmental Plan (EP). These findings can be found in E2, E3, E4, E5, E6, and E7 under Section 8: Predicted Levels of Impact. Additional assessments of key receptors were also completed to demonstrate that environmental impacts and risks arising from the activity will be of an acceptable level (F3). Titleholder also conducted an assessment to investigate potential impacts to other marine users from physical presence resulting from the activity (E1).	2383
4376	Relevant person expressed concern about the timing of the seismic blasting project, specifically during the breeding season of the Fairy Penguins.	Event ID 6320 - The Regia team responded that window of April/May/June has been identified as one which offers the most minimal impact to the ecosystem and its constituents. Decisions on the preferred time for conducting seismic are made after detailed assessment and consideration across all identified cause-effect pathways, including Little Penguins. The timing of the MSS to the months of April/ May / June avoids the core period of egg laying and chick rearing which is the most effective mitigation tool at our disposal.	6327

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4380	There should be no seismic during the egg laying and chick raising period; local organisations should monitor each colony in the lead up to the breeding season to ensure this.	Event ID 6882 (Doc ID 9096)- Timing has been selected in an effort to avoid the time of year when the ecosystem is most active and the majority of animals are breeding, which is the summer months. It is not appropriate to cease the activity, which occurs at a minimum 20km offshore, for animals laying eggs onshore.	6412
4384	Stakeholder claims that the Fairy Penguins could be more vulnerable to acute effects because their smaller bodies might lack the capacity to buffer the shock waves.	Event ID 6320 - There is no scientific literature to suggest that this, therefore it appears that this claim is a personal opinion. The stakeholder is encouraged to provide further information on why they may believe this.	6412
4417	The relevant person was concerned that about the proposed seismic activity effecting the behaviours of certain species.	Event ID 6880 - The Regia team responded in-meeting that the first half of the EP is associated with assessment work undertaken prior to commencing the activity. First and foremost, because there are so many different species, they explained that they had grouped species together from a physiological perspective. Secondly, the Regia team explained that their focus is on the mega-fauna and species which have protection under the EPBC act.	6880

Annex 3

Underwater Acoustic Sensitive Species

Common Name	Presence	Threatened Category	Migratory Status	Migratory Category	Marine Status	Biologically Important Area	Management Plan Conservation Advice Listing Advice
Antipodean Albatross	Foraging, feeding or related behaviour likely to occur within area	Vulnerable	Migratory	Migratory Marine Birds	Listed	Foraging	National Recovery Plan for Albatrosses and Petrels (CoA 2022)
Australasian Gannet	Breeding known to occur within area				Listed	Aggregation	None identified
Black-browed Albatross	Foraging, feeding or related behaviour likely to occur within area	Vulnerable	Migratory	Migratory Marine Birds	Listed	Foraging	National Recovery Plan for Albatrosses and Petrels (CoA 2022) Commonwealth Listing Advice on Black-browed Albatross (*Thalassarche melanopris*) (TSSC 2005)
Black-faced Cormorant	Breeding known to occur within area				Listed		Wildlife Conservation Plan for Seabirds (CoA 2020a)
Buller's Albatross, Pacific Albatross	Foraging, feeding or related behaviour likely to occur within area	Vulnerable	Migratory	Migratory Marine Birds	Listed	Foraging	National Recovery Plan for Albatrosses and Petrels (CoA 2022)
Blue Petrel	Species or species habitat may occur within area	Vulnerable			Listed		Conservation Advice *Halobaena caerulea* Blue Petrel (TSS 2015)

Common Name	Presence	Threatened Category	Migratory Status	Migratory Category	Marine Status	Biologically Important Area	Management Plan Conservation Advice Listing Advice
Campbell Albatross, Campbell Black-browed Albatross	Foraging, feeding or related behaviour likely to occur within area	Vulnerable	Migratory	Migratory Marine Birds	Listed	Foraging	National Recovery Plan for Albatrosses and Petrels (CoA 2022)
Cape Gannet	Breeding known to occur within area				Listed		None identified
Common Diving-Petrel	Breeding known to occur within area				Listed	Breeding Foraging	None identified
Gould's Petrel, Australian Gould's Petrel	Species or species habitat may occur within area	Endangered					Gould's Petrel (*Pterodroma leucoptera leucoptera*) Recovery Plan (DEC NSW 2006)
Indian Yellow-nosed Albatross	Species or species habitat likely to occur within area	Vulnerable	Migratory		Listed	Foraging	National Recovery Plan for Albatrosses and Petrels (CoA 2022)
Little Penguin	Breeding known to occur within area				Listed		Wildlife Conservation Plan for Seabirds (CoA 2020a)
Little Tern	Breeding known to occur within area	Vulnerable	Migratory	Migratory Marine Birds	Listed (as *Sterna albifrons*)		Commonwealth Listing Advice on *Sterna albifrons sinensis* (Little Tern (western Pacific)) (TSSC 2002). Conservation Advice for *Sternula albifrons* (Little Tern) (DCCEEW 2025)

Common Name	Presence	Threatened Category	Migratory Status	Migratory Category	Marine Status	Biologically Important Area	Management Plan Conservation Advice Listing Advice
							Wildlife Conservation Plan for Seabirds (CoA 2020a)
Northern Buller's Albatross, Pacific Albatross	Foraging, feeding or related behaviour likely to occur within area	Vulnerable			Listed (as *Thalassarche sp. nov.)*		National Recovery Plan for Albatrosses and Petrels (CoA 2022)
Northern Giant Petrel	Foraging, feeding or related behaviour likely to occur within area	Vulnerable	Migratory	Migratory Marine Birds	Listed		National Recovery Plan for Albatrosses and Petrels (CoA 2022) Commonwealth Listing Advice on *Macronectes halli* (Northern Giant-Petrel) (TSSC 2001)
Northern Royal Albatross	Foraging, feeding or related behaviour likely to occur within area	Endangered	Migratory	Migratory Marine Birds	Listed		National Recovery Plan for Albatrosses and Petrels (CoA 2022)
Salvin's Albatross	Foraging, feeding or related behaviour likely to occur within area	Vulnerable	Migratory	Migratory Marine Birds	Listed		National Recovery Plan for Albatrosses and Petrels (CoA 2022)
Short-tailed Shearwater	Breeding known to occur within area		Migratory	Migratory Marine Birds	Listed (as *Puffinus tenuirostris*)	Foraging	None identified
Shy Albatross	Foraging, feeding or related behaviour likely to occur within area	Endangered	Migratory	Migratory Marine Birds	Listed	Foraging likely	National Recovery Plan for Albatrosses and Petrels (CoA 2022) Conservation Advice *Thalassarche cauta* Shy Albatross (TSS 2020)

Common Name	Presence	Threatened Category	Migratory Status	Migratory Category	Marine Status	Biologically Important Area	Management Plan Conservation Advice Listing Advice
Silver Gull	Breeding known to occur within area				Listed (as *Larus novaehollandiae*)		Wildlife Conservation Plan for Seabirds (CoA 2020a)
Southern Giant-Petrel, Southern Giant Petrel	Foraging, feeding or related behaviour likely to occur within area	Endangered	Migratory	Migratory Marine Birds	Listed		National Recovery Plan for Albatrosses and Petrels (CoA 2022)
Southern Royal Albatross	Foraging, feeding or related behaviour likely to occur within area	Vulnerable	Migratory	Migratory Marine Birds	Listed		National Recovery Plan for Albatrosses and Petrels (CoA 2022)
Wandering Albatross	Foraging, feeding or related behaviour likely to occur within area	Vulnerable	Migratory	Migratory Marine Birds	Listed	Foraging	National Recovery Plan for Albatrosses and Petrels (CoA 2022)
Wedge-tailed Shearwater						Foraging	Wildlife Conservation Plan for Seabirds (CoA 2020a)
White-capped Albatross	Foraging, feeding or related behaviour known to occur within area	Vulnerable	Migratory	Migratory Marine Birds	Listed		National Recovery Plan for Albatrosses and Petrels (CoA 2022)
White-faced Storm-petrel						Foraging	Wildlife Conservation Plan for Seabirds (CoA 2020a)