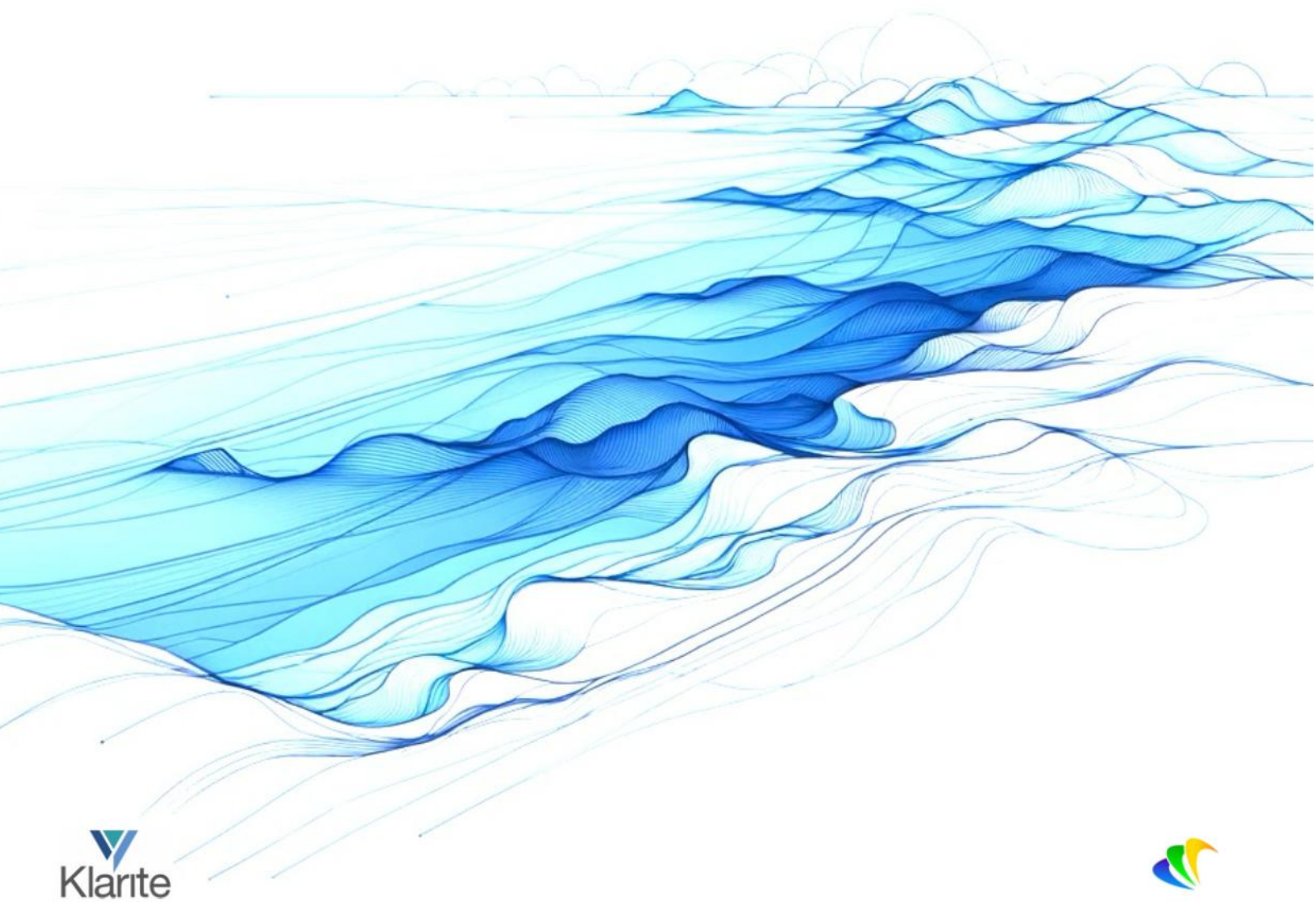
REGIA
Marine Seismic Survey

Impact Assessment
Underwater Sound: Marine Mammals

Appendix E7: REG-EP-026-E7

Rev 5

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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 **Marine Mammals.**

This assessment is based on information from the following studies which should be read in the order listed:

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

1.1 Purpose and Scope

This document contains the second stage of the environmental assessment and ranks the impacts according to the criteria set out in the Environmental Assessment Process found in Appendix B3.

Its purpose is to demonstrate that impacts can be managed to an acceptable level through the adoption of mitigation measures and the setting of appropriate environmental performance outcomes.

The measures adopted will be carried through to the ALARP assessment in stage three of the process.

1.2 Consultation in Preparation of the EP

This document was first published in draft form and uploaded to the Document Library of the Regia MSS Consultation Hub on 11 September 2023. This was done to acknowledge that the full Environment Plan (EP) is a large document that is difficult for readers to digest within a 30-day public comment period. As such, the public and relevant persons were invited to comment on the document with an explicit request for 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 assessment remains contemporary, accurate, and reflects feedback from the regulator and relevant persons, it 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 the Recommendation section and identified at relevant points in the assessment.

2 Aspect – Underwater Sound

2.1 How the Aspect Occurs

Impulsive underwater acoustic emissions result from the seismic sound source releasing compressed air (seismic pulse) which generates a sound wave directed into the seabed. Underwater impulsive acoustic emissions also occur from Ultra-Short Baseline Positioning Beacons within the streamer spread.

Continuous underwater acoustic emissions are generated by the survey and support vessels through thrusters, engines, and propellers. Helicopters will also generate underwater sound via the engine and rotors.

2.2 Extent and Duration of the Aspect

Impulsive Sound

Duration: 60 days (within a 90-day completion window)

Extent: Active Source Area and area of sound propagation with which relevant sound effect criteria for marine mammals are exceeded as detailed in the impact assessment sections.

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

Continuous Sound

Duration: 90 days

Extent: Operational Area

The survey and support vessels will be active in the Operational Area for the duration of the survey undertaking support activities and acquisition. Helicopters will be active within the Operational Area for short periods of time on arrival and departure from the seismic vessel helipad.

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:

- Marine mammals including whales, dolphins, seals, and sea lions.
- People and communities.

Potential environmental impacts to marine mammals identified from the PEIRA include:

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

Change in physical condition relates to the potential for mass strandings. It does not relate to the potential for mortal injury, or mortality in whales because of increased sound exposures. There has not been any recorded mortality of a marine mammal because of an interaction with impulsive sound. Further, as detailed later in this assessment, received sound levels of sufficient magnitude to cause a permanent threshold shift do occur within <400 m of the sound source, and the legislative requirements in Australia require shutdown of the sound source for observations at 500 m. Therefore, there is no cause-effect pathway for marine mammals to suffer mortality or potential mortal injury from sound exposures used for the Regia MSS.

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.

Marine mammals include whales, dolphins, and pinniped species (fur-seals and sea lions). To identify marine mammals that may be present within the area affected by underwater sound, a PMST search was undertaken using the Active Source Area with a 44 km buffer based on the furthest distance to a sound effect criterion of 43.5 km, as per acoustic modelling results most-relevant at the time of searching. This distance was reduced in the secondary modelling report to 41.96 km because of changes to the sail line layout. Nevertheless, PMST searches were run with a 44 km buffer zone as a precaution. The largest predicted impact distances produced from the most up-to-date acoustic modelling report remain smaller than this buffer, so the associated PMST searches and reports remain relevant and conservative.

PMST searches were run again prior to resubmission in May 2024 and February 2025 to ensure any changes to species or listings were identified to control for passage of time. The February 2025 search report identified that the distribution BIA for the Pygmy Blue Whale has been removed from the search area. There are no other changes to protected matters information for species that may be impacted by underwater sound [Section added in response to Matters: I16 and I17].

Annex 3 in this document provides a summary of the PMST Report and identifies any relevant conservation advice and management plans.

Marine mammal species identified as may be affected by underwater sound have been grouped based on hearing sensitivities as follows.

- Very High Frequency (VHF) Cetaceans – Porpoises, Dwarf and Pygmy Sperm Whales
- High Frequency (HF) Cetaceans – Dolphins, Beaked Whales, Sperm Whales
- Low-frequency (LF) cetaceans – Baleen Whales
- Otariid Pinnipeds – Sea Lion, Fur Seals

Based on their endangered status, Southern Right Whales and Blue Whales are described separately from other low frequency cetaceans.

4.1 Very High Frequency (VHF) Cetaceans

The PMST Report (available in Appendix B5) identified that Pygmy Sperm Whales and Dwarf Sperm Whales as may occur in the area. No very high frequency species were identified that are listed as threatened or have biologically important behaviour.

4.2 High Frequency (HF) Cetaceans

The PMST Report (available in Appendix B5) identified:

- Six dolphin species that are likely to or may occur in the area,
- Eight beaked whale species that may occur in the area, and
- Five toothed whale species that are likely to or may occur in the area.

No high frequency species were identified that are listed as threatened or have biologically important behaviours.

4.3 Low Frequency (LF) Cetaceans

The PMST Report (available in Appendix B5) identified the following low frequency cetaceans:

- Fin and Sei whales are known to occur within the area and may be undertaking foraging or feeding-related behaviour.
- Pygmy Right Whales are likely to occur within the area and may be undertaking foraging or feeding-related behaviour.
- Pygmy Blue Whales occur in the area and a foraging (annual high use area) BIA and known foraging area BIA overlap with the Operational Area and sound propagation area.
- Southern Right Whales occur in the area and a migration BIA overlaps with the Operational Area and sound propagation area.
- Humpback Whales occur in the area.
- Minke Whales may occur in the area.
- Antarctic Minke Whales are likely to occur in the area.

More information is provided below on species undertaking biologically important behaviour, and species that are known to occur in the area affected by underwater sound.

4.3.1 Sei Whale

The Sei Whale (*Balaenoptera borealis*) is listed as vulnerable and migratory under the EPBC Act. Sei Whales are considered a cosmopolitan species, ranging from polar to tropical waters, but tend to be found more offshore than other species of large whales. Sei Whales move between Australian waters and Antarctic feeding areas; subantarctic feeding areas (e.g. Subtropical Front); and tropical and subtropical breeding areas. The proportion of the global population in Australian waters is unknown as there are no estimates for Sei whales in Australian waters.

In Australia, Sei Whales occur within Australian Antarctic Territory waters and Commonwealth waters, and have been infrequently recorded off Tasmania, NSW, Queensland, the Great Australian Bight, Northern Territory and Western Australia (Parker 1978; Bannister et al. 1996; Thiele et al. 2000; Chatto and Warneke 2000; Bannister 2008).

Sightings of Sei Whales within Australian waters includes areas such as the Bonney coast upwelling off South Australia (Miller et al. 2012), where opportunistic feeding has been observed between November and May (Gill et al. 2015).

There are no BIAs for the Sei Whale within Australian waters. However, Sei Whales are considered likely to be foraging in the area that may be affected by underwater sound at a similar time as Blue Whales, i.e. predominately between January and April.

4.3.2 Humpback Whale

The Humpback Whale (*Megaptera novaeangliae*) is listed as migratory under the EPBC Act. It is distributed in all oceans and due to its recovery from whaling has been removed as a threatened species under the EPBC Act (DAWE 2022a).

Humpback Whales are present around the Australian coast in winter and spring. Humpbacks undertake an annual migration between the summer feeding grounds in Antarctica and winter breeding and calving grounds in northern tropical waters. Along the southeast coast of Australia, the northern migration starts in April and May while the southern migration peaks around November and December (DCCEEW 2023).

A discrete population of Humpback Whales has been observed to migrate along the west coast of Tasmania and through Bass Strait, and these animals may pass through the area that may be affected by underwater sound. The exact timing of the migration period varies between years in accordance with variations in water temperature, extent of sea ice, abundance of prey, and location of feeding grounds (DCCEEW 2023). Feeding occurs where there is a high krill density, and during the migration this primarily occurs in Southern Ocean waters south of 55°S (DCCEEW 2023).

Humpback Whales satellite-tagged off Australia's east coast were tracked during three austral summers in 2008/2009, 2009/2010 and 2010/2011 (Andrews-Goff et al. 2018). Of the thirty tagged humpbacks, 21 migrated south along the coastline across into Bass Strait during October. In November the whales then migrated along the east coast (12 whales) and west coast (1 whale) of Tasmania to Antarctic feeding grounds. The state space model used shows both search and transit behaviour revealing new temperate feeding grounds in Bass Strait, the east coast of Tasmania and in the eastern Tasman Sea.

There is no known feeding, resting or calving grounds for Humpback Whales in the area that may be affected by underwater, although feeding may occur opportunistically where sufficient krill density is present (CoA 2015).

4.3.3 Fin Whale

The Fin Whale (*Balaenoptera physalus*) is listed as vulnerable and migratory under the EPBC Act.

The Fin Whale is a cosmopolitan migratory species that occurs from polar to tropical waters but is rarely sighted in inshore waters. Fin Whales show well defined migratory movements between polar, temperate and tropical waters which are essentially north–south with little longitudinal dispersion.

While Australian Antarctic waters are important feeding grounds for Fin Whales, the species also feeds in the Bonney Upwelling during summer/autumn sometimes in the company of Blue and Sei Whales (DCCEEW 2023b). Areas of upwelling and interfaces with mixed and stratified waters may be an important feature of Fin Whale feeding habitat with the species feeding on planktonic crustacea, krill, some fish and cephalopods (DCCEEW 2023b). Fin Whales frequently lunge or skim feed at or near the surface and they are known to dive to 230 m to feed.

There are no BIAs for the Fin Whale within Australian waters. Fin Whales are likely to be foraging in the area that may be affected by underwater sound at similar time as Blue Whales, i.e. predominately between January and April.

4.3.4 Pygmy Right Whale

The Pygmy Right Whale (*Caperea marginata*) is a little-studied baleen whale that is found in temperate and sub-Antarctic waters in oceanic and inshore locations. The species, which has never been hunted commercially, is thought to have a circumpolar distribution in the Southern Hemisphere between about 30°S and 55°S. Distribution appears limited by surface water temperature as they are almost always found in waters with temperatures ranging from 5° to 20°C (Baker 1985) and staying north of the Antarctic Convergence. There are few confirmed sightings of Pygmy Right Whales at sea (Reilly et al. 2008). The largest reported group was sighted (100+) just south-west of Portland in June 2007 (Gill et al. 2008).

Species distribution in Australia is found close to coastal upwellings and further offshore it appears that the Subtropical Convergence may be important for regulating distribution (Bannister et al. 1996). Key locations include south-east Tasmania, Kangaroo Island (SA) and southern Eyre Peninsula (SA) close to upwelling habitats rich in marine life and zooplankton upon which it feeds (Bannister et al. 1996).

There are no BIAs for the Pygmy Right Whale within Australian waters, but they are likely to be foraging in the area that may be affected by underwater sound at similar time as Blue Whales, i.e. predominately between January and April.

4.3.5 Blue Whale

The PMST Report (available in Appendix B5) identified Blue Whale foraging, feeding or related behaviour known to occur within the area.

The Blue Whale (*Balaenoptera musculus*) is listed as an endangered and migratory species under the EPBC Act. There are two subspecies of blue whales that use Australian waters (including Australian Antarctic waters), the Pygmy Blue Whale (*B. m. brevicauda*) and the Antarctic Blue Whale (*B. m. intermedia*). The Otway region is an important migratory and foraging area for Blue Whales, as shown by passive acoustic monitoring and aerial surveys (Gavrilov 2012, McCauley et al. 2018, Gill et al. 2011). Underwater acoustic monitoring programs have detected Antarctic and Pygmy Blue Whale calls in the Otway Region (McCauley et al. 2018).

Annex 4 in this document provides a summary of aerial and acoustic monitoring studies focused on Blue Whales in the Otway area.

The Blue Whale was extremely abundant until the early 20th century when they were hunted to near extinction. Approximately 341,830 Blue Whale takes were recorded by commercial whaling in the Antarctic and sub-Antarctic in the 20th century, of which 12,618 were identified as Pygmy Blue Whales (Branch et al. 2004). Recent research on historical whaling has noted blue whales were caught in the Otway region (Branch et al. 2023). The current global population of Blue Whales is uncertain but is plausibly in the range of 10,000 to 25,000, corresponding to about 3-11% of the 1911 estimated population size (Reilly et al. 2008).

Important foraging grounds for Blue Whales include the Great Australian Bight, South Australia, and off Portland Victoria (Figure E7-1). Research to date has found that Pygmy Blue Whales occupy the western area of the Bonney Upwelling system in the Eastern Great Australian Bight and adjacent to the Kangaroo Island canyons from November and December (DoE 2015c). Pygmy Blue Whales then move south-east to the Bonney Upwelling system off eastern South Australia and Victoria (e.g., between Robe, SA and Cape Otway, Vic). This occurs predominately between January to April (DoE 2015c). Recent research has used blue whale satellite data to predict suitable habitats for foraging and migration pygmy blue whales. The study predicted the shelf break and slope and the shelf off the Bonney coast as key habitats for pygmy blue whales during foraging and migration in southern and western Australia. The study validated suitable foraging habitat occurred on both the slope and on the shelf in this area. This information is generally consistent with existing knowledge on foraging BIAs and peak visitations in the region (Ferreira et al. 2024).

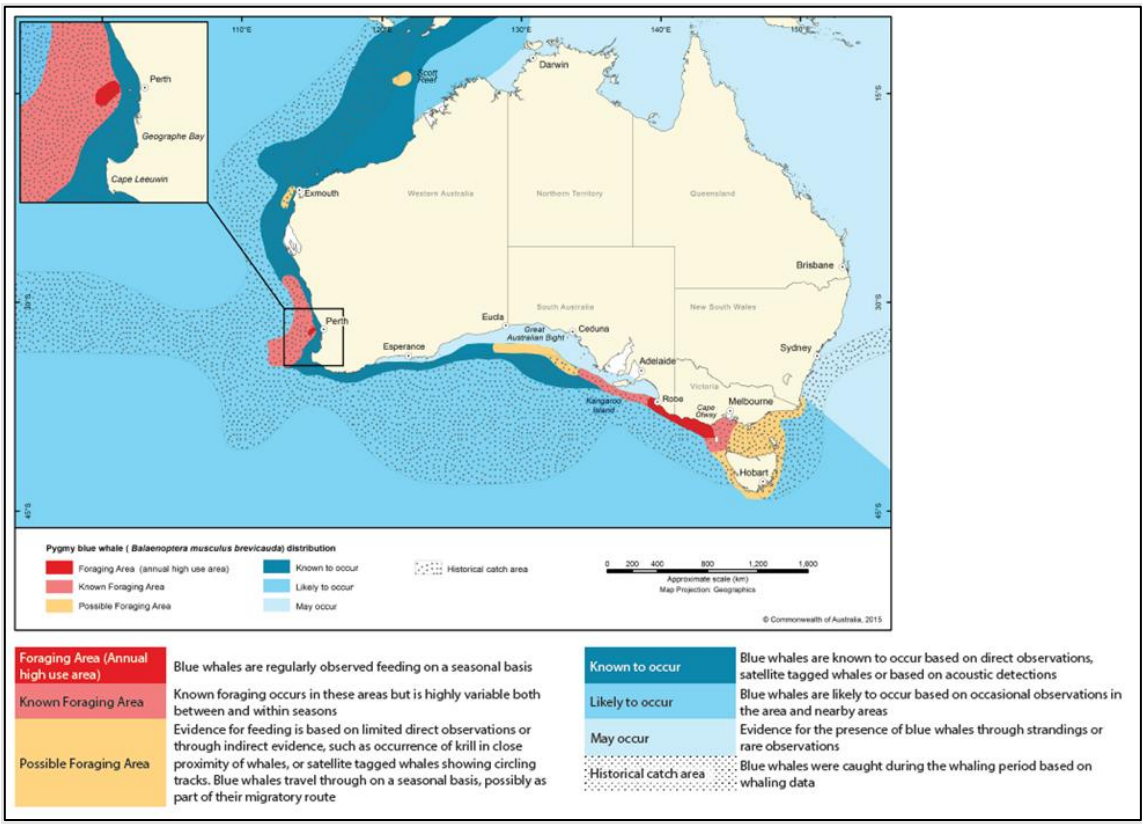


Figure E7-1 - Pygmy Blue Whale Areas around Australia (DoE 2015c).

The time and location of the appearance of Blue Whales in the east generally coincides with the upwelling of cold water in summer and autumn along this coast (the Bonney Upwelling) and the associated aggregations of krill that they feed on (Gill and Morrice 2003). The Bonney Upwelling generally starts in the eastern part of the Great Australian Bight in November or December and spreads eastwards to the Otway Basin around February as southward migration of the subtropical high-pressure cell creates upwelling favourable winds. Sighting data indicates that blue whales are seasonally distributed (Gill et al. 2011; McCauley et al. 2018).

The area that may be affected by underwater sound is within the Pygmy Blue Whale foraging (annual high use) BIA (Appendix B12 MAP-REG-EPM-068). Blue whales predominately occur in this area between January to April (DoE 2015c) though they have been recorded in the Otway area as early as September and as late as July.

4.3.6 Southern Right Whale

The PMST Report (available in Appendix B5) and the National Recovery Plan for the Southern Right Whale (DCCEEW 2024) identified Southern Right Whale breeding behaviours (i.e., mating, calving and nursing) typically occur within reproductive areas (reproduction BIAs which have been classified as habitat critical to the survival of the species) from May to September. Further, a spatially defined migration BIA has been identified with the migration period stated as approximately April to October, The PMST Report identified that Southern Right Whale breeding is known to occur within the area that may be affected by underwater sound, in addition the area where the sound effect criteria for SRW is reached overlaps the migration BIA and reproduction BIA (Appendix B12 MAP-REG-EPM-069).

The Southern Right Whale (*Eubalaena australis*) is listed as endangered and migratory under the EPBC Act. Southern Right Whales were depleted to less than 300 individuals globally due to

commercial whaling in the 19th and 20th centuries (Tormosov et al. 1998). They were protected from whaling in 1935 however, due to illegal whaling in the 1970s and because Southern Right Whales have a slow rate of increase (7% per annum) compared to other marine mammals, their numbers remain low (IWC 2013). Global abundance estimates are 13,000 for the species, across key wintering grounds in South Africa, Argentina, Australia, and New Zealand.

Southern Right Whales are distributed in the Southern Hemisphere with a circumpolar distribution between latitudes of 16°S and at least 65°S. They migrate from southern feeding grounds in sub-Antarctic waters to Australia between May and November to calve, mate and rest (Bannister et al. 1996; DCCEEW 2024). They are distributed across thirteen primary aggregation areas along the southern coast of Australia. In Australian coastal waters, they occur along the southern coastline of the mainland and Tasmania and generally extend as far north as Sydney on the east coast and Perth on the west coast (CoA 2012). There are occasional sightings further north, with the extremities of their range recorded at Hervey Bay and Exmouth (CoA 2012).

The peak period for Southern Right Whale mating is from mid-July through to August (CoA 2012). Pregnant females generally arrive during late May/early June and depart with calves in September to October however the general time of arrivals and departures varies on an inter-annual basis. Sightings of Southern Right Whales have been carried out by the Department of Energy, Environment and Climate Action (DECCA) at Warrnambool since 1985, revealing the majority of females arrive along western Victoria in May (54%) and June (42%). The majority of the last sightings occur in September (50%) and October (38%) (SWIFFT, 2025), although examination of the annual SRW monitoring reports on the SWIFFT website indicates whales were gone by Aug-Sept between 2020-2024. The earliest sighting was recorded at Portland on the 22nd of April (SWIIFT, 2025). Calving females are known to have high site fidelity and a 3 to 4-year calving interval. Other population classes stay for shorter and variable periods undertaking coastal movements and departing the coast earlier than female-calf pairs (CoA 2012). It has been found that females belonging to one subpopulation can relocate to a different calving area in a different region (Watson et al 2021). Counter-clockwise migration has been found to occur with whales from the south-western subpopulation arriving on the Australian coast from summer feeding grounds in sub-Antarctic waters. Movement tends to occur in a circular anti-clockwise direction into south-eastern Australia before traveling west to calving grounds in South Australia and Western Australia (Watson et al. 2021).

The National Recovery Plan for Southern Right Whale (2024) recognises two genetically distinct Australian stocks, the western and eastern populations. The western Australian subpopulation was estimated at 2,242 individuals (Smith et al., 2025). The eastern subpopulation is approximately 268 individuals with an overall increase of 4.7% per annum (Stamation et al., 2020).

The western population occurs in the coastal waters between Cape Leeuwin in Western Australia and Ceduna in South Australia and are particularly concentrated in three main regions of Albany east to Doubtful Island Bay (WA), Israelite Bay (WA) and Head of Bight (SA) (Charlton et al. 2022, Smith et al. 2023). The eastern population occurs to a lesser extent off Victoria, Tasmania, New South Wales and Queensland (Stamation et al. 2020). In Victoria, there is a regular aggregation area in waters off Warrnambool at Logans Beach (see Table E7-2) and increasing numbers of sightings along the Gippsland coast (east from Wilsons Promontory), and relatively regular sightings along the southeast coast of Tasmania (Stamation et al. 2020, Watson et al. 2021).

Photo identification collated between 1980 and 2021 revealed 96 calves were born at Logans Beach (Watson et al. 2021). Other important aggregation areas within the Southern Right Whale Reproductive BIA along Victoria include Portland, and Port Cambell/Peterborough. The mean calving interval for SRWs within the eastern population is estimated to be 3.5 years (Watson et al, 2021).

Recent studies have indicated SRW populations along the southwest coast of Australia are in decline with birth rates decreasing since 2016 (Smith et al. 2025, Grundlehner et al, 2025). Confounding this outcome is the recognition that SRW habitat occupancy has expanded in recent years with density increases at sites such as the Head of the Bight (HOB). It seems SRWs are recolonising historically

important areas such as Fowlers Bay (O'Shannessy et al. 2025). High density years at HOB usually correspond with high density years at Fowlers Bay, suggesting a possible redistribution of SRWs driven by crowding or saturation at the HOB (O'Shannessy et al. 2025) Very recent information from media postings has also suggested that the 2025 calving season at the HOB is one of the largest on record.

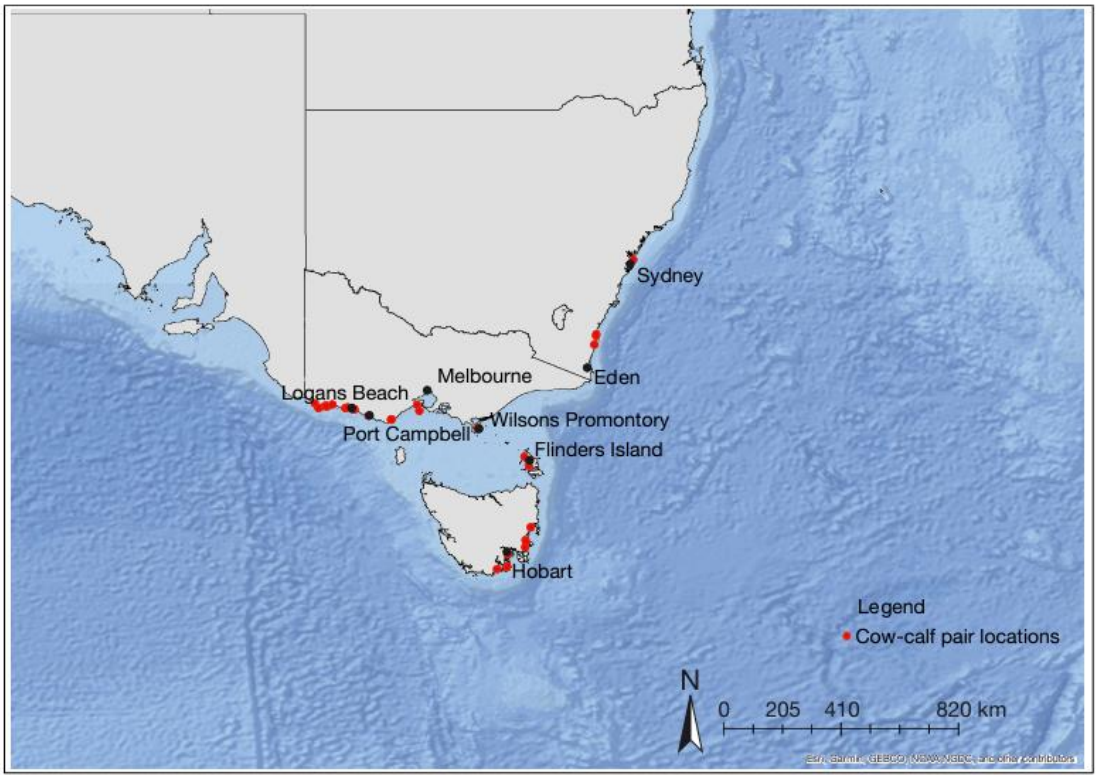


Figure E7-2: Sightings data collated by Stamation et al (2020) showing a higher concentration of Southern Right Whale calf cow pairs at Logans Beach.

4.4 Otariid Pinnipeds

The PMST Report (available in Appendix B5) identified that the Australian Sea Lion may occur in the area, Australian Fur Seal breeding is known to occur in the area, and the Long-nosed Fur Seal may occur in the area. The summer months represent an important period for otariid pinnipeds when lactating females may be alternating between feeding trips at sea and periods ashore to suckle their pups. [Section added in response to Matters M30 and M31].

4.4.1 Australian Sea Lion

The Australian Sea Lion (*Neophoca cinerea*) is listed as endangered under the EPBC Act.

The Australian Sea Lion is the only endemic pinniped, that breeds in Australia (DSEWPaC 2013). All current breeding populations are located between the Abrolhos Islands (Western Australia) and Pages Islands (South Australia). The Australian Sea Lion uses a variety of shoreline types but prefers the more sheltered side of islands and typically avoids rocky exposed coasts (Shaughnessy 1999).

The Australian Sea Lion is a specialised benthic forager, primarily feeding on the sea floor on the continental shelf, most commonly in depths of 20–100 m, with adult males foraging further and into deeper waters. They typically feed on a range of prey including fish, cephalopods (squid, cuttlefish

and octopus), sharks, rays, rock lobster and penguins (DSEWPC 2013). They typically forage up to 60 km from their colony but can travel up to 190 km when over shelf waters (Shaughnessy 1999).

4.4.2 Australian Fur Seal

The Australian Fur Seal (*Arctocephalus pusillus*) breeds on islands of the Bass Strait but ranges throughout waters off the coasts of South Australia, Tasmania, Victoria and NSW. Numbers of this species are believed to be increasing as the population recovers from historic hunting (Hofmeyr et al. 2008). The species is endemic to south-eastern Australian waters.

In Victorian waters they breed on offshore islands, including Lady Julia Percy Island (Deen Maar), Seal Rocks in Westernport Bay, Kanowna and Rag Islands off the coast of Wilson's Promontory and The Skerries off Wingan Inlet in Gippsland. The breeding sites on Lady Julia Percy Island and Seal Rocks are important, with 25% of the population occurring at each of these islands. In Tasmanian water they breed at Reid Rocks. Their preferred breeding habitat is a rocky island with boulder or pebble beaches and gradually sloping rocky ledges.

Haul out sites with occasional pup births are located at Cape Bridgewater, at Moonlight Head, on various small islands off Wilsons Promontory and Marengo Reef near Apollo Bay. Australian Fur Seals are present in the region all year, with breeding taking place during November and December.

Research being undertaken at Lady Julia Percy Island indicates that adult females feed extensively in the waters between Portland and Cape Otway, out to the 200 m bathymetric contour. Seal numbers on the island reach a maximum during the breeding season in late October to late December. By early December, large numbers of lactating females are leaving for short feeding trips at sea and in late December there is an exodus of adult males. Thereafter, lactating females continue to alternate between feeding trips at sea and periods ashore to suckle their pups. Even after pups begin to venture to sea, the island remains a focus, and at any time during the year groups may be seen ashore resting (Robinson et al. 2008, Hume et al. 2004, Arnould & Kirkwood 2007).

Lady Julia Percy Island is within the area that may be affected by underwater sound.

A study on the foraging behaviour of seals from the colony at Lady Julia Percy Island found that lactating Australian Fur Seals tended to search for prey south-east of their colony at 60-200 m depth (Arnould and Kirkwood, 2011). The Regia MSS Operational Area may therefore overlap foraging areas for the Australian Fur Seal. [Paragraph has been added in response to Matter M31].

4.4.3 Long-nosed Fur Seal

The Long-nosed Fur Seal (*Arctocephalus forsteri*) is listed as a marine species under the EPBC Act. There is no approved conservation advice or recovery plans for this species.

Long-nosed fur seals were decimated by fur trade through the 1800's and culling into the late 1900's due to perceived competition for resources with fishers (Shaughnessy, 1999).

The Long-nosed Fur Seal breeds in southern Australia from New South Wales to Western Australia; it also breeds in New Zealand and its subantarctic islands. Most of the Australian population is in South Australia, between Kangaroo Island and the southern tip of Eyre Peninsula (Shaughnessy et al. 2015). Long-nosed Fur Seals have experienced increasing population trends, with 97,200 seals recorded in the state of South Australia (2013–14 census; Shaughnessy et al., 2015) where an estimated 83% of their recorded pup production occurs.

Long-nosed Fur Seals can live up to 25 years old with females reaching maturity between 4 and 8 years of age and weigh between 50-150kg (McKenzie et al. 2007).

Prior to sealing, Long-nosed Fur Seals occupied the Bass Strait. Currently along the coast of Victoria, there are breeding colonies of Long-nosed Fur Seals located at Cape Bridgewater, Deen Maar, Kanowna Island and the Skerries (Kirkwood and Arnould. 2009). Colonies are typically occupied year-

round, with greater activity during breeding seasons. Pups are born from mid-November to January, with most pups born in December (Goldsworthy 2008). Pups begin weaning between the ages of 8 and 11 months (Baylis et al 2005).

Adult males tend to forage at the edge of the continental shelf while females typically use e continental shelf or near-shelf waters in summer and autumn, and pelagic waters associated with the subtropical front much further south during winter, the same region that is favoured by juveniles. During the summer months females and juveniles forage closer to their breeding colonies while females feed their young pups and pups start moulting (Shaughnessy and Goldsworthy, 2020). Tagging studies from lactating females at Cape Gantheaume, Kangaroo Island revealed the strength and duration of the Bonney Upwelling provides important food resources to females that forage ion the continental shelf during the winter months (Baylis et al. 2008).

Long-nosed Fur Seals have a broad diet consisting of mostly bony fish and squid (Boren, 2010). More recent research has revealed Long-nosed Fur Seals in Victoria are predating on seabirds such as shearwaters and little penguins, potentially impacting the recovery of little penguin populations (Hardy et al. 2024).

4.4.4 Southern Elephant Seal

CGG has reviewed relevant literature including Conservation Advice for this species and has noted the Southern Elephant Seal (*Mirounga leonine*) is listed as Vulnerable under the EPBC Act. It is a subantarctic species and, although some individuals have been recorded in coastal habitats, this species was not identified in the PMST search for this area. This species has a nearly circumpolar distribution and visits subantarctic islands to breed and to moult. There are two main populations found in Australian waters and the principal breeding colonies for these populations are located on Heard and Macquarie Islands (Shaughnessy 1999; McMahon et al. 2005). Southern Elephant Seals concentrate on the northern beaches of Macquarie Island, although colonies are scattered around the island (DEH 2003). In the Australian Antarctic Territory, small numbers of pups have been reported from Browning Peninsula and Peterson Island, near Casey station (Murray 1981 cited in Shaughnessy 1999), and there has been a well-frequented haul-out area at Vestfold Hills (Burton 1985). Off the coast of mainland Australia, several pups have been born and many animals recorded on Maatsuyker Island (located at the most southern end, off the south-west coast of Tasmania) (Shaughnessy 1999).

Given the likelihood of encountering this species during the Regia MSS is low, impacts to the species are not predicted and have not been assessed further. [Paragraph added in response to Matter C07].

4.5 People and Communities

4.5.1 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, with activities including whale watching and tourism. Species that may be affected are described above in sections 4.1 and 4.4

4.5.2 Cultural features

During consultation, the cultural significance of marine mammals, such as the Southern Right Whale, Blue Whale, Killer Whale, seals, sea lions and dolphins, were highlighted, with connections to songlines, totemic value and kinship, and cultural practices (Appendix F3, Section 3.16.1).

The National Recovery Plan for Southern Right whale describes Whale Birthing Dreaming Sites being in coastal bay areas from Port Campbell to Portland, including Warrnambool. These places on Gunditjmara Country are known resting and feeding sites for mothers and calves and are directly related to Gunditjmara Neeyn (midwives), explaining why Gunditjmara is a Matrilineal Nation. (DCCEEW, 2024)

5 Relevant Legislative Requirements

CGG has considered all the relevant legislative requirements, conservation management and recovery plans for marine mammal species that may be affected (see Appendix B2). Measures that must be adopted are as follows:

- EPBC Act Policy Statement 2.1 - Interaction between offshore seismic activities and whales (Part A). This includes a requirement for Marine Fauna Observers and associated procedures for initiating shutdowns at predefined distances.
- Environment Protection and Biodiversity Conservation Regulations 2000 Part 8: Vessel and Operating Procedures:
  - 300 m caution zone for whales.
  - 150 m caution zone for dolphins, turtles and pinnipeds.
  - Helicopters will not fly lower than 1650 ft when within 500 m horizontal distance of a cetacean except when landing or taking off and will not approach a cetacean from head on.
- National Recovery Plan for the Southern Right Whale (*Eubalaena australis*) 2024 (NRPSRW): "Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that it does not prevent any southern right whale from utilising the area or cause auditory impairment" and "Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that the risk of behavioural disturbance is minimised." It is important to also note that the NRPSRW defined an impact as biologically significant effect is one that reflects a change whose direction, magnitude and/or duration is sufficient to have consequences for the fitness of individuals or populations.
- Blue Whale Conservation Management Plan 2015: "Anthropogenic noise in biologically important areas will be managed such that any blue whale continues to utilise the area without injury and is not displaced from a foraging area."

6 Defining Acceptable Levels of Impact

Marine mammals and especially cetaceans rely on sound for important life functions including individual recognition, socialising, detecting predators and prey, navigation, and reproduction (Weilgart 2007, Erbe et al. 2015, Erbe et al. 2018). Underwater sound can affect marine mammals in various ways including interfering with communication (masking), behavioural changes, a shift in the hearing threshold, physical damage, and stress (Erbe 2012, Rolland et al. 2012).

NMFS finalised technical guidance for assessing the effect of anthropogenic sound on marine mammal hearing (NMFS 2016). The guidance describes injury criteria with new thresholds and frequency weighting functions for different hearing groups described by Finneran and Jenkins (2012) and updated by Accomando et al 2025). The latest revision to this work was published in 2018; with the criteria defined in NMFS (2018). The latest criteria are from Southall et al. (2019) which are applied.

For impulsive sounds, NMFS currently uses step function thresholds of 160 dB re 1 μ Pa SPL (unweighted) to assess and regulate sound-induced behavioural impacts for marine mammals (NOAA 2018, NOAA 2019). The threshold for impulsive sound is derived from the High-Energy Seismic Survey (HESS) panel (HESS 1999) report that, in turn, is based on the responses of migrating mysticete whales to airgun sounds (Malme et al. 1984). The HESS team recognised that behavioural responses to sound may occur at lower levels, but significant responses were only likely to occur above a SPL of 140 dB re 1 μ Pa. Southall et al. (2007) found varying responses for most marine mammals between a SPL of 140 and 180 dB re 1 μ Pa, consistent with the HESS (1999) report, but lack of convergence in the data prevented them from suggesting explicit step functions.

The PTS and TTS thresholds used in the underwater sound modelling (see Appendix B7a and B7b) are from NMFS (2018) and Southall et al. (2019) and were the most current, globally recognised technical guidance for assessing the effects of anthropogenic sound on marine mammal hearing, until October 2024.

In October 2024 the NMFS released the 2024 Update to Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 3.0) Underwater and In-Air Criteria for Onset of Auditory Injury and Temporary Threshold Shifts (NMFS 2024).

This update provides revised underwater and in-air criteria for the onset of auditory injury and temporary threshold shifts (TTS). The 2024 guidance outlines Level A criteria for auditory injury and Level B criteria for harassment. Notably, the behavioural response thresholds remain unchanged. However, a new approach has been introduced for assessing injury: the thresholds for permanent (PTS) and temporary (TTS) threshold shifts have been updated to reflect the onset of auditory injury for different marine mammal hearing groups, and this is differentiated based on whether the sound source is impulsive or non-impulsive.

Auditory injury, as defined by NMFS, includes but is not limited to PTS and TTS. TTS is described as a temporary, reversible elevation in the hearing threshold at a specific frequency or within a portion of an animal's hearing range, relative to a baseline level. While TTS is acknowledged in the guidance, NMFS does not classify it as a true auditory injury. This position is supported by studies indicating that TTS falls within normal physiological variability and does not cause structural damage. The temporary hearing reduction following exposure to loud noise is attributed primarily to fatigue of cochlear hair cells and supporting structures rather than cell loss, and is fully reversible (Ward, 1997; Southall et al., 2007, 2019, as cited in NMFS 2024).

There were changes to the peak-to-peak thresholds for low frequency cetaceans, and otariid pinnipeds, and changes to the SELcum thresholds for high frequency cetaceans, very high frequency cetaceans and otariid pinnipeds.

It should be noted, where NMFS thresholds were updated, subsequent edits were made to the defined acceptable levels.

It is difficult to determine thresholds for behavioural response in individuals or groups of cetaceans (Southall et al. 2007, 2021). Often the way individuals or groups respond varies (Nowacek et al. 2004; Gomez et al. 2016; Southall et al. 2016, 2021) and is influenced by both biological and environmental factors such as age, sex, and activity at the time etc. The behavioural disturbance threshold criteria applied is the current NOAA (2024) criterion for marine mammals which summarises the most recent scientific literature on the impacts of sound on marine mammal hearing.

This literature was used to inform the thresholds used in the underwater sound modelling report (Appendix B7c). Previous modelling reports (Appendix 7a and 7b used the NMFS 2019 criterion.

To define acceptable levels of impact to marine mammals the species identified have been grouped according to similarity of impact pathways:

- Very-high-frequency (VHF) cetaceans
- High-frequency (HF) cetaceans
- Low-frequency (LF) cetaceans
- Southern Right Whale
- Blue Whale
- Otariid Pinnipeds

Based on the above discussion, Table E7-1 defines and justifies the acceptable levels of impact from underwater sound on marine mammals. Further information on studies in relation to seismic acoustic emission impacts to marine mammals is provided in the Regia MSS Seismic Studies Summary available in Appendix B8.

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 aspect 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 E7-1 details the general acceptable level statements which cover the whole of the activity (which are consistent across all environmental impacts and risks), and the corresponding aspect specific defined acceptable levels established for this assessment. This sets the foundation for relevant and targeted demonstration later in this assessment.[1]

[1] Note: The acceptable levels related to demonstrating ALARP and the adoption of specific measures to ensure the effectiveness of control measures can be found in Appendix F2 and B3 respectively. As they are criteria integral to the acceptance of the Environment Plan, and they are documented elsewhere, these criteria are not discussed further in this assessment.

Table E7-1 - Defined acceptable levels of impact from underwater sound on marine mammals.

Category	Defined Acceptable Level (General)	Defined Acceptable Levels (Aspect Specific)	Rationale
Principles of ESD	The petroleum activity results in temporary / reversible, small scale, and/or low intensity environmental damage.	Marine mammals can continue critical life-cycle stages and are not injured.	Marine mammals rely on undisturbed habitats to complete vital life-cycle stages, including calving, feeding, and migration. Scientific studies and international guidelines (e.g. EPBC Policy 2.1 and Southall et al. 2019) provide injury thresholds. Ensuring no injury or long-term disruption to these life-cycle stages supports ecological sustainability and compliance with protected species legislation.
	The impact and risk assessment process is 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.	Anthropogenic threats are managed consistent with ecologically sustainable development principles to facilitate recovery of all threatened whales.	This level is recognises the broader intent that all actions must align with ecologically sustainable development (ESD) principles to support threatened whale species long-term recovery. ESD ensures a balance between environmental protection and development by applying precaution, intergenerational equity, and adaptive management.
	Environmental management of the activity must not be inconsistent with EPBC Act Management Plans and Recovery Plans.	Anthropogenic noise in biologically important areas must be managed such that any blue whale is not displaced from a foraging area.	This level aligns with the objectives of the Blue Whale Conservation Management Plan, which identifies the protection of biologically important foraging areas as critical to the species' survival and recovery. Avoiding displacement from foraging areas due to anthropogenic noise, particularly during peak feeding periods, ensures blue whales can continue to access necessary resources.
		Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that they do not prevent any southern right whale from utilising the area or cause auditory impairment.	This level aligns with the objectives of the National Recovery Plan for the Southern Right Whale (SRW), which requires that actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that it does not prevent any southern right whale from utilising the area or cause auditory impairment.
		Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that they minimise behavioural disturbance.	This level is consistent with the objectives of the National Recovery Plan for the Southern Right Whale (SRW), which requires that actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that the risk of behavioural disturbance is minimised.

Category	Defined Acceptable Level (General)	Defined Acceptable Levels (Aspect Specific)	Rationale
Biological	Impacts and risks to biological features will be temporary / reversible, small scale, and/or low intensity environmental damage at population levels.	Sound exposure levels to low frequency cetaceans must be below PTS per pulse and PTS 24 hr SEL thresholds of 222[2] dB and 183 dB respectively.	These thresholds are based on international scientific consensus (e.g. Southall et al. 2019 and NMFS 2024) for onset of permanent threshold shift (PTS) in very high, high, and low frequencey cetaceans, representing the point at which auditory injury occurs. Ensuring exposure does not exceed these levels is critical for compliance with protected species regulations and prevention of permanent harm.
		Sound exposure levels to high frequency cetaceans must be below PTS per pulse and PTS 24 hr SEL thresholds of 230 dB and 193[2] dB respectively.	
		Sound exposure levels to very high frequencey cetaceans must be below PTS per pulse and PTS 24 hr SEL thresholds of 202 dB and 159[2] dB respectively.	
		Sound exposure levels to otariid pinnipeds must be below PTS per pulse and PTS 24 hr SEL thresholds of 230 dB and 185 dB respectively.	These thresholds are based on international scientific consensus (e.g NMFS 2024) for onset of permanent threshold shift (PTS) in very otariid pinnipeds, representing the point at which auditory injury occurs. Ensuring exposure does not exceed these levels is critical for compliance with protected species regulations and prevention of permanent harm.
		Sound exposure to any blue whale must be below the behavioural effect threshold of 160 dB SPL.	The NOAA NMFS 2024 criteria identifies 160 dB re 1 µPa as a widely accepted threshold for behavioural disturbance in low-frequency cetaceans. While CGG acknowledges uncertainties around its applicability to blue whales, this threshold remains a precautionary reference point for managing impacts from seismic airguns. Expert input from SLR (Appendix B7c) supports its use, though studies compiled by Southall et al. (2021) highlight limited data specific to seismic sources. Southall (2024) also notes the need for more nuanced thresholds and better use of existing data. These uncertainties are further discussed in Section 12 and Appendix F3.

[2] This threshold has been updated based on the NMFS 2024 guidance.

Category	Defined Acceptable Level (General)	Defined Acceptable Levels (Aspect Specific)	Rationale
(cont.) Biological	(cont.) Impacts and risks to biological features will be temporary / reversible, small scale, and/or low intensity environmental damage at population levels.		
		Sound exposure levels to blue whales must be below a TTS per pulse and TTS 24 hr SEL thresholds of 216 dB and 168 dB respectively.	This level is based on proposed thresholds from the scientific literature for low-frequency cetaceans, which include blue whales and SRW. The thresholds represents the onset of temporary threshold shift (TTS), a reversible reduction in hearing sensitivity.
		Sound exposure levels to southern right whales must be below a TTS per pulse and TTS 24 hr SEL thresholds of 216 dB and 168 dB respectively.	This level is consistent with the objectives of the National Recovery Plan for the SRW, which requires that Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that it does not prevent any southern right whale from utilising the area or cause auditory impairment. The thresholds represents the onset of temporary threshold shift (TTS), a reversible reduction in hearing sensitivity.
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.	Exposure of marine mammals to impulsive sound will not result in population-level effects.	This acceptable level aligns with the general principle that impacts and risks must be temporary, reversible, and of low intensity, ensuring no long-term or population-level effects to ecological features.
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.	Reflects Commonwealth and State policy objectives for sustainable resource use and protection of ecosystem services.
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.	This level reflects the principle of maintaining cultural values and heritage as protected under national and state legislation. It ensures that activities do not interfere with traditional practices, spiritual connections, or ongoing access to culturally significant areas.

Category	Defined Acceptable Level (General)	Defined Acceptable Levels (Aspect Specific)	Rationale
Social	Measures have been adopted based on the consultation process to address relevant objections and claims of relevant persons. The views of public have been considered in the impact and risk assessment.	People and communities can continue engaging with the natural environment, recreational activities, and heritage values without experiencing long-term or irreversible disruption.	This level reflects broader social licence to operate, ensuring that environmental activities do not lead to degradation of public amenity, loss of recreational use, or impacts to non-Indigenous heritage values. It aligns with Commonwealth policies promoting public access, well-being, and sustainable use of the marine environment.
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 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. Two alternative technologies – marine vibrosis and BluePulse – were considered in the ALARP assessment and were not adopted. Five main options were considered:

Continuous Line Acquisition

This method involves maintaining discharge of the acoustic source during vessel line turns to reduce the total number of operational days. In effect, the survey could be acquired without run-ins and run outs. While this could shorten survey duration, it results in longer periods of uninterrupted underwater sound exposure and eliminates natural breaks between sail lines. Furthermore, it increases the risk of degraded data quality due to inconsistent line geometry and off-angle acquisition. If data quality does not meet geophysical thresholds, reacquisition may be necessary, leading to an overall increase in survey footprint and environmental impact. This option was ultimately discarded due to both environmental and operational drawbacks.

The remaining activity limitations described below have subsequently been adopted:

No petroleum activity to be carried out between 1 January and 15 September.

Timing of survey is outside summer months of Jan/Feb/Mar which avoids the peak upwelling period. The Bonney Upwelling is driven by spring-summer winds that blow from the south-east. It can vary from year to year but typically starts during November and December, is at its strongest from January to March and retreats in April. Most consultations identified that the upwelling events and the associated increase in biodiversity in the area was a high priority. In April, May and June there are departing Blue Whales and arriving SRW mother/calf pairs. . For SRW, this time of year represents a critical life-cycle stage where pregnant mothers and newborns will arrive and reside in the shallow waters off the coast. Based on analysis of 40 years of sightings data this will reduce temporal overlap with SRW presence to less than 2 weeks (see Appendix F3).

Outside of these months low numbers of Pygmy Blue Whales and other foraging whales such as Fin, Sei and Pygmy Right whales are in the BIA off Otway. Additionally, timing the survey outside of July and August, avoids peak reproduction and migration by SRWs.

Reduced source size to reduce the energy and sound transmission distances.

From the commencement of preparation for the Regia MSS, CGG has committed to using the lowest sound source size possible to meet geophysical objectives. Since new NMFS criteria were published during the EP assessment process and new modelling was required, CGG took the opportunity to undertake additional sound transmission loss modelling and test the environmental benefits of a lower source size (from 2810 to 2630 cubic inches) and new technology (BluePulse). This modelling was undertaken in parallel to geo-acoustic analysis of these sources. The lower source size has been adopted because there were environmental benefits (lower effect distances) and geophysical objectives could be met. However, BluePulse technology was rejected because geophysical

objectives could not be met despite the environmental benefits to some receptors. Further justification for rejecting BluePulse is provided in Appendix F2.

Only commence lines 1-30 after November 1st and then only if SRW are confirmed to have been absent from the reproduction BIA (between and inclusive of Cape Bridgewater to Cape Otway) for 24 hours since last observation

Predictive uncertainty related to behavioural disturbance to SRW led to further assessment in Appendix F3. In turn, to improve certainty that the Regia MSS will not prevent any SRW from utilising the reproduction BIA an activity limitation was designed whereby the most northerly sail lines closest to the reproduction BIA (indicative sail lines 1 to 30) cannot be acquired before 1 November and only after visual detection methods confirm 24 hours absence of SRW from the reproduction BIA between and inclusive of Cape Bridgewater to Cape Otway. This limitation aligns with the data about SRW absence in the reproduction BIA over this area in the previous 6 years (see Appendix F3 – Figure F3.1). The 24-hour absence criterion was selected to reflect the consideration that SRWs may remain in or return to preferred areas over short periods and extensive daily coverage of the SRW detection and management program.

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

Relevant persons were concerned about behavioural effects on the Australian Fur Seal given the haul out site at Deen Maar. The distance has changed through the preparation of the EP, starting at 10.8 km, growing to 11.8 km (both justified by the behavioural disturbance threshold), and then finally to 17km, due partly to a public comment that sought clarity on the distance the survey would keep from Lady Percy Julia Island / Deen Maar and a commitment from CGG to not conduct surveys within the 50m depth contour. [Distance updated in response to Matters M31, M32, M33 and F17].

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. Six main options were considered:

Daylight-Only Operations – Not Accepted

Limiting operations to daylight hours only, was considered to reduce impacts when traditional observation techniques are not effective. While potentially beneficial for a narrow range of receptors, this would double the duration of the survey, increase fuel use, and elevate overall environmental impact. The marginal benefit to a specific group of species was not considered sufficient to justify the increased impacts to others. This option was therefore rejected on the grounds of disproportionate trade-offs. The remaining activity limitations described below have subsequently been adopted:

Sound will not be emitted above the stated capacity - Accepted

Underwater sound emissions are a key concern for marine mammals, so by ensuring that sound emissions remain within predetermined capacity limits, this measure ensures that the effects on marine mammals remain below the levels predicted by acoustic modelling. Limiting sound intensity also reduces the likelihood of disrupting important biological behaviours. This option ensures that the effects of sound emissions remain within predicted and acceptable limits, ensuring compliance with environmental standards**.**

Operate the sound source at low power during line turns and if transiting between sail lines anywhere in the Mitigation Source Area, Active Source Area, and Survey Acquisition Area - Accepted

The use of lower power settings during non-acquisition phases (such as during line turns, testing, or soft starts) was explored to reduce unnecessary sound emissions. A Mitigation Source Area (MSA) was developed in response to consultation feedback, particularly from the Director of National Parks, who

highlighted the importance of maintaining mitigation sound emissions (low power settings) during non-acquisition phases.

The acquisition lines will be acquired working from the deepest lines first - Accepted

In the spring survey window, southerly lines will be acquired first to minimise overlap with Southern Right Whales as they exit the reproductive BIA, typically by mid-October. Similarly, acquiring the deepest lines first means the survey will be closer to the coast at the time the survey would overlap with the early arrival of Blue Whales. This approach delays activity in the northern survey area, where potential whale presence can continue to be monitored, and has been adopted as a precautionary scheduling measure

9 Predicted Levels of Impact

To arrive at the predicted levels of impact of underwater sound on marine mammals at this stage in the process requires the reader to have assimilated all prior relevant information that has been assessed on marine mammals. 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 marine mammals 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 LF Cetaceans within the region defined by the Regia MSS Active Source Area with an included buffer area out to 44 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 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 Marine Mammals 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 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.

The type and scale of the effect of seismic sound on cetaceans will depend on several factors. These include the level of exposure, the physical environment, the location of the animal in relation to the sound source, how long the animal is exposed to the sound, the exposure history, how often the sound repeats (repetition period) and the ambient sound level. The context of the exposure plays a critical and complex role in the way an animal might respond (Gomez et al. 2016; NMFS 2016).

In March 2025, CGG commissioned SLR consulting to undertake an assessment using the NMFS 2024 User Spreadsheet Tool (Marine Mammal Acoustic Technical Guidance & Other Acoustic Tools | NOAA Fisheries) to calculate the maximum distances from the seismic source at which the latest noise threshold levels were reached by each marine mammal hearing group. This report was then superseded by a full Sound Transmission Loss Modelling study and accompanied ANIMAT study completed by SLR in November 2025.See Appendix B7c for the full report.

Maximum predicted distances from underwater acoustic modelling and NMFS threshold updates for Marine Mammals are presented in Tables E7-2 to E7-5. It should be noted, to be conservative, whichever modelled distance was the highest from either the secondary modelling or the updated assessments using the 2024 NMFS thresholds was used in the impact assessment.

Table E7-2 - Maximum predicted distances from underwater acoustic modelling and NMFS threshold - VHF Cetaceans

Modelled Maximum Distances – VHF Cetaceans		
Porpoises, dwarf and pygmy sperm whales		
Auditory Injury	Per Pulse (202 dB re 1 μ Pa)	232-397 m
	24 hr SEL (159 dB re 1 μ Pa2·s)	90 m
TTS	Per Pulse (196 dB re 1 μ Pa)	439 m -1.1 km
	24 hr SEL (144 dB re 1 μ Pa2·s)	380-840 m
Behavioural	Per Pulse (160 dB re 1 μ Pa)	3.1-6.9 km

Table E7-3 - Maximum predicted distances from underwater acoustic modelling and NMFS threshold - HF Cetaceans

Modelled Maximum Distances – HF Cetaceans		
Dolphins, beaked whales and sperm whales		
Auditory Injury	Per Pulse (230 dB re 1 μ Pa)	51-55 m
	24 hr SEL (193 1 μ Pa2·s)	80 m
TTS	Per Pulse (224 dB re 1 μ Pa)	63-68 m
	24 hr SEL (178 1 μ Pa2·s)	280-600 m
Behavioural	Per Pulse (160 dB re 1 μ Pa)	3.1-6.9 km

Table E7-4 - Maximum predicted distances from underwater acoustic modelling and NMFS threshold - LF Cetaceans

Modelled Maximum Distances – LF Cetaceans		
Auditory Injury	Per Pulse (222 dB re 1 μ Pa)	67-73 m
	24 hr SEL (183 dB re 1 μ Pa2·s)	6.25-8.53 km
TTS	Per Pulse (216 dB re 1 μ Pa)	80-86 m
	24 hr SEL (168 dB re 1 μ Pa2·s)	23.63-27.92 km
Behavioural	Per Pulse (160 dB re 1 μ Pa)	3.1-6.9 km
Blue Whales (Animat Distances)		
Auditory Injury	Per Pulse (222 dB re 1 μ Pa)	59-71 m
	24 hr SEL (183 dB re 1 μ Pa2·s)	71-127 m
TTS	Per Pulse (216 dB re 1 μ Pa)	71-78 m
	24 hr SEL (168 dB re 1 μ Pa2·s)	2.05-4.32 km
Behavioural	Per Pulse (160 dB re 1 μ Pa)	2.42-4.67 km
Southern Right Whales (Animat Distances)		
Auditory Injury	Per Pulse (222 dB re 1 μ Pa)	43-69 m
	24 hr SEL (183 dB re 1 μ Pa2·s)	59-77 m
TTS	Per Pulse (216 dB re 1 μ Pa)	53-77 m
	24 hr SEL (168 dB re 1 μ Pa2·s)	807 m – 3.76 km
Behavioural	Per Pulse (160 dB re 1 μ Pa)	1.26-4.61 km

Table E7-5 - Maximum predicted distances from underwater acoustic modelling and NMFS threshold - Otariid Pinnipeds

Modelled Maximum Distances – Otariid Pinnipeds		
Sea lion, fur seals		
Auditory Injury	Per Pulse (230 dB re 1 μ Pa2·s)	51-55 m
	24 hr SEL (185 dB re 1 μ Pa)	50-55 m
TTS	Per Pulse (224 dB re 1 μ Pa)	63-68 m
	24 hr SEL (170 dB re 1 μ Pa2·s)	660-1.02 km
Behavioural	Per Pulse (160 dB re 1 μ Pa)	3.1-6.9 km

9.1 Change in fauna behaviour and hearing capacity

9.1.1 Very-high-frequency Cetaceans

From the PMST it was identified that the Dwarf Sperm Whale and Pygmy Sperm Whale which are classed as very-high-frequency cetaceans (VHF) may occur within the area that may be affected by underwater sound.

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

- AUD INJ and TTS per pulse effect criteria are reached between 232m—397m and 439m-1.1km, respectively, thus the implementation of the EPBC Act Policy Statement 2.1 - Interaction between Offshore Seismic Activities and Whales for soft starts, where prior to acquisition commencing, the sound source power is ramped up over 30 minutes, will ensure no VHF cetaceans are within distances that AUD INJ or TTS could occur. However, once the sound source passes, animals will be free to move back into the habitat that they departed from. [Paragraph updated in response to Matter I05].
- The AUD INJ 24hr cumulative effect criterion is reached within 90 m and the TTS 24hr cumulative effect criteria is reached within 380m-840m. It is not feasible that a cetacean would be within that distance of the moving vessel for 24 hrs, thus impacts are not predicted.
- Impacts to VHF cetaceans are limited to avoidance behaviour within an area between 3.1 km-6.9 km2from the sound source depending on where in the Operational Area the survey is being undertaken. As VHF cetaceans are not dependent on any specific area within the area affected, impacts may occur to individuals but not at a level to reduce fitness.
- Dwarf Sperm Whales are found in open ocean habitats in temperate to tropical waters around the world with no recorded sightings or strandings off Victoria (DCCEEW 2023a). Pygmy Sperm Whales are also found in ocean habitats in temperate to tropical waters around the world and have been recorded in all states except the NT, though as strandings (DCCEEW 2023q). The PMST identified that Dwarf Sperm Whales and the Pygmy Sperm Whales may occur in the area, however, numbers are predicted to be low and as there are no BIAs these species are likely to be transient in the area affected by sound.
- Auditory masking of high-frequency and very high-frequency cetacean vocalisations is less likely as these species generally vocalise at higher frequencies than those generated by a seismic survey. [Paragraph added in response to Matter M09.]

The uncertainty level for impacts to VHF cetaceans is assessed as medium based on:

- The sound effect criteria used in the impact assessment have been published in peer reviewed journals.
- Dwarf Sperm Whale and Pygmy Sperm Whale are not listed as threatened species and there is limited published data on noise studies specific to these species.
- Biologically important areas within Australia are based on published data that routinely acknowledge the small sample sizes in the data.
- An absence of long-term monitoring data of the effects of seismic sound sources on very high frequency cetaceans 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) levels is assessed as medium. For VHF cetaceans the predicted level of impact is clearly below the defined acceptable levels of impact presented in Section 9.3.19.3. The mitigation and management measures presented in Section 9.3 provide sufficient confidence in the predicted effect levels.

9.1.2 High-frequency Cetaceans

From the PMST it was identified that six dolphin and eight beaked whale species, which are classed as high-frequency (HF) cetaceans potentially occur within the area that may be affected by underwater sound.

- The predicted level of impact to these species is assessed as minor given that impacts are predicted to have some effect to HF cetaceans, but the effect is not considered significant or at a level that may affect the population given the following: PTS and TTS per pulse effect criteria are reached between 51-55 m and 63-68 m, respectively, thus the implementation of the EPBC Act Policy Statement 2.1 - Interaction between Offshore Seismic Activities and Whales for soft starts, where prior to acquisition commencing, the sound source power is ramped up over 30 minutes, will ensure no HF cetaceans are within distances that PTS or TTS could occur. The TTS 24hr cumulative effect criteria is reached at up to 280-600m from the sound source, and the AUD INJ 24hr cumulative criteria is reached at up to 80m from the sound source, however, it is not feasible that a cetacean would be within that distance of the moving survey vessel for 24 hrs, thus impacts are not predicted. [Paragraph updated in response to Matter M34].
- Impacts to HF cetaceans are limited to avoidance behaviour within between 3.1-6.9 km from the sound source depending on where in the Operational Area the survey is being undertaken. As HF cetaceans are not dependent on any specific area within the area affected impacts may occur to individuals but not at a level to reduce fitness.
- Auditory masking of high-frequency and very high-frequency cetacean vocalisations is less likely as these species generally vocalise at higher frequencies than those generated by a seismic survey. [Paragraph added in response to Matter M09.]

The uncertainty level for impact to HF cetaceans is assessed as medium based on:

- The sound effect criteria used in the impact assessment have been published in peer reviewed journals.
- There is limited published data on noise studies specific to these species.
- Biologically important areas within Australia are based on published data that routinely acknowledge the small sample sizes in the data.
- An absence of long-term monitoring data of the effects of seismic on high frequency cetaceans 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) levels is assessed as medium. For HF cetaceans the predicted level of impact is clearly below the predefined acceptable levels of impact as detailed in Section 9.3.1. The mitigation and management measures detailed in Section 9.3 provide sufficient confidence in the predicted effect levels.

9.1.3 Low-frequency Cetaceans

From the PMST Report it was identified that the following low-frequency (LF) cetaceans[3] potentially occur within the area that may be affected by underwater sound:

[3] Blue Whales and Southern Right Whales are addressed in the following section given they are listed as Endangered under the EPBC Act.

- Long-finned Pilot Whale, Minke Whale, Short-finned Pilot Whale, and Sperm whale may occur.[4]
- Antarctic Minke Whale, False Killer Whale[3], and Killer Whale[3] likely to occur.
- Humpback Whale known to occur.
- Pygmy Right Whale foraging, feeding or related behaviour likely to occur.
- Fin Whale, and Sei Whale foraging, feeding or related behaviour known to occur.

The predicted level of impact to these species is assessed as moderate given that impacts are predicted to potentially have a significant effect on LF cetacean species. The impact may require additional management measures based on:

- AUD INJ and TTS per pulse effect criteria are reached between 67-73m and between 80-86m respectively, thus the implementation of the EPBC Act Policy Statement 2.1 - Interaction between Offshore Seismic Activities and Whales for soft starts, where prior to acquisition commencing the sound source power is ramped up over 30 minutes and while acquisition is being undertaken the sound source will be shut down if a whale (except for Southern Right Whale and Blue Whale, see next section) is within 2 km of the sound source. This will ensure no LF cetaceans are within distances where per pulse PTS or TTS could occur. 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 I05].
- The AUD INJ 24hr cumulative effect criterion is reached within 6.25-8.53 km, and the TTS 24hr cumulative effect criterion is reached within 23.63-27.92 km for LF cetaceans. This modelling assumes that a whale remains within this distance of the sound source for 24 hrs. This is not considered realistic for species that are transient in the area such as migrating (e.g. Humpback Whales).

For whales undertaking biologically important behaviours:

- The PMST Reports identified foraging known to occur for the Fin and Sei whales. The conservation advice for both these whales (TSSC 2015b, TSSC 2015c) identify anthropogenic noise and acoustic disturbance as a minor consequence rating.
- The PMST Reports also identified Pygmy Right Whale foraging likely to occur. This species does not have a recovery plan or conservation advice.
- There is no information on foraging areas for Fin, Sei, or Pygmy Right Whales off the coast of Victoria, though it is likely foraging occurs in the same areas identified as the foraging BIA for Blue Whales as they are often recorded foraging in the same areas (Gill et al. 2008; Gill et al. 2015; McCauley et al 2018), therefore control measures applied to Blue Whales will ensure no AUD INJ, TTS or behavioural disturbance to foraging Fin, Sei, or Pygmy Right whales.

The uncertainty level for impact to LF cetaceans is assessed as medium based on:

- The sound effect criteria used in the impact assessment have been published in peer reviewed journals.
- There is limited published data on noise studies specific to species.
- Biologically important areas within Australia are based on published data that routinely acknowledge the small sample sizes in the data.

[4] In line with Southall et al. (2019) and Finneran et al. (2023), it is understood that these species may be moved into a new functional hearing group as they vocalise at a lower frequency range than the other, mostly delphinid HF species. Consequently, a conservative approach has been taken to assess these species as LF cetaceans to ensure any future increase in protections is afforded in the EP.

- An absence of long-term monitoring data of the effects of seismic on high frequency cetaceans 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 (moderate) and uncertainty (medium) levels is assessed as medium. For LF cetaceans the predicted level of impact is clearly below the defined acceptable levels of impact as detailed in Section 9.3.1. The mitigation and management measures detailed in Section 9.3 provide sufficient confidence in the predicted effect levels.

9.1.3.1 Blue Whales

From the PMST Report it was identified that blue whale (**BW**) foraging, feeding or related behaviour is known to occur within the area that may be affected by underwater sound.

Animat modelling was undertaken that considers vessel and BW movements and provides a more realistic prediction of the area that may be affected by underwater sound. The predicted level of impact to BW is assessed as moderate given that impacts without any mitigation could result in temporary hearing impairment, masking and changes in behaviour or habitat use; and that these effects, either in isolation or in combination, can potentially impair population recovery or effect habitat occupancy. Consequently, the impact may require additional management measures based on:

- The predicted maximum distances to the AUD INJ 24hr cumulative effect criterion, TTS 24hr cumulative effect criterion and behavioural effect criterion for Blue Whales is 71-127 m, 2.05-4.32 km and 2.42-4.67 km, respectively. To meet the action from the Conservation Management Plan for the Blue Whale (DoE 2015c) of "Anthropogenic noise in biologically important areas will be managed such that any blue whale continues to utilise the area without injury, and is not displaced from a foraging area", CGG will implement the following activity limitation: The sound source will only be operated in the Pygmy Blue Whale foraging BIA from 16 September and during October, November and December when low numbers of Pygmy Blue Whales and other foraging whales such as Fin, Sei, and Pygmy Right whales are in the BIA within the offshore Otway region. The months of September to December were selected based on acoustic and aerial surveys focused on Blue Whales in the Otway region as detailed in Annex 4. The TTS shut down zone for Blue Whales has been set to 5 km. To mitigate for behavioural effects, the seismic source will shut down within 5km of a blue whale detection. This will ensure the Regia MSS is consistent with the Blue Whale Management Plan, ensuring no blue whale is displaced from a foraging area.
- The sound generated by seismic surveys comprises low frequency pulses in the order of tens of milliseconds, occurring several seconds apart. At great distances from the seismic source, sound levels will be quieter, but transmission of the sound via multiple pathways (water, seabed) and reverberation mean that the pulse duration increases with distance. The sound frequencies that are emitted by seismic acoustic sources are broadband; however, most of the energy is concentrated between 0.1 kHz and 0.25 kHz. Consequently, the lowest frequency cetaceans are particularly affected since they have the most overlap with the frequencies of the seismic survey acoustic sources. As detailed in EP Appendix F3, Blue whale calls last up to 18 s and generally consist of three segments: a 9-s-long, 27-Hz tone, followed by a 1-s downsweep to 19 Hz and another, longer-lasting downsweep to 18 Hz (Širović et al 2004, Rankin et al 2005); and Antarctic blue whale source levels have been estimated to be between 188-191 decibels (Miller et al 2021). Given the short seismic pulse duration relative to the duration of marine mammal vocalisations (several seconds to several minutes or longer), marine mammals are likely to be able to detect calls in between seismic pulses (Wood et al., 2012).

  Further, several studies have documented compensation responses (anti-masking strategies) to anthropogenic underwater noise, including changes in vocalisation strength, frequency, and timing. (Erbe et al., 2016). For example, blue whales increased their calls

(emitted during social encounters and feeding) when a seismic survey was operational in the area (Di Iorio and Clark, 2010). Such adaptations have also been reported for humpback whales (Cerchio et al., 2014; McCauley et al., 1998; 2003b), right whales (Parks et al., 2007, 2011), killer whales (Holt et al., 2008), bowhead whales (Blackwell et al. 2015), and bottlenose dolphins (van Ginkel et al., 2017). It is thought that increased calling enhances the probability that communication signals will be successfully received by conspecifics by reducing the effects of auditory masking.

It is likely that marine mammals in the vicinity of the OA during the Regia MSS, particularly baleen whales, may be subject to some masking effects. The proposed survey timing, i.e. avoiding the peak productivity period for foraging blue whale and other species in the area will reduce the potential for behavioural impacts including interference with communication.

Masking levels are difficult to predict, and no auditory thresholds exist for predicting masking effects on marine mammals (Erbe et al., 2016); however, as outlined above masking responses (e.g. changes in calling rates) have been documented to occur at relatively low exposure levels (i.e. lower than would elicit any behavioural response). Any masking effects will however cease at the completion of the survey and are highly unlikely to have detectable population level effects. [Paragraphs have been added in response to Matter M09.]

The uncertainty level for impact to blue whales is assessed as high based on:

- The sound effect criteria used in the impact assessment have been published in peer reviewed journals.
- There is limited published data on noise studies specific to these species.
- The absence of direct hearing data for BW continues to warrant substantial caution in attempting to predict their hearing capabilities and any potential susceptibility of their hearing to nose exposure (South et al. 2019).
- An absence of long-term monitoring data of the effects of seismic sound on BW 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 (moderate) and uncertainty (high) levels is assessed as high. For blue whales the predicted level of impact is close to the pre-defined acceptable levels and/or there is enough uncertainty to apply the precautionary principle. Therefore, BW will be assessed further in the third stage of the assessment process (see Appendix F3).

9.1.3.2 Southern Right Whales

From the PMST Report it was identified that southern right whale (SRW) breeding is known to occur within the area that may be affected by underwater sound.

Animat modelling was undertaken that considers vessel and SRW movements, including cows with calves, and provides a more realistic prediction of the area that may be affect by underwater sound. The predicted level of impact to this species is assessed as moderate given that impacts without any mitigation could result in auditory impairment and disturbance; and that impacts from anthropogenic underwater sound is greatest where sound-generating activities occur within or close to the reproduction BIA where whales demonstrate site fidelity, are resident for long periods (e.g., weeks to months) of time, young calves are present, and females are engaged in calving and nursing, either in isolation or in combination. Consequently, the impact may require additional management measures based on:

- The predicted maximum distances to the AUD INJ 24hr cumulative effect criterion, TTS 24hr cumulative effect criterion and behavioural effect criterion for SRW is 59-77 m, 807 m – 3.76 km and 1.26-4.61 km, respectively. The TTS shut down zone for Southern Right Whale has been set to 4 km. To mitigate for behavioural effects, the seismic source will shut down within 5km of a Southern Right Whale.

- CGG acknowledges the literature showing there may be behavioural responses below the NMFS recommended 160 dB SPL threshold, to address this uncertainty CGG will adopt a precautionary shut down measure at the 140 dB threshold for any SRW. CGG will implement a shutdown measure of 13km from the sound source aligning with the modelled ANIMAT distance for SRW calf-cow pairs residing in the Reproduction BIA (see Appendix B7c).
- The activity limitations and control measures that CGG will implement ensure that the survey does not prevent any SRW from utilising the BIA of HCTS, or cause auditory impairment, and that anthropogenic noise is minimised. It should be noted given the behavioural shut down distance of 5 km, CGG can ensure no TTS impacts at 4 km.
- The Conservation Management Plan for the SRW 2011 – 2021 stated that as migratory movements to and from calving grounds remain unknown, whales may be exposed to noise interference from seismic surveys during these movements (CoA 2012). On this basis, there remains the limited potential for TTS 24hr effects in SRWs throughout the Operational Area as they approach or disperse from shelf waters throughout the 'SRW Migration BIA'. However, as outlined above, TTS is only predicted if a SRW were to remain within 4 km of the active source for 24 hours.
- The National Recovery Plan for the Southern Right Whale (DCCEEW 2024) lists anthropogenic underwater noise from seismic surveys as a moderate threat to the eastern population with a high priority for action. The actions associated with a high priority risk include additional mitigation action and an adaptive management plan and the precautionary principle should be applied. CGG will implement a Fauna Management Plan (Appendix G2) which will include adaptive management measures to ensure impacts to SRW is below the acceptable level.

The uncertainty level for impact to southern right whales is assessed as high based on:

- The sound effect criteria used in the impact assessment have been published in peer reviewed journals.
- The National Recovery Plan for the SRW (DCCEEW 2024) lists anthropogenic underwater noise from seismic surveys as a moderate threat to the eastern population as moderate and a high priority.
- There is limited published data on noise studies specific to this species.
- The absence of direct hearing data for SRW continues to warrant substantial caution in attempting to predict their hearing capabilities and any potential susceptibility of their hearing to nose exposure (South et al. 2019).
- An absence of long-term monitoring data of the effects of seismic sound on SRW in the presence of frequent seismic surveys, and other anthropogenic sound generating activities, in the region.
- Southall et al. (2021) compile various studies, but most focus on impulsive sources like pile driving or sonar, with only four addressing seismic airgun impacts on LF cetaceans, and just one (Malme et al., 1986) offering experimental data on migrating gray whales. Southall (2024) rejects the idea of simple all-or-nothing response thresholds and calls for new approaches and better use of current data to understand and mitigate the effects of human-made noise on marine mammals. In the meantime, the SPL threshold of 160 dB re 1 μ Pa remains widely accepted for assessing behavioral responses to impulsive sound sources, such as seismic air guns.

The predicted level of impact based on the effect (moderate) and uncertainty (high) levels is assessed as high. For SRW the predicted level of impact is close to the pre-defined acceptable levels and/or there is enough uncertainty to undertake further assessment. Therefore, SRW will be assessed further in the third stage of the assessment process (see Appendix F3).

9.1.4 Otariid Pinnipeds

From the PMST Report it was identified that within the area that may be affected by underwater sound the Australian Fur-seal breeds at Lady Julia Percy Island (Deen Maar), and the Australian Sea Lion and the Long-nosed Fur Seal may occur in the area.

The predicted level of impact to these species is assessed as minor given that impacts are predicted to have some effect to seals and sea lions, but the effect is not considered significant or at a level that may affect the population given the following:

- The per pulse effect criteria for AUD INJ and TTs for these species was reached at 51m-55m and 63m-68m respectively, from the sound source.
- The AUD INJ cumulative effect criteria for these species was reached at 50m-55mfrom the sound source and TTs cumulative criteria was reached at 660m-1.02 km from the sound source. It is highly unlikely that a seal or sea lion would stay within 1.02 km of the sound source for up to 24 hr, thus TTS impacts are not predicted.
- Impacts to seals or sea lions are limited to avoidance behaviour within an area between 3.1 km-6.9 km depending on where in the Active Source Area the survey is being undertaken. The Regia MSS Operational Area may overlap foraging areas for the Australian Fur Seal. [Paragraph updated in response to Matter M31]. A 10.3 km buffer from Deen Maar was initially applied to reduce risks and impacts to Australian Fur Seals to an acceptable level. This effect distance for pinnipeds was based on the initial modelling conducted for the activity (see Appendix B7a). The commissioning of subsequent modelling (see Appendix B7b Sound Emissions Secondary Modelling Report) has provided further insights relevant to the management of this species. The secondary modelling was undertaken in response to consultation with commercial divers mainly to address constraining the sound source operation to water depths of no shallower than 50 m. Results from this work show that behavioural sound effect criteria for pinnipeds is now reached at a maximum of 11.8 km from the sound source. As the Active Source Area is a minimum of 17 km from the closest haul out site (Deen Maar), behavioural impacts to pinnipeds at this location are no longer predicted. [Paragraph updated in response to Matters M30, M31, M32, M33 and F17].
- Australian Fur Seal are considered generalist feeders, foraging on a wide range of species including red bait, barracouta, jack mackerel, red cod, leatherjacket as well as Gould's squid (Arnould et al. 2011). A study of Australian Fur Seal diet revealed they prey on 60 to 70 species of fishes and cephalopods (Kirkwood et al. 2008). Impacts to prey species of Australian Fur Seal are predicted to range from negligible for squid to minor for fish species and will be temporary, reversible and of low intensity as detailed in the impact assessment of underwater sound to fish (Appendix E3) and invertebrates (Appendix E4).
- There have been some studies on the variations and changes in Australian Fur Seal diets in Victoria. These studies have found Australian Fur Seal diets are highly variable depending on the availability of prey and oceanic fluctuations, (Kirkwood et al 2008, Arnould et al. 2011). Given Australian Fur Seals exhibit flexible foraging strategies, impacts to prey and the buffer around Deen Marr, impacts to Australian Fur Seal foraging is not expected.

The uncertainty level for impact to pinnipeds is assessed as medium based on:

- The sound effect criteria used in the impact assessment have been published in peer reviewed journals.
- There is limited published data on noise studies specific to these species.
- An absence of long-term monitoring data of the effects of seismic on pinnipeds 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) levels is assessed as medium. For pinnipeds the predicted levels of impact are clearly below the pre-defined acceptable levels of impact and the mitigation and management measures in place provide sufficient confidence in the predicted effect levels.

9.2 Change in physical condition

9.2.1 Cetacean Mass Strandings

While there has been considerable conjecture that the displacement of cetaceans from seismic surveys (because of avoidance) could result in stranding events, no solid evidence has yet been forthcoming to support this link. The most recent assessment of whale stranding patterns in Victoria (Foord et al., 2019) makes no reference to seismic surveys and found no seasonal stranding pattern. While Foord et al (2019) didn't specifically investigate the relationship between strandings and seismic surveys, seismic surveys typically occur over the summer months off the south coast of Australia; hence if causal links were present, some evidence of seasonal patterns would be expected. The Foord et al (2019) study nevertheless provides a detailed assessment of cetacean strandings along the Victorian coastline. Dolphins are the only group involved in regular stranding events. Figure 6 in the paper indicates the complete lack of strandings of baleen whales in the Otway region. The design of our management and mitigation program around Pygmy Blue Whales and Southern Right Whales has been guided by the very latest in scientific guidance – for example Southall et al (2023); Southall et al (2021), Popper et al (2024) and Accomando et al (2025). CGG has demonstrably embraced the Precautionary Principal in its deliberations and used current literature for guidance.

Further to this, NOPSEMA (2019) states that "Evidence of mass whale stranding exists from six to seven million years ago, long before anthropogenic sound became a factor, and it is likely that any observable increase in occurrence [of stranding events] is due to greater visibility of previously inaccessible coastline." [Paragraph has been added in response to Matter M11 and M13].

9.3 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 marine mammals 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.

After the NMFS guidance assessment, CGG re-assessed the mitigation measures based on the updated distances for marine mammals. No distances in this assessment surpassed the 500m shutdown applied for all marine mammals, therefore no additional mitigation measures were implemented.

Measure	Measure Type	Details and Justification
Survey Environment Advisor	Person	This person is the offshore representative of the titleholder for all on-water decision making related to the management of interactions with marine fauna.
Environmental Officer	Person	This person is the onshore specialist coordinating compliance activities across the entire activity.

Measure	Measure Type	Details and Justification
Marine Fauna Observers	Person(s)	Trained and qualified MFOs with previous survey experience are resident on the seismic vessel at all times during daylight operations. Dedicated, trained and experienced MFOs will also be onboard a dedicated spotter vessel at all times (except for during port calls, bunkering, or crew transfers).
Passive Acoustic Monitoring Operator	Person(s)	PAM operators with previous survey experience are present on the seismic vessel, covering 24-hour operations to detect marine mammals.
Relief PAM/MFO Observer	Person	An MFO who can provide relief, as required, across both visual observation and acoustic detection monitoring tasks. [Sentence added in response to Matters M43, M45 and M49].
Whale Expert Panel	Person(s)	The Expert Panel will have expertise and qualifications in BW, SRW, and marine fauna observations at sea respectively. The Expert Panel will be comprised of: • One expert on Southern Right Whales in Southern Australia • One expert on Blue Whales in Australia • An expert on whale detections/observations. • A CGG operations representative The objective of the panel is to provide technical expertise and advice to CGG on Adaptive Management procedures to minimize impacts to Southern Right Whales and Blue Whales in the Otway Basin The panel will meet at least once prior to the survey to provide input relating to the location of the spotter vessel and design of the flight paths for the aerial surveillance. During the survey the panel will meet at least fornightly to review observation data from MFOs, and PAM and provide advice to CGG on regarding triggers for aerial surveys, and how many aerial surveys are appropiate, reporting and monitoring to minimise impacts to SRW and BW.
Spotter Vessel	Item of Equipment	Vessel will observe for all whales and if not a BW or SRW will communicate the approximate location and bearing of the whale sighting to the SEA on the survey vessel (except for during port calls, bunkering, or crew transfers).

Measure	Measure Type	Details and Justification
Spotter Vessel Procedures	Procedure	These procedures govern the spotter vessel movements in different modes. The detection range for marine fauna monitoring varies depending on the likelihood of encountering Blue Whales (BW) or Southern Right Whales (SRW) during different times of the year. **May to October** – When SRW presence is more likely, the spotter vessel will remain **20 km**[5] to the shoreside from the seismic vessel, therefore adjacent to the SRW reproduction BIA Each procedure should be applied according to the appropriate detection range based on the operational period. Any changes to these ranges will be communicated by the Environment Officer as required. In *Scouting Mode*, it conducts reconnaissance **20 km** ahead of the survey vessel before commencement of the survey and each line turn. In *Sentry Mode*, it maintains a **20 km** distance to the shoreside from the seismic vessel to maximise SRW detection capabilites. **November-December** In *Blue Whale Sentry Mode,* it maintains position **20 km** west of the seismic vessel because blue whale abundance data shows an initial tendency for foraging to occur in South Australian waters and move eastward throughout the summer months. Therefore, it is more likely that the survey will encounter blue whales on its western flank, and if the spotter vessel is in either other mode, it would be positioned on the eastern side of the survey and is less likely to encounter blue whales. In *Scouting Mode*, it conducts reconnaissance **10[6] km** ahead of the survey vessel before commencement of the survey and each line turn.
Pre-survey and aerial surveillance procedures	Procedure	These requirements are derived from adopting and improving on Policy Statement 2.1 and are written into the Fauna Managemnet Plan. Whilst Policy Statement 2.1 requires a 2 km low-power zone and a 500 m shutdown zone, CGG's experience is that moving to low-power during a line is an effective shutdown. As such, a precautionary shutdown zone for all whales can be applied of 2 km.
Pre-Start Up Procedure	Procedure	
Start-up Procedures	Procedure	
Start-up delay procedures (if sighting)	Procedure	
Operating Procedure	Procedure	

[5] The 20 km separation distance is informed by the performance of the PAM systems installed on both the seismic and spotter vessels, each capable of detecting whales at ranges of ~10 km. By positioning the spotter vessel 20 km away from the seismic vessel, CGG maximises combined detection coverage and enhances the likelihood of detecting Southern Right Whales and Blue Whales.

[6]

Measure	Measure Type	Details and Justification
Shutdown procedures	Procedure	Implementation of EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with Cetaceans to reduce the risk of collision with marine fauna during the activity for all vessels at all times. Additionally, start-up delay and shutdown procedures will be implemented to protect dolphins and pinnipeds.
Night-time and low visibility procedures	Procedure	
Helicopter Operation Procedure	Procedure	
Marine fauna detection and observation zone of 40[7]0+ km horizontal radius from the seismic source	Practice	
End-of-Survey Procedure	Procedure	The survey activity limitiation have been set to allow for acquisition into December. There are activity limitiations that mean the survey must stop 90 days after it started and there are ecological triggers that may or may not occur before the 90 days expire, and/or before the end of December. The criteria for early cessation of the survey are outlined in the Fauna Management Plan and will be the performance standards for this control measure.
Integration of marine fauna observations from third parties in the region	Responsibility	Other petroleum titleholders, commercial shipping, and offshore wind project, research institutes and government agencies may have activities on the water that may detect whales. CGG will offer to share its detection data in real-time anticipating that this will be reciprocated, if possible.
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].
Reduce the sound source to low power if flocks of foraging birds are observed within 500 m of the source.	Practice	This measure has been adopted because of the consultation. It protects foraging little penguins and uses flocks of foraging birds as and indicator of schooling fish that may be targeted by foraging little penguins.

[7] By deploying PAM systems on both the seismic vessel and spotter vessel, each capable of detecting whales out to 10 km, the project achieves 40 km of continuous linear monitoring coverage. When the vessels are positioned approximately 20 km apart along the survey line, each PAM system contributes 20 km of linear detection capability (10 km port and 10 km starboard). Together, these form a seamless 40 km detection corridor, significantly enhancing early-warning potential for whales moving toward the survey area.

Measure	Measure Type	Details and Justification
Acquire Seismic On Paper	Practice	This measure brings together all staff and contractors directly involved in the activity to build connections between participants, familiarise staff with operational requirements, and perform scenario planning for environmental management.
Fauna Management Plan	Resource	This includes the on-water instructions for the various persons involved in protecting marine fauna. It also documents compliance with Policy Statement 2.1.
Sail Line Plan	Resource	Ensures the active source area is located more outside of the distances required by the activity limitations.
Accountability for implementation of the Fauna Management Plan procedure.	Responsibility	CGG Site Representative
Provide sufficient resources to implement the FMP.	Responsibility	CGG Technical Operations Manager
Convene and coordinate the Whale Expert Panel as needed	Responsibility	Environment Officer
Coordinate and document the review of effectiveness and compliance with the FMP.	Responsibility	
A review of the effectiveness and compliance with the FMP will be undertaken within one week of commencement of the Regia MSS and thereafter every four weeks while the Regia MSS is being undertaken.	Responsibility	
Ensure the Regia MSS induction provides an overview of the FMP.	Responsibility	

9.3.1 Additional Fauna Detection Methods

The nature and scale of the impact to marine fauna are also lessened through the adoption of measures that mitigate impacts. The Regia MSS will employ two additional types of fauna detectors Passive Acoustic Monitoring (**PAM**) Operators who are on the vessel. These roles, along with the MFOs, collaborate through the Survey Environment Advisor (**SEA**) to correlate vocalizing marine mammals' identification and localization. The role of these people will support minimising the impact of seismic survey operations on marine mammals, including SRW, BW, and other protected species.

MFOs and PAM operators provide environmental expertise to the vessel crew, implementing various measures outlined in the EPBC Act Policy Statement 2.1, the Australian National Guidelines for Whale and Dolphin Watching 2017, and the FMP.

9.3.2 Fauna Management Plan

The Fauna Management Plan (**FMP**) is designed to safeguard marine fauna, with a primary focus on protection of Southern Right Whales (**SRW**s) and Blue Whales (**BW**), during the Regia MSS. The FMP outlines how various surveillance methods will be used to detect marine mammal presence, assess their classification, monitor behaviour, and ensure the adaptation of the acquisition plan to minimize the impact of sound on these mammals. The FMP is the documentation that implements Policy Statement 2.1.

9.3.3 Acoustic Detection

CGGs whale detection strategy includes the integration of acoustic detection systems, recognising the dynamic nature of whale behaviour. While they may not be visually detected by MFOs unless present on the surface, whales often vocalise allowing for electronic detection. Acoustic detection systems will consist of passive acoustic monitoring (**PAM**) and the use of acoustic detection monitoring.

Acoustic detection methodologies adopted will have 24-hour operation and near real time reporting of whale species and location. The system to be engaged will be able to detect low-frequency whales such as BW and SRW, subject to a successful test deployment prior to the commencement of the survey.

The underwater area is not a constant symphony of whale songs, and the likelihood of vocalisation can vary. Whales are known to communicate using a diverse range of vocalisations, from intricate songs to simpler clicks and whistles, depending on their species and circumstances. Therefore, the effectiveness of our acoustic detection methods can be influenced by factors such as species presence, behaviour, and environmental conditions that may affect vocalization patterns.

This variability underscores the importance of a multifaceted approach to whale detection. While acoustic detection adds a valuable dimension to detection capabilities, it is inherently dependent on whales vocalising. Consequently, the use of multiple detection methods, including visual and aerial observations and acoustic detections systems, enhances overall confidence in detecting whales, both above and below the water surface, regardless of their vocalisation patterns.

9.3.3.1 Marine Fauna Observers

Marine Fauna Observers (MFOs) will be stationed on the survey vessel to undertake observations for marine fauna during daylight hours. MFOs conduct their observations using binoculars and the unaided eye, primarily from the bridge of the vessel (typically the most elevated point on a vessel) or, ideally, from an elevated vantage point. In optimal weather conditions, visual observations are effective up to ~5 km from the survey vessel.

The MFOs will be experienced in whale and other marine fauna observation, distance estimation, data gathering, mitigation procedures and reporting.

9.3.3.2 Passive Acoustic Monitoring

The PAM system can detect cetaceans across all frequency hearing groups including low-frequency hearing group whales such as BW and SRW. Thus, the PAM system, which has a detection distance range of ~10 km from the survey vessel, will be the primary whale detection method at night and during low visibility.

PAM operators will be experienced in identifying whale vocalisation detection, species identification, data gathering, mitigation procedures and reporting.

In addition, officers of the watch on the attending support vessels will be trained to identify whales during daylight hours to support the visual detection of marine mammals. [Sentence added in response to Matters M43, M45 and M49].

9.3.4 Aerial Surveillance

Aerial surveillance is a key component of CGG's multifaceted approach for detecting whales in support of the Regia MSS. Unmanned Aerial Vehicles (UAVs, drones) will be used to detect all whales within the monitoring area, with a particular focus on the movement of Southern Right Whales (SRWs) into and out of the coastal reproduction Biologically Important Area (BIA) and the movement of Pygmy Blue Whales (PBWs) into and out of the Otway region. This capability will help to reduce uncertainty around whale presence and distribution in the broader region, including areas potentially exposed to elevated sound from the Regia MSS. Aerial surveillance outputs will contribute directly to real-time mitigation decision-making and will complement vessel-based observations, Passive Acoustic Monitoring (PAM), and land-based visual monitoring.

UAVs will be deployed from elevated coastal vantage points between Cape Bridgewater and Cape Otway by trained Drone Pilots-in-Command (PICs) working alongside Marine Fauna Observers (MFOs) as Whale Monitoring Teams (WMTs). This approach extends the effective detection range of shore-based observers, increases spatial coverage across nearshore and mid-shelf zones, and enables flexible, weather-responsive monitoring throughout daylight hours. Drone operations will only occur under safe and compliant operating conditions. The combined use of visual observers and UAV-mounted sensors, including high-resolution zoom and thermal imaging, enhances the probability of detecting whales at extended distances and supports the verification of species identity, group composition, and general behaviour.

For PBWs, UAV-based surveillance will also be used as part of the pre-season coastal aerial programme. Early-season flights launched from Cape Nelson Lighthouse, one of the first coastal landforms encountered by PBWs arriving from the west, will survey nearshore to mid-shelf waters up to approximately 40 km offshore, which includes historical migration pathways. These flights are intended to provide an early indication of PBW presence and will inform advice from subject-matter experts on any required scaling of monitoring effort or modifications to mitigation measures during acquisition. All aerial surveillance activities will be undertaken by experienced operators with a proven record of whale-focused UAV operations, ensuring high-quality detection outcomes and alignment with all relevant regulatory requirements.

9.3.5 Adaptive Approach to Monitoring

In addition to described approaches to visual observations, acoustic detections and aerial surveys to ascertain the presence of whales, additional and adaptive approaches may be deployed subject to the advice of the Whale Expert Panel, namely, deployment of additional aerial surveys during the Regia MSS (in addition to a minimum of one (1) aerial survey prior to commencement of the Regia MSS). The Whale Expert Panel will have an advisory role to assist CGG in decision making, help with whale monitoring and provide advice on escalation triggers CGG may need to adapt to ensure impacts to whales are minimised.

Any marine fauna observations from additional aerial surveys or spotter vessel MFOs will contribute to monitoring of pre-acquisition detection criteria and soft start procedures that will affect sound source operations, if not met.

The Whale Expert Panel will be engaged prior to commencement of the Regia MSS and will be informed of any SRW- or BW-related shutdowns within 24 hrs of occurrence during the survey. This will provide the panel with timely opportunity to provide advice and recommendations for ongoing and adaptive management of the activity.

10 Demonstration Impacts will be of an Acceptable Level

10.1 Discussion on Principles of ESD, Biological and Ecological Categories

Temporary and Reversible

Auditory injury (AUD INJ) in cetaceans and Otariids, a permanent damage to hearing, is not predicted to occur because of seismic noise from the Regia seismic activity. It is theoretically possible for AUD INJ to occur both instantaneously and through exposure over 24 hours. However, the impact assessment sets out reasoned and supported rational for why it is not feasible for very high frequency and low frequency cetaceans to remain in close enough proximity to the seismic source for cumulative exposure to practically occur over 24 hours. Where AUD INJ could feasibly occur as demonstrated through animat modelling for BW and SRW, control measures have been adopted to prevent this permanent impact from occurring.

Temporary threshold shift (TTS), changes in cetacean and Otariid behaviour and masking for both these receptors are by definition temporary and reversible when caused by a temporary and moving seismic noise source. TTS temporarily reduces auditory sensitivity, and the best available science indicates this is non-neuropathic (reversible) within approximately 6 to 24 hours (Houser 2021). Behavioural changes are anticipated to return to normal once animals are outside the effect range for altered behaviour (Southall 2021). Similarly, masking will also cease once noise levels return to background levels either as the separation distance between the cetacean/Otariid increases or once the seismic activity ceases. This reasoned and supported evidence demonstrates that potential seismic noise impacts on cetaceans and Otariids will be temporary and reversible and consistent with this aspect of ESD.

Small scale

The spatial scale of potential impacts to cetaceans and Otariids is considered small in the context of their distribution, habitat utilisation and movements within their biologically important areas (BIAs). With the control measures adopted for the seismic survey to manage impacts, cetaceans will be able to utilise their BIAs during the seismic activity. For VHF, HF cetaceans control measures ensure that PTS and TTS will not occur in a BIA, and that if behavioural effects occur, they will only extend up to 7 kms from the survey area. These species of cetaceans can move to other parts of their BIA and continue their biological and ecological activities. For BW the behavioural effects noise threshold will only occupy 0.17% of the foraging BIA and for SRW will only occupy 0.2% of the migration BIA. These extremely low levels of overlap with the BIAs leaves the rest of the BIA available without impact which is deemed inherently acceptable due to such low levels of overlap. There is not expected to be any overlap of seismic noise thresholds with any Otariid BIAs. The evidence presented here demonstrates the spatial extent of noise impacts on cetaceans and Otariids is inherently acceptable due to the extremely small spatial footprint of the noise emissions relative to their biological and ecological functions.

Table E7-6 shows total ensonified area overlaps of behavioural effect area that has been conservatively calculated by using the entire behavioural noise footprint from the entire survey to estimate the proportional overlap (i.e. not just the noise footprint from a single shot).

Table E7-6 - Proportion (%) of overlap between the total ensonified area with noise levels that could influence cetacean behaviour within their BIAs

Species	Migration BIA	Foraging BIA	Reproduction BIA
Blue Whale (BW)	0	0.17	NA
Southern Right Whale (SRW)	0.2	NA	0
Humpback Whale	0	0	NA
Sperm Whale	NA	0	NA

Natural variation

The activity will be managed to prevent injury to cetaceans and Otariids and so that areas and periods important to biologically important foraging and reproduction are avoided or prevented. Therefore, it is not possible for impacts to important foraging locations or reproductive BIAs to be greater than natural variations of these ecological processes.

The only temporary impacts to cetaceans and Otariids that could occur are to their behaviour during general migratory or foraging behaviour. Both these behaviours naturally occur over extremely large spatial areas on a scale of many 1000s of km as demonstrated by their migratory routes and BIAs. Any change to these general migratory and foraging behaviours are only predicted to occur up to 12 km from the seismic source. Therefore, the maximum potential change to their behaviour could only result in changes in movement that are a fraction of 1% of their natural movement patterns. As such, any potential minor impact is considered acceptable with this aspect of ESD.

Based on sufficient information

The assessment drew upon site-specific acoustic modelling, peer-reviewed literature, and regulatory guidance, including EPBC Policy Statement 2.1 and sound exposure thresholds recommended by Southall et al. (2019) and NMFS 2024. Exposure criteria for both impulsive sound (SPL_{peak} and SEL_{cum}) and behavioural disturbance (SPL_{rms}) were applied across marine mammal hearing groups. Where uncertainty existed, such as in the behavioural sensitivity of specific species, conservative assumptions were used. The modelling demonstrated that zones of potential injury are small, species-specific, and highly localised, with no overlap with critical habitats. No serious or irreversible harm was predicted, and the level of scientific uncertainty was considered low due to the maturity of available data and the application of conservative assessment methods. As such, the precautionary principle was not triggered.

Activity not inconsistent with EPBC Act

The assessment reviewed relevant management and recovery plans for marine mammals listed under the EPBC Act, including the Recovery Plan for the Blue Whale and Conservation Advice for species such as the Southern Right Whale and Australian Sea Lion. Whilst the activity overlaps blue whale and southern right whale BIAs, the measure in place to shut down the activity and move away ensure that behavioural effects are avoided and there will be no auditory impairment. At the northern most corner of survey area there is a small overlap with parts of the SRW reproductive BIA (Map - REG-EPM-069). However, the activity will be managed such that no SRW will be exposed to noise levels that could prevent SRW from utilising the reproductive or migration BIA's and is not expected to reduce reproductive success.

Acceptability with the relevant plans of management has been achieved through the adoption of significant and costly additional control measures that are commensurate with the nature and scale of this seismic survey. The control measures adopted to achieve this level of protection for BW and SRW are rarely adopted for other seismic surveys and demonstrates the Titleholder's commitment to a high level of environmental stewardship.

The activity design incorporates all required management measures under the EPBC Act Policy Statement 2.1, including species-specific exclusion zones, pre-start visual observation periods, soft-start procedures, and operational shutdowns where required and will prevent injury to BW and SRW. These measures are consistent with both the objectives of the relevant management instruments and recognised industry standards. As such, environmental management of the activity is not inconsistent with the EPBC Act or its associated plans of management.

10.2 Economic, cultural and social categories

Consultation feedback from relevant persons highlighted concerns regarding the potential for underwater sound to disturb or injure marine mammals, particularly species of cultural or ecological importance such as whales and dolphins. Specific concerns included the adequacy of exclusion zones, the sensitivity of migratory species, and possible effects on species with cultural significance.

In response, CGG incorporated updated species databases, refined exclusion zone boundaries using current modelling, and confirmed alignment with EPBC Policy Statement 2.1 requirements for all marine mammal functional hearing groups. No culturally significant practices or spiritual sites were identified within or near the sound exposure zones, and no affected persons were found to be materially disadvantaged by the activity. While no formal objections were raised, several relevant persons requested stronger justification of threshold distances and clearer presentation of impact characterisation. These inputs were reflected in updates to the impact assessment, which now includes refined species-specific mitigation, expanded justification of assumptions, and clear documentation of all relevant concerns in Annex 2. The process confirmed that cultural values were respected, stakeholder views were incorporated, and appropriate measures were adopted to manage all claims raised.

10.3 Consistency with company processes

The impact assessment followed the methodology outlined in Appendix B3 and applied defined thresholds for physiological and behavioural effects based on regulatory criteria and scientific literature, including SEL_{cum} and SPL_{peak} levels relevant to marine mammals. Mitigation measures consistent with the EPBC Policy Statement 2.1, including pre-start observation periods, and soft-start procedures, were incorporated. No exceedance of regulatory thresholds or high-consequence outcomes was identified, and the final consequence rating remains within company limits. Using the ranking tables from this process the results of assessment are shown in Table E7-7.

Table E7-7 - Environmental Assessment Rankings

Marine Mammal Group	Predicted Level of Effect	Uncertainty	Predicted Level of Impact
Very-high-frequency cetaceans	Minor (2)	Medium (3)	Medium (6)
High-frequency cetaceans	Minor (2)	Medium (3)	Medium (6)
Low-frequency cetaceans	Moderate (3)	Medium (3)	Medium (6)
Blue Whale	Moderate (3)	High (4)	High (12)
Southern Right Whale	Moderate (3)	High (4)	High (12)
Otariid pinnipeds	Minor (2)	Medium (3)	Medium (6)

CGG's own criteria for proceeding with the activity requires that impacts and risks are managed to a 'Medium' ranking. Therefore, further assessment of the species, and relevant behavioural context, will be required. Further mitigation measures will need to be considered to either reduce the predicted level of effect and/or the levels uncertainty in the assessment, as demonstrated in Appendix F3.

11 Environmental Performance Outcomes

CGG is required to set environmental performance outcomes (EPOs) to ensure that impacts are of an acceptable level.

Table E7-8 - Environmental Performance Outcomes and Justifications

Defined Acceptable Level (From Table E7-1)	Environmental Performance Outcome	Rationale
Marine mammals can continue critical life-cycle stages and are not injured.	**As a result of shutting down or relocating the sound source when whales enter shutdown zones, no physical injury or sustained interference with marine mammal life-cycle behaviours occurs during the activity.**	This EPO is supported through implementation of observation zones, pre-start clearance, shutdown protocols, and verification that sound exposure levels do not exceed recognised injury and disturbance thresholds at relevant distances from the source.
Anthropogenic threats are managed consistent with ecologically sustainable development principles to facilitate recovery of all threatened whales.	**As a result of complying with the activity limitations and environmental performance standards in place to protect threatened whales, environmental impacts and risks associated with the activity are managed in a manner that is demonstrably consistent with ecologically sustainable development principles.**	This EPO allows for holistic assessment of environmental performance beyond individual thresholds. It can be evidenced through documentation of ALARP assessments, adoption of mitigation measures consistent with recovery goals, and clear links between impact assessment outcomes and long-term species conservation objectives.

Defined Acceptable Level (From Table E7-1)	Environmental Performance Outcome	Rationale
Anthropogenic noise in biologically important areas must be managed such that any blue whale is not displaced from a foraging area.	**As a result of shutting down or relocating the sound source when a blue whale is observed within 5 km, blue whales will not be behaviourally disturbed within this range, leading to the protection of important foraging areas and avoidance of displacement.**	The modelled range at which sound exposure reaches 160 dB SEL was 4.67 km, justifying the application of a 5km behavioural exclusion zone. This EPO is measurable, precautionary, and aligned with key blue whale protection strategies. It can be implemented using visual and acoustic monitoring techniques and operational shutdown procedures to prevent displacement from critical foraging habitat. This level aligns with the objectives of the Blue Whale Conservation Management Plan, which identifies the protection of biologically important foraging areas as critical to the species' survival and recovery. It ensures that anthropogenic noise does not displace blue whales from key feeding areas, especially when they are actively foraging. The 5 km distance aligns with the 160 dB behavioural disturbance threshold for low-frequency cetaceans under NOAA NMFS 2024 criteria, and matches the modelled maximum distance at which this threshold is predicted to occur.
Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that it does not prevent any southern right whale from utilising the area or cause auditory impairment.	**As a result of implementing shutdown or relocation procedures when a SRW enters the 13 km ensonified area SRW are not prevented from utilising the area nor subject to auditory impairment.**	This EPO can be met through adherence to modelled thresholds for TTS and AUD INJ, 160 dB SPL and 140 dB SPL behavioural thresholds implementation of visual and acoustic monitoring, and application of precautionary shutdown and exclusion protocols when whales are detected near sensitive areas. It ensures protection of SRW critical habitat functions and compliance with recovery objectives.
Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that it minimises behaviour disturbance.	**As a result of the implementation of real-time monitoring and activity limitations, SRW are not exposed to sound levels that cause sustained behavioural disturbance within or adjacent to BIAs or HCTS.**	This EPO can be achieved through the application of conservative behavioural disturbance thresholds (e.g. 160 dB SPL and the precautionary 140 dB SPL), exclusion zones based on modelled sound fields, and operational controls (e.g. shutdowns, delays) when whales are detected near sensitive areas. It ensures behavioural integrity is maintained during critical life-cycle periods.

Defined Acceptable Level (From Table E7-1)	Environmental Performance Outcome	Rationale
Sound exposure to low frequency cetaceans must be below PTS per pulse and PTS 24 hr SEL thresholds of 222[8] dB and 183 dB respectively.	**As a result of shutting down the sound source if:** - **any pinniped or dolphin is observed within 500 metres (except for bow riding dolphins),** - **any whale[9] is detected within 2 km of the sound source, and** - **any low frequency cetacean is detected within 9km of the sound source** **cetaceans will not be exposed to sound levels associated with auditory injury.** **No death or injury to fauna, including listed threatened or migratory species, from the activity.**	This EPO is justified by the fact that all cetacean species hearing groups have been modelled and the largest predicted distance to onset of AUD INJ effects is 397 m. Applying a 500 m shutdown zone ensures all cetaceans are protected from injury in accordance with the defined acceptable level and is operationally enforceable and measurable. It provides a clear, measurable outcome based on accepted injury thresholds. Cetaceans are not exposed to sound levels exceeding 219 dB PK per pulse or 183 dB SEL $_{cum24hr}$. This EPO aligns with acoustic modelling predictions and introduces a conservative time threshold to prevent PTS in low frequency cetaceans. It is operationally clear and verifiable through visual and acoustic observation logs. This EPO is an additional level of protection for low frequency cetaceans related to AUD INJ effects.
Sound exposure to high frequency cetaceans must be below PTS per pulse and PTS 24 hr SEL thresholds of 230 dB and 193[2] dB respectively.		
Sound exposure to very high frequency cetaceans must be below PTS per pulse and PTS 24 hr SEL thresholds of 202 dB and 159[2] dB respectively.		
Sound exposure to otariid pinnipeds must be below PTS per pulse and PTS 24 hr SEL thresholds of 230 dB and 185 dB respectively.		
Sound exposure to blue whales must be below a TTS per pulse and TTS 24 hr SEL thresholds of 216 dB and 168 dB respectively.	**As a result of implementing shutdown or relocation procedures if a blue whale is detected within the 5 km ensonified area, blue whales will not be exposed to physical injury from sound exposure.**	This EPO reflects a measurable acoustic exposure limit based on peer-reviewed scientific criteria and can be verified through comparison of sound source discharges to modelled exposure contours with observed blue whale presence data. Applying this limit ensures consistency with published risk criteria and supports species protection goals under environmental regulations.

[8] This threshold has been updated based on the NMFS 2024 guidance.

[9] As per Policy Statement 2.1 'Whales' includes baleen whales and larger toothed whales, such as, sperm whales, killer whales, false killer whales, pilot whales and beaked whales.

Defined Acceptable Level (From Table E7-1)	Environmental Performance Outcome	Rationale
Sound exposure to southern right whales must be below a TTS per pulse and TTS 24 hr SEL thresholds of 216 dB and 168 dB respectively.	**As a result of implementing shutdown or relocation procedures when a SRW is detected within the 4 km ensonified area, SRW will not be exposed to auditory impairment.**	The 4 km radius is based on the modelled TTS distance (3.76 km) and allows a precautionary spatial buffer. This EPO is supported by real-time visual and acoustic monitoring to detect presence and duration of SRW occupancy.
Exposure of marine mammals to impulsive sound will not result in population-level effects.	**As a result of the implementing the suite of mitigation measures, marine mammals will not experience auditory injury or sustained behavioural disturbance affecting survival, reproduction, or population distribution.**	This EPO is supported through the acoustic modelling, use of scientifically defined injury and behavioural thresholds, implementation of visual and acoustic monitoring, and shutdown protocols. All other EPO's also support the delivery of this EPO. It provides a clear linkage between the suite of mitigation actions, ensuring that exposure remains below levels of ecological significance.
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.		

12 Recommendations

For most species/taxa/groups of marine mammals reviewed, this document provides the final assessment of impacts. However, despite an extensive review of the relevant literature around the effects of seismic on marine mammals, there has been a high level of concern voiced throughout consultation with relevant persons around the effects of seismic on certain species of marine mammals. 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 the ability of some marine mammal species to undertake their usual activities. This additional assessment is detailed in Appendix F3 – Further Assessment of Key Values and Sensitivities under Sections

- 3.1 – Southern Right Whales
- 3.2 – Blue Whales
- 3.3 – Australian Sea Lion

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
20 July 2023	A	Draft prepared for initial comment
30 August 2023	B	Update based on comments and relevant person feedback
11 Sept 2023	0	Approved for release on Regia MSS website
20 Dec 2023	1	EP submission to NOPSEMA
14 May 2024	2	Updated following public comments, reruns of PMST searches, and additional modelling report.
24 October 2024	3	Updated following NOPSEMA assessment
16 April 2025	4	Updated following NOPSEMA OMR 1 Letter
9 December 2025	5	Updated following NOPSEMA OMR 2 Letter

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Annex 1

Public Comment

The completed EP was published for public comment on the NOPSEMA website on 25 Jan 2024 for a 30-day period, closing 26 February 2024. Table E7-9 shows how this feedback has been incorporated into the environmental assessment.

Table E7-9 - 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: Impacts on biologically important behaviours (foraging/ feeding, calving and migrating) and masking	M09	CGG has updated the information provided in EP Appendix E7 (Underwater Sound (Marine Mammals).
Matter: Failure to consult with relevant persons	C07	CGG has considered these claims and the EP Appendix E7 will be updated with the assessment of Southern Elephant Seals.
Matter: Impacts on dolphins	M34	CGG has considered these claims and has updated EP Appendix EP Appendix E7.
Matter: Research on impacts of anthropogenic noise on marine mammals.	M11	Updates have been made to EP Appendix E7 (Impact Assessment – Underwater Sound: Marine Mammals).
Matter: Mass strandings	M13	Updates have been made to EP Appendix E7 (Impact Assessment – Underwater Sound: Marine Mammals).
Matter: Impacts to juvenile seals	M30	Updates have been made to EP Appendix E7 and EP Appendix F1 (Environmental Plan).
Matter: Displacement of Deen Maar and Portland seal colonies	M31	CGG has made updates to EP Appendix E7.
Matter: Operational Buffer around Deen Maar	M32	CGG has made updates to EP Appendix E7.
Matter: Insufficient mitigation measures for seals and sea lions	M33	CGG has made updates to EP Appendix E7.
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

Matter	Matter ID	Changes made arising from public comment
		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, 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 E7-10. If an objection or claim had merit and was relevant to this assessment it has been included in the table below.

Table E7-10 - Objections and Claims raised from consultation.

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4002	Risks to the lives of ancient marine mammals	The titleholder acknowledged the feedback, noting that impacts and risks to marine mammals are assessed in the Environmental Plan (EP) and can be found in E7 and F3. Measures to minimise adverse impacts to marine mammals are outlined in the EP in E7 and G1.	5114
4035	Comment about the impact of human activities on wildlife habitats and calls for a halt to such destruction for profit. It emphasises the negative consequences of competing interests in the 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.	2109
4036	Comment claims that seismic activity is known to cause significant harm to marine life, arguing that the proposed project will lead to further degradation of the coastal environment and should be abandoned as a result.	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.	2098
4038	Commenter highlights that fish populations have been adversely affected by seismic testing over the past few years, leading to a decline in their numbers. This decline could also impact other marine species and have negative effects on whale populations.	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. A fauna management plan is in place to manage whale interactions.	1432
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	4230

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		evidence you can share so that we can consider it fully prior to our submission.	
4226	The email expresses concern 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
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
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
4006	A call for a moratorium on seismic surveying in biologically important areas during times when whales are present, emphasizing the need to protect vulnerable species.	The titleholder acknowledged the feedback, noting that impacts and risks to marine mammals are assessed in the Environmental Plan (EP) and can be found in E7 and F3. Measures to minimise adverse impacts to marine mammals are outlined in the EP in E7 and G1.	612
4009	Activities are timed to avoid species' peak migration and foraging behaviours.	The titleholder acknowledged the feedback, noting that impacts are assessed in the Environmental Plan (EP) and can be found in E7 and F3. Measures to minimise adverse impacts to whales include: No discharge of the sound source in January, February, March (when the upwelling is in its peak month), the sound source will only be discharged in the Pygmy Blue Whale foraging BIA when low numbers of Pygmy Blue Whales and other foraging whales are in the BIA off Otway, and no discharge of the sound source within 15 km of the Southern Right Whale Reproduction BIA or Habitat Critical to Survival (HCTS) while Southern Right Whales are present in the BIA and HCTS. The full list of	653

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		measures is included in E7 Section 8 and G1.	
4010	Activities that may prevent or displace Pygmy Blue Whales or Southern Right Whales' use of BIAs are avoided.	The titleholder acknowledged the feedback, noting that impacts are assessed in the Environmental Plan (EP) and can be found in E7 and F3. Measures to minimise adverse impacts to whales and ensures The Regia MSS does not prevent SRW and BW utilising their BIAs include: No discharge of the sound source in January, February, March (when the upwelling is in its peak month), the sound source will only be discharged in the Pygmy Blue Whale foraging BIA when low numbers of Pygmy Blue Whales and other foraging whales are in the BIA off Otway, and no discharge of the sound source within 15 km of the Southern Right Whale Reproduction BIA or Habitat Critical to Survival (HCTS) while Southern Right Whales are present in the BIA and HCTS. The full list of measures is included in E7 Section 8 and G1.	653
4012	AMCS critiques the proposed monitoring plan for detecting foraging whales and Southern Right Whales in Biologically Important Areas (BIAs), which relies on two marine fauna observers (MFOs) aboard the survey vessel during daylight hours. They note that this approach may not reliably detect whales that are submerged, in low visibility conditions, or during nighttime operations. Given the potential for seismic surveys to cause temporary and permanent injury to EPBC-listed cetaceans, AMCS requests that CGG provide a comprehensive monitoring plan that ensures reliable detection of whales in all weather conditions and throughout the entire operational schedule, rather than just during daylight or optimal visibility.	The titleholder acknowledged the feedback, noting that impacts are assessed in the Environmental Plan (EP) and can be found in E7 and F3. Measures to minimise adverse impacts to whales include: No discharge of the sound source in January, February, March (when the upwelling is in its peak month), the sound source will only be discharged in the Pygmy Blue Whale foraging BIA when low numbers of Pygmy Blue Whales and other foraging whales are in the BIA off Otway, and no discharge of the sound source within 15 km of the Southern Right Whale Reproduction BIA or Habitat Critical to Survival (HCTS) while Southern Right Whales are present in the BIA and HCTS. The full list of measures is included in E7 Section 8 and G1.	3384
4013	AMCS highlights discrepancies in the impact thresholds for blue whales as presented in Table 1. The predicted maximum distances for cumulative thresholds—Permanent Threshold Shift (PTS) at 1.4 km, Temporary Threshold Shift (TTS) at 13.2 km, and behavioural effects at 8.09 km—are notably smaller than those for baleen whales (PTS at 4.89 km, TTS at 43.5 km, and behavioural effects at 10.3 km). This is also in stark contrast to	We note that the JASCO modelling report provides some justification for the use of ANIMAT modelling. We will update our impact assessment to comprehensively explain why we have used the effect threshold distances and why we believe these to be more accurate and still apply the precautionary principle. This will also consider information from the updated sound propagation modelling report.	3384

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
	previous modelling by JASCO for the Otway's project, which indicated that continuous blasting could affect blue whales up to 156 km away. AMCS requests an explanation for CGG's choice to use shorter distances from animate modelling for setting impact thresholds when more conservative figures are available in the same table and in other assessments by the same company. AMCS highlights the need for more research on baleen whales' responses to seismic surveys, noting current studies show varied individual and species responses. They criticize CGG's reliance on animat modelling, which lacks ground-truthing, for reducing maximum cumulative effects distances. AMCS urges CGG to adopt the precautionary principle by using the maximum TTS distance of 43.5 km for baleen whales. Additionally, they seek justification for the proposed 12 km buffer around southern right whale calving grounds and call for its revision, citing inadequate support for this less conservative threshold.		
4014	AMCS notes that the predicted maximum distances for Southern Right Whales (SRWs) are 1.5 km for PTS, 11.6 km for TTS, and 8.17 km for behavioural effects. To comply with the draft National Recovery Plan, CGG plans to implement a 12 km activity limitation around SRW Biologically Important Areas (BIAs) and Habitat Critical to Survival (HCTS) during their presence. However, AMCS requests that this buffer be increased to 44 km. The EIA indicates that CGG used a 44 km buffer in the Protected Matters Search Tool (PMST) to identify marine mammal species in the area, based on the predicted injury distance of 43.5 km for baleen whales. AMCS points out that the maximum distances for SRWs from animat modelling are significantly smaller than those for baleen whales listed in the same table (4.89 km, 43.5 km, and 10.3 km). They request a clear explanation from CGG on why the shorter animat modelling distances were used for setting impact thresholds when more conservative figures are available in the same table.	We note that the JASCO modelling report provides some justification for the use of ANIMAT modelling. We will update our impact assessment to comprehensively explain why we have used the effect threshold distances and why we believe these to be more accurate and still applying the precautionary principle. This will also consider information from the updated sound propagation modelling report.	3384

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4016	AMCS raises objections regarding the need to update the Environmental Plan (EP) to reference the final endorsed recovery plan for the southern right whale (SRW).	The EP considered and adhered to the draft National Recovery Plan for the Southern Right Whale, produced by Department of Climate Change, Energy, the Environment and Water (DCCEEW). Now the final recovery plan has been released, we are identifying changes and additions and will make the necessary updates to the Regia MSS Environment Plan after the next decision. The Regia MSS EP outlines how CGG have committed to handling new information such as changes to legislation, policies, or scientific literature that becomes available. This is provided in Section 4 of B3 - Implementation Strategy. This section describes the environmental management system we use, including management of change, knowledge, and communications - all of which are relevant to your query. As part of following these processes, we are currently compiling an information sheet for distribution, to both inform of the update to the SRW Conservation Management Plan, how it relates to the Regia MSS EP, and details any updates that have been made.	5040
4028	Cetacean strandings - Stakeholder cited an unusual mortality caused by strandings of adult Humpback whales in Abrolhos Bank, Northeastern coast of Brazil during the 2002 breeding season following 3D seismic surveys. LINK provided.	The titleholder acknowledged the feedback, noting that this claim was assessed in E7, Section 8. Seismic surveys and whale beaching has been an area of research and investigation, and no causal link has been found.	2886
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
4032	Claim regarding Southern Right Whale calves' hearing sensitivity, stating that no evidence supports the idea that calves have different	The titleholder conducted an extensive scientific literature search and found no evidence suggesting that Southern Right Whale calves have different or	5123

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	sensitivities from adults. CGG invites the sharing of any relevant studies and references several existing studies to support their conclusions.	more sensitive hearing ranges compared to adults.	
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
4035	Comment about the impact of human activities on wildlife habitats and calls for a halt to such destruction for profit. It emphasises the negative consequences of competing interests in the 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.	2109
4036	Comment claims that seismic activity is known to cause significant harm to marine life, arguing that the proposed project will lead to further degradation of the coastal environment and should be abandoned as a result.	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.	2098
4038	Commenter highlights that fish populations have been adversely affected by seismic testing over the past few years, leading to a decline in their numbers. This decline could also impact other marine species and have negative effects on whale populations.	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. A fauna management plan is in place to manage whale interactions.	1432
4040	Comprehensive suite of whale detection measures should be identified.	The titleholder acknowledged the feedback, noting that impacts are assessed in the Environmental Plan (EP) and can be found in E7 and F3. Measures to minimise adverse impacts to whales and ensures The Regia MSS does not prevent SRW and BW utilising their BIAs include: No discharge of the sound source in January, February, March (when the upwelling is in its peak month), the sound source will only be discharged in the Pygmy Blue Whale foraging BIA when low numbers of Pygmy Blue Whales and other foraging whales are in the BIA off Otway, and no discharge of the sound source within 15 km of the Southern Right Whale Reproduction BIA or Habitat Critical to Survival (HCTS) while	653

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		Southern Right Whales are present in the BIA and HCTS. The full list of measures is included in E7 Section 8 and G1.	
4048	Concern about sustained noise impact on cetaceans in the area.	CGG has conducted a thorough impact assessment relating to underwater sound and marine mammals, with mitigation measures and management adopted as a result of both this assessment (which includes relevant marine mammal species) (E7) and a further assessment (which includes two key whale species: Blue Whale and SRW) (F3). A comprehensive fauna management plan was also established as part of this EP development (G2).	1835
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 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.	1669
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	3237

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		on biological receptors are outlined in the EP also and can be found in G2.	
4058	Concern about the mass destruction the blasting will cause to local sea animals, particularly mentioning the Southern Right Whales that migrate to Warrnambool every year to give birth.	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 Southern Right Whales, within the area of operation. A fauna management plan, along with a suite of measures are also in place to reduce any impacts to as low as practicable.	886
4060	Concern about the vulnerability of seal pups due to seismic testing.	Regia EP has conducted a thorough assessment of the literature and found potential seismic impacts to seals do not pose any threat to the long-term health and sustainability of any populations of these taxa found within the operational area. Any interactions with seismic are mitigated and managed through spatial boundaries and a comprehensive fauna management plan.	3237
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
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

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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
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,	Titleholder has undertaken a comprehensive assessment of all available scientific literature to develop an appropriate EP. All potential risks have been identified with appropriate	722

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	rock lobster fishery and other local fishing industries.	mitigation methods applied where necessary. There are no identified levels of harm that would endanger the population stability of any taxa.	
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 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.	4551
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	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.	422

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	unjustifiable and express frustration, telling the parties responsible to stop.	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	
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
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
4101	Expresses concern that, while the project has accounted for the presence of Southern Right Whales,	We will have a comprehensive management plan for all whales with a particular focus on blue whales and	2081

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	it may overlook the protection of endangered blue whales, which are in the area from November to May.	southern right whales. SRW are our priority to protect due to our proximity to their critical life stage habitat. This doesn't mean our protection of blue whales is compromised, it means we have to protect them in a different way. We have been gathering data on BW so that we can work around there foraging behaviours.	
4105	Feedback questions who determine acceptable risks for whales, expressing concern over the impact of seismic testing on whale communication and hunting in vital zones. Argument that such risks are only acceptable to gas companies, highlighting frustration with the situation.	The Federal Department of Environment, through the EBPC Act, protect matters of national environmental significance. Whale species have specific levels of protection enacted through legal instruments such as Conversation Management Plans. These plans often contain information about the levels of impact that is unacceptable, and we must adopt them to comply with the law (Event ID 422).	423
4106	Feedback raises concern for the welfare of whales that come to calve in local waters, emphasising the need to consider the impact of proposed activities on these vulnerable marine animals.	We will not survey while SRW mothers and calves are in the area. Oil and gas have successfully co-existed with wildlife in this area for 25 years and we are doing everything we can do protect the wildlife and natural beauty of the area (Event ID 1781).	1781
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
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
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 adverse impacts on marine life are outlined in the EP in G1.	4808

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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
4135	Mention of being heavily impacted by the whales in the tourism industry.	Title holder has undertaken a thorough analysis and assessment of all relevant literature related to Marine Mammals to inform its decisions. The MSS will not impact the population stability of marine mammals within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable.	1244
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
4140	No mention of ceasing activities when whales are present in the area.	CGG has conducted a thorough impact assessment relating to underwater sound and marine mammals, with mitigation measures and management adopted as a result of both this assessment (which includes relevant marine mammal species) (E7) and a further assessment (which includes two key whale species: Blue Whale and SRW) (F3). A comprehensive fauna management plan was also established as part of this EP development (G2).	1835
4141	No mention of survey in a Biologically Important Area for pygmy blue whales.	The titleholder responded by welcoming the stakeholder's specialist knowledge on blue whales, provided detailed summaries of the current whale measures that had been put in place for the Regia MSS, and informed the stakeholder of other control measures being evaluated with expert opinion from acoustic specialists and whale researchers (Event ID1933).	4036
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	427

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		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	
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
4152	Potential harm to marine species like dolphins and whales due to disorientation caused by intense noise.	The Regia EP has conducted a thorough assessment of the literature which is both aspect-focused and receptor- focused for those taxa of increased public concerns. Marine mammals, Blue Whale and Southern Right Whale in particular, have been subject to increased levels of assessment which have been used to decide outcomes.	1263
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 low frequency cetaceans, sound propagation and modelling, and	3697

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		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
4170	Scientific evidence indicates that seismic blasting using air guns has chronic impacts on whales. These effects include the exclusion of marine mammals from crucial areas during important times, interference with migration, habitat degradation, disruption of vital behaviours, and increased stress levels. Statement that such findings underscore the unacceptable risks associated with seismic testing in marine environments.	The titleholder acknowledged the feedback, noting that impacts to whales are assessed in the Environmental Plan (EP) and can be found in E7 and F3. Measures to minimise adverse impacts to whales are outlined in the EP in E7 and G1.	2073
4173	Seismic blasting has adverse effects on the marine environment, with critical gaps in understanding the effects on individual species and the marine environment as a whole.	The titleholder responded with an explanation of the information sources used to inform the Regia MSS impact and risk assessments, and explained how these information sources and resulting measures are specific to the potential impact. The titleholder also made a reference to documents relevant to this claim within the environment plan (Event ID 4092).	4091
4174	Seismic blasting in southern right and blue whale migratory and breeding waters.	An additional impact management area for SRW's (which extends 11.3km beyond the proposed reproductive biologically important area), and the change in timing to avoid the expected increase in blue whales associated with the summer upwelling. In addition, we will not be acquiring in water shallower than 50m, increasing the survey's distance from shore and offering additional biodiversity protection.	4808

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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
4186	Stakeholder expressed concern about the destruction and depletion of the ocean due to the activity.	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-	2963

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		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. Acceptable levels of impact are	1659

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		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	1663

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		those to the previously defined acceptable levels and is presented in the Environment Plan	
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,	1672

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		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	
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 is 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.	2255

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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	
4203	Stakeholder outlined impacts to marine animals from seismic testing. It was noted that to communicate with other whales, humpbacks use a complex combination of noises in beautiful melodics and that seismic airguns emit a wide range of frequencies with sounds in the lower frequency ranges which can travel long distances being particularly troublesome sounds with humpback whales known to stop singing when subjected to the sound of a seismic airgun near Scotland. Ending the humpback's haunting song could impact migration, breeding and feeding. (Credit: NOAA's National Ocean Service.) LINK provided.	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 dolphins or whales 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	2886
4206	Stakeholder raised concerns about the number of planned overflights stating that 12 was insufficient	CGG has revised its commitment to only 1 aerial surveillance flight as a minimum, there may be up to 10 but the need will be established by the Whale Expert Panel.	3783
4207	Stakeholder stated objection to seismic blasting and gas/oil exploration due to the destructive effects on marine ecosystems, including the southern right whale that is beloved by locals and traditional owners.	Titleholder responded to individual acknowledging concerns and providing information about MSS and the potential to harm marine life if mitigation plans are not in place. Advised that marine mammals, fish, and other marine fauna can be affected by the sound levels they are exposed to from a seismic survey and that the sound generated by the survey can cause hearing loss or injury, as well as disturbance of feeding, breeding, and other essential behaviours. Advised of the requirement and importance to minimise the levels of sound input into the marine environment and manage sound impacts appropriately. Provided overview of measure used to mitigate impacts on marine life and advised that the PEIRA was currently available on consultation website.	836
4210	Stakeholder stated they were concerned at the impact the activity	The Regia MSS will be undertaken in a manner that does not prevent or	870

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	will have on the nearby whale nursery and marine sanctuary. We need to be protecting our oceans and marine life from further disruption and climate change not attempting to extract more gas through seismic blasting.	displace Pygmy Blue Whales or Southern Right Whales' use of BIAs. This will be done by implementing spatial and/or temporal zones and where these cannot be implemented mitigation controls will be implemented. Controls will be evaluated with expert opinion from acoustic specialists and whale researchers to ensure they are effective.	
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	425

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		acceptable levels and is presented in the Environment Plan.	
4226	The email expresses concern 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 to demonstrate 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
4231	The feedback expresses concern that the project might disrupt blue whale migration, movements, and natural behaviour due to potential interference in their habitat.	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 blue whales and an extensive detection area. These measures have been assessed in E7, F3 and G2.	2081
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
4236	The feedback questions priorities, suggesting that profit motives may overshadow environmental concerns. It calls for a reconsideration of project locations to avoid populated areas and protect wildlife.	We will not survey while SRW mothers and calves are in the area. Oil and gas have successfully co-existed with wildlife in this area for 25 years and we are doing everything we can do protect the wildlife and natural beauty of the area (Event ID 1781).	1781
4253	The possible effects to marine life and ecosystems are 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	2117

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		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	
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
4262	The random placement of animats representing Southern right whales (SRW) and pygmy blue whales (PBW) is inappropriate, as whale presence in the area is not random. SRWs and PBWs migrate significant distances for calving and feeding in the waters of the OA. Assuming a random distribution in a model meant to reflect complex animal behaviour influenced by environmental factors is flawed. Additionally, the proposed spacing of four animats per square kilometer underestimates the likely higher density of SRWs, particularly in aggregation and calving areas from May to October.	We understand the concern regarding the random placement of animats in the model. The animat modelling creates a foundational understanding of potential whale response to sound emissions once they are in or near the OA. We recognize and agree that the overall migratory and behaviour patterns of the SRWs and PBWs are far from random. The decision to start with a random distribution was in fact a conservative first step to ensure we didn't inadvertently overlook potential areas of concern. Recognizing the specific migratory and behavioural patterns of SRWs and PBWs, is completed in the subsequent impact assessment. Regarding the spacing of animats at 4	3384

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		per sq km, your feedback is valuable. We believe that a 4 per sq km is a significantly conservative density for the model to take given the population levels of these species and their observed behaviours.	
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 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.	2064
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	Title holder has undertaken a thorough analysis and assessment of all relevant	2108

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	impact on marine life, specifically mentioning that an "exclusion zone" will not effectively prevent the effects of the blasts from travelling through the ocean.	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.	
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
4275	The stakeholder did not support the project due to the impact it will have on the significant whale nursery at Logan's Beach.	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 whales 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	2250
4276	The stakeholder does not accept the blasting activity as beneficial or more important than existing marine life and structures.	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	2255

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		acceptable levels and is presented in the Environment Plan	
4277	The stakeholder expressed concerns regarding the immediate consequences of these explorations, specifically the SRW and for the climate. The stakeholder stated that the activity should not go ahead.	Titleholder responded to individual acknowledging concerns and providing information about MSS and the potential to harm marine life if mitigation plans are not in place. Advised that marine mammals, fish, and other marine fauna can be affected by the sound levels they are exposed to from a seismic survey and that the sound generated by the survey can cause hearing loss or injury, as well as disturbance of feeding, breeding, and other essential behaviours. Advised of the requirement and importance to minimise the levels of sound input into the marine environment and manage sound impacts appropriately. Provided overview of measure used to mitigate impacts on marine life and advised that the PEIRA was currently available on consultation website. CGG acknowledges claims regarding global warming and has reviewed Environment Plan (EP) B4 (Regia MSS Preliminary Environmental Impact and Risk Assessment (PEIRA)), which provided preliminary information on the potential impacts and risks to support consultations with relevant persons and provided the context to the subsequent impact and risk assessments.	836
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
4279	The stakeholder expresses concern that the proposed seismic blasting will disrupt the travel paths of whales, particularly after efforts have been made to allow their populations to recover. They emphasise the potential harm to these animals from creating explosions in their migratory routes, arguing against any activities that threaten their sustainability.	We are working hard to design our survey so that we limit our impacts to acceptable levels. Our activity is no more than 90 days, so we'll find an appropriate window to operate in. We will not destroy any wildlife habitat as a result of our activity (Event ID 2109).	2109
4282	The stakeholder highlights concern regarding Deen Maar (Lady Julia Percy Island), which is home to the largest fur seal colony in the Southern Hemisphere. They are objecting to the proposed activities,	We are 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 we	2108

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	suggesting that such actions could negatively impact this critical habitat for fur seals, emphasising the ecological significance of the island.	protect and preserve the values of this site (Event ID 2108).	
4285	The stakeholder noted the following concerns 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 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	2389

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		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 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	

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		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
4292	The stakeholder raised concern about the sound level from the survey and its effect on marine mammals and other species.	Outlined the predicted effects of sound levels of different species of marine mammals including difference between high and low frequency cetaceans, sound propagation and modelling, and different effect level thresholds. 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. Outlined the effects on zooplankton and the case for	3697

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		acceptability of these impacts noting the movement of the survey timing to avoid the upwelling period. (event ID 3697)	
4298	The stakeholder stated Australia has adequate gas reserves and was concerned that exploration was to take place in a region that is a whale sanctuary and unspoiled.	We understand community views about the ongoing need for gas in Australia (or lack thereof) as the country navigates the energy transition. The current government policy is that more gas is needed, and petroleum exploration titles continue to authorise the exploration process, including seismic surveys. Matters of national energy policy are not within the purview of CGG or the Regia MSS. We will register claims related to the ongoing need for gas and provide those to NOPSEMA. We also advise that these concerns are better directed to your State or Federal members of parliament and/or the State or Federal Resources Ministers. The Otway Basin has been one of Australia's largest producing gas fields since the 1980's, servicing both domestic and commercial energy needs for the East Coast. It is for this reason that the government has awarded titles for further exploration.	1747
4299	The stakeholder stated that elevated sound levels are an unacceptable impact to marine mammals.	The titleholder acknowledged the feedback, noting that impacts to marine mammals are assessed in the Environmental Plan (EP) and can be found in E7 and F3. Measures to minimise adverse impacts to marine mammals are outlined in the EP E7 and G1.	1890
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-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	1747
4306	The stakeholder was concerned about potential negative impacts of gas exploration and development on Country, the marine and coastal	The titleholder acknowledged the feedback, noting that all relevant impacts are assessed in the Environmental Plan (EP) and can be	3152

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	environment, the local economy, Traditional Owners, and local communities.	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.	
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 suggests 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
4325	This feedback asserts that seismic blasting will significantly disrupt migration routes and birthing grounds for Southern Right Whales, Humpbacks, and Blue Whales.	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 whales to ensure there is no injury (TTS) to southern right whales and blue whales. Humpback whales are also protected from a PTS threshold with shutdowns in place should whales enter designated shut down zones. These shut down zones are justified in E7.	2097
4327	This feedback claims the negative impacts of seismic noise on marine ecosystems, including zooplankton mortality, hearing damage, physiological harm to larger marine animals, and disruptions to essential	We acknowledge that there may be mortal effects on zooplankton within a few meters of the sound source. However, given natural mortality rates of 20-50% along with their abundance the population effects to zooplankton are considered negligible (Event ID 2097). There are significant protections	2097

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	behaviours like feeding, breeding, and escape responses.	in place for effects on large marine animals which we will detail in our full impact assessments. The acceptable levels of impacts to whale species are defined in their conservation management plans. It is unacceptable to injure a Blue Whale or displace it from its foraging area. it is unacceptable to injure or disturb a Southern Right Whale. Humpback Whales are recovering and no longer on the endangered list and we are required to protect them along with all other marine life. This project is in the early stages of exploration and the purpose of the survey is to determine if commercially viable deposits of petroleum are even present (Event ID 2097).	
4332	This statement calls for a respectful approach, urging stakeholders to engage deeply with Indigenous knowledge and perspectives, including the views of Elders and Traditional Owners. It emphasises empathy and a meaningful understanding of the environmental and cultural impact of activities on marine life.	The titleholder acknowledged this concern and confirmed that CGG will not carry out the survey whilst Southern Right Whales are present in their reproductive biologically important area. Confirmed that CGG are engaging with the local traditional owners and look forward to hearing their stories, learning about their culture, and protecting sea country.	2101
4333	This statement expresses strong feedback to the potential impacts of seismic activities on whale communication and hunting abilities, emphasising the unacceptable risks to marine life and local ecosystems for the sake of gas company profits. It reflects concerns about environmental responsibility and the prioritisation of corporate interests over ecological health.	The Federal Department of Environment, through the EBPC Act, protect matters of national environmental significance. Whale species have specific levels of protected enacted through legal instruments such as Conservation Management Plans. These plans often contain information about the levels of impact that is unacceptable, and we must adopt them to comply with the law (Event ID 2099).	2099
4334	This statement opposes seismic blasting in areas designated as Sacred Birthing Grounds for Southern Right Whales, underlining the cultural and environmental significance of these grounds. It also expresses solidarity with the Gunditjmara Traditional Owners, acknowledging the cultural heritage and environmental stewardship of this region by Indigenous communities. The feedback emphasises the perceived risks to both marine life and Indigenous heritage in the area.	The titleholder acknowledged this concern and confirmed that CGG will not carry out the survey whilst Southern Right Whales are present in their reproductive biologically important area. Confirmed that CGG are engaging with the local traditional owners and look forward to hearing their stories, learning about their culture, and protecting sea country (Event ID 2101).	2101
4335	This statement opposes the disruption of marine habitats,	The titleholder acknowledged this concern and confirmed that CGG will	2101

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	migratory patterns, and cultural songlines due to perceived corporate exploitation. It reflects a strong stance against environmental harm driven by profit, emphasising the cultural and ecological importance of these areas.	not carry out the survey whilst Southern Right Whales are present in their reproductive biologically important area. Confirmed that CGG are engaging with the local traditional owners and look forward to hearing their stories, learning about their culture, and protecting sea country (Event ID 2101).	
4338	Concerned that whales in the southwest will no longer return to birth and nurture calves	Titleholder responded to the stakeholder, 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.	1255
4344	Asking for clarification on what measures are in place to ensure the protection of blue whales, specifically in terms of mitigating interference with their natural behaviours and habitat.	The titleholder has acknowledged this feedback relating to mitigation measures for blue whales. CGG has committed to various mitigation measures to reduce impacts to blue whales. These include: -The sound source will only be discharged in the Pygmy Blue Whale foraging BIA when low numbers of Pygmy Blue Whales and other foraging whales are in the BIA off Otway. -Operate the sound source at low power during line turns and if transiting between survey lines anywhere in the Operational Area. -If the survey occurs in September, October, November or December, the acquisition lines will be acquired working from the deepest lines first. -No discharge of the sound source in January, February, March. - The use of aerial surveys, MFOs, PAM, and fixed PAM technology. The full list of measures is included in E7 Section 8 and G1.	2081
4350	Blue whales are particularly vulnerable to disturbances that may displace them from their food sources, as they do not store significant blubber reserves and rely on daily feeding for energy. A query to another stakeholder in the meeting was raised regarding the alignment of this understanding with observations about underweight blue whales, indicating a need for clarification on how these factors interrelate.	Titleholder acknowledged this concern and noted that impacts to blue whales is assessed in the EP Chapter E7 Section 8.The titleholder advised that control measures to reduce impacts to blue whales as a result of disturbance from the seismic source are outlined in the EP and include several activity limitations including: The sound source will only be discharged in the Pygmy Blue Whale foraging BIA when low numbers of Pygmy Blue Whales and other foraging whales are in the BIA off Otway and No discharge of the sound	2007

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		source in January, February, March during peak upwelling months. The full list of mitigation measures for blue whales is listed in E7 Section 8 and G1.	
4351	There is a request for information concerning detection technologies utilised for monitoring blue whales.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. CGG has committed to several detection methods including aerial surveys, MFO's, PAM systems, and a fixed buoy detection system. CGG will also establish a whale expert panel to help inform decision making during the survey. This information is included in the EP E7, G1 and G2.	2007
4353	Concerns about the impact of oil and gas exploration on the marine environment, particularly in regard to seismic testing and its harmful impacts on whales.	Titleholder responded that a detailed assessment has been completed of all available relevant scientific literature to inform the management and mitigation of MSS and their interaction with whales. Spatial and temporal zoning in conjunction with mitigation measures will ensure that interactions will minimise disturbances to whales.	612
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
4361	Stakeholder shared concern about whales ceasing to visit the Southwest coast to give birth and nurture calves.	The titleholder has undertaken a thorough review of the effects of seismic on whales - see E7 Section 8 and F3 Section 4.1 and 4.2. There is no evidence to suggest whales will cease to visit, give birth and nurture their calves in the southwest as a result of the Regia MSS.	1255
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

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		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
4373	Objection to seismic blasting occurring in SRW migration routes, which are habitat critical to the survival of the species, and adjacent to the calving and nursing grounds while the whales are in the area.	Event ID 6529 - The stakeholder has misused the definition of Habitat critical to the survival (HCTS) described in the SRW recovery plan. The migration areas are not HCTS and have their own definition in the act. Section 2.10.2 of the SRW National Recovery Plan has a further definition of HCTS which does not include any reference or possible interaction with the definition of the migration area. CGG are of the view that there is no significant impact to SRW habitat	6410

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		critical to the survival of the species as there is no possibility that the proposed Regia MSS (the action) will adversely affect habitat critical to the survival of a species.	
4375	Claims that threats from the survey to SRW and their migration routes and HCTS means that impacts from the Regia survey are not ALARP.	"Event ID 6529 - ALARP (As Low As Reasonably Practicable) is a criterion used to determine whether control measures should be implemented by balancing the environmental benefit with the sacrifice required for their adoption. NOPSEMA guidance and the Regia MSS EP provide details on how to demonstrate that environmental impacts and risks are reduced to ALARP.	6410
4377	Stakeholder claims that the lack of consultation with local experts and scientists could lead to adverse effects on the Fairy Penguin colonies and other species.	The stakeholder claims that ""such threats do not pass the ALARP test,"" but its statements about SRWs and the eastern SRW population, some of which are directly copied from the SRW National Recovery Plan, fail to address control measures, their benefits or costs, or critique the ALARP demonstration presented in the Regia MSS EP. As a result, this claim is unclear in its application of the ALARP concept.	6412
4388	Concerned about the impacts of the seismic survey on Southern Right Whales.	CGG is open to further educating the stakeholder on the ALARP concept, assuming they are trying to provide information that might lead CGG to reconsider the control measures implemented or rejected, which have already demonstrated that environmental impacts and risks of the proposed Regia MSS have been reduced to ALARP."	6878
4389	The relevant person was concerned about the timing of the proposed survey and impacts to the southern right whale.	"Event ID 6882 (Doc ID 9096) - CGG consulted with Parks Victoria (PV) during the planning of the proposed survey, meeting on 11/08/2023. The consultation records are available in the EP (Appendix C2). PV raised concerns about the survey's proximity to the Twelve Apostles Marine Park, leading to a refinement of the survey area. Fairy Penguins were not mentioned in this meeting. CGG also consulted with the Warrnambool Coastcare Landcare Network and their Middle Island Penguin Project. A referenced expert in scientific literature was consulted about penguin foraging ecology and at-sea movements. They advised against relying on outdated population estimates for penguins due to rapid ecosystem changes and predation pressures. CGG has sent the F3	6624

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		assessment from the Regia EP to the Professor for feedback and is awaiting a response. CGG also reached out to DECCA but has not received any information.	
4395	The project is adjacent to Warrnambool's Logans Beach Whale Nursery for Southern Right Whales and upstream of the Bonney Upwelling Key Ecological Feature, which could be affected.	Regarding the other individuals mentioned, they were consulted, with records available on the public website. The Regia MSS EP includes extensive references to studies by blue whale (EP E7 and F3) and Southern Right Whale experts. Additionally, a Professor's work on Fairy Penguins is referenced, along with the Middle Island Penguin Project.	6432
4405	objects to the assertion that ± 50% interannual variation in upwelling extent, mostly climate-driven, has not constrained whale population recovery.	CGG based its impact assessment on peer-reviewed literature, including studies by the scientists mentioned, and disagrees with any suggestion that knowledge was bypassed or cherry-picked. The process has been fully transparent, and CGG has actively sought additional relevant literature. CGG also met with Warrnambool City Council to discuss the Middle Island Penguin Project and is looking to support efforts to gather data on penguin populations.	6432
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
4451	Stakeholder claims the EP is inconsistent with recovery plans including SRW National Recovery Plan and BW Conservation Management Plan, especially in light of newly published literature regarding the Eastern SRW population.	In event ID 6859 (see feedbacks 2352 & 2353) the titleholder provided the stakeholder with how the EP is consistent: The Regia team responded that as per EP Appendix E7, CGG will ensure there are no behavioural impacts to Blue Whales, as the seismic source will be shut down within 10km of a blue whale. This is based on the underwater sound modelling commissioned by CGG where behavorial impacts to blue whales was predicted to occur within 9.83km of the sound source. The Regia team responded that as per Appendix E7, There are only 3 BIAs associated with whales that are relevant to the Regia MSS, the Southern	7136

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		Right Whales Reproductive and Migration BIA, and the Blue Whale Foraging BIA. The sound source will be operated within the Southern Right Whale Reproductive BIA at any time. CGG will ensure the seismic source will only not be operated within the pygmy blue whale foraging BIA if there are low numbers of blue whales present. CGG will use a whale expert panel to help define 'low numbers' CGG will also shut down if a blue whale is detected within 10km of the seismic source. This 10km will ensure there are no behavioural impacts which may displace whales from their foraging BIASs. CGG will shut down the sound source if a blue whale remains resident in the 23 km ensonified area for more than 12 hours, this will ensure blue whales will not experience TTS (temporary auditory injury).	
4487	Claims that CGG's proposed activities are inconsistent with the Recovery Plans made under the EPBC Act, the Southern Right Whale Recovery Plan and the Blue Whale Recovery Plan. GMTOAC states that these activities pose known physical and behavioural risks to the Eastern Population of Southern Right Whales and to Pygmy Blue Whales. These risks include impacts from anthropogenic underwater noise, particularly seismic noise, vessel strikes, climate-driven changes in prey availability, and the cumulative effects of these pressures, all of which have the potential to injure or kill individuals and affect populations. GMTOAC notes that under the EPBC Act Program and NOPSEMA's decision-making guidelines, an Environment Plan cannot be accepted if it is inconsistent with a recovery plan. It emphasises that both Recovery Plans contain "Very High" importance actions requiring that Blue Whales and Southern Right Whales must be able to continue using their Biologically Important Areas (BIAs) without auditory impairment, injury, or displacement. The plans also call for preventing disruption and displacement of Karntubul (Southern Right Whales) from BIAs due to anthropogenic noise such as seismic surveys.	CGG maintains that its approach aligns with statutory obligations and industry best practice. It asserts that all regulatory requirements under Regulation 34 have been met, and that its environmental performance outcomes and control measures are grounded in the best available science and tailored to the ecological and cultural sensitivities revealed through consultation. The Regia MSS Environment Plan (EP) was designed to ensure impacts and risks are reduced to As Low As Reasonably Practicable (ALARP) and to an acceptable level. Regarding whale protection, CGG highlights that the EP includes specific mitigation measures for culturally and ecologically significant marine fauna, including species noted in relevant Recovery Plans. Early correspondence in February 2023 identified Southern Right Whales and Pygmy Blue Whales as key sensitivities, and the EP commits to spatial and temporal avoidance measures, sound-source shutdowns, and exclusion zones to protect them. These measures explicitly consider cultural significance, such as timing restrictions to avoid the Karntubul (Southern Right Whale) birthing period. The whales, Karntubul and Wuuloc, are identified in the EP as sensitive receptors with dedicated protective measures. CGG confirms that these cultural and ecological sensitivities were incorporated into the environmental assessment. The EP acknowledges the	EVT352

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		sacred cultural status of Koontapool (Southern Right Whale) and Wuuloc (Pygmy Blue Whale) for the Gunditjmara people and includes them in impact and cumulative risk assessments. Appendix F3 references the Nyamat Mirring Plan 2023–2033 and recognises Gunditjmara spiritual connections, including to Karntubul. CGG substantively addresses the relevant issues, including underwater noise, vessel interactions, and cumulative effects. The EP sets out noise-management frameworks, timing restrictions, and cumulative impact analyses consistent with the concerns raised.	
4491	Claims about the SRW and BW BIAs. States proposed activity will cause unacceptable impacts to all Karntubul species, including temporary & permanent hearing loss, displacement from BIAs, vessel strike, prey depletion during peak feeding/migration period, calving interruption, and impact to ecosystems and cultural landscapes as a result of the cumulative impact of these.	CGG has identified all Biologically Important Areas (BIAs) relevant to blue whales (BWs) and southern right whales (SRWs) and incorporated seasonal BIA use into the survey design through substantial temporal and spatial restrictions detailed in the EP. Predicted underwater-sound impacts on these Karntubul species, along with mitigation measures presented in Appendices E7 and F3, demonstrate impacts will remain acceptable and will avoid auditory impairment or displacement from BIAs or Habitats Critical to Survival (HCTS). CGG further notes that vessel-strike risk is already extremely low during seismic surveys and that additional controls in Appendix D2 ensure this risk is prevented and acceptable. It concludes that no changes to ecosystem structure, diversity, or function are expected from the one-off survey, with sound exposure too limited in extent and duration to affect prey, food webs, or predator–prey relationships. A cumulative impact assessment found residual cumulative effects to be low, reduced to ALARP, and acceptable, with no impacts predicted for regional marine parks. CGG also asserts consistency with the National Recovery Plan for Southern Right Whales and the Blue Whale Conservation Management Plan, stating that their objectives and recommended measures have been incorporated. Finally, CGG maintains that all marine mammal species likely to occur in the region have been adequately assessed using up-to-date EPBC Protected Matters data, and that mitigation measures ensure impacts to all listed species will remain acceptable	EVT352

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		and not inconsistent with EPBC Act protection provisions.	
4492	Claims that the eastern population of the Southern Right Whale, estimated at only 200–300 individuals, is at particularly high risk because its migration and reproduction Biologically Important Areas (BIAs) overlap directly with CGG's Operational Area and sound propagation footprint. According to the Southern Right Whale Recovery Plan, these whales use the affected region for reproduction between May and September and for migration between April and October. The Recovery Plan also notes that Southern Right Whales do not feed in coastal waters but are expected to feed, and possibly conceive, within the Australian Whale Sanctuary—an area entirely overlapped by the proposed Regia MSS activity. As a result, the seismic survey could occur within, or affect, conceiving, calving, and feeding grounds for this critically endangered sub-population. The species is particularly vulnerable to human impacts due to its low reproductive rate, long lifespan, and strong site fidelity to key habitats. The submission therefore emphasises the relevance of underwater noise, habitat degradation, and vessel-strike risks in the context of the proposed seismic activities.	The Recovery Plan explains that BIAs can be designated for key behaviours such as reproduction, foraging, migration, and resting. While Southern Right Whale BIAs in the Plan cover reproduction and migration, the Plan notes that foraging occurs across a much broader offshore latitudinal range (30°S–65°S) and is not linked to these BIAs. Because the Regia MSS is not located in Antarctic waters, it will not affect cetaceans that forage there. CGG states the survey will avoid peak SRW abundance in the mapped BIA and apply mitigation measures to ensure no SRWs are harmed, injured, or interfered with.	EVT352
4494	The claim highlights guidance from the Blue Whale Recovery Plan, which stresses the need for a precautionary approach when assessing threats at the population level. It notes that blue whales may continue feeding despite disturbance if alternative feeding grounds are limited, meaning that anthropogenic noise may still present significant risk even when behavioural responses are subtle. Drawing on the Recovery Plans, the submission identifies key threats relevant to assessing potential impacts of the Regia MSS activity: underwater anthropogenic noise, climate change, habitat degradation, vessel strikes, prey depletion, and the cumulative effects of these pressures. GMTOAC argues that CGG has not adequately assessed these threats, either individually or cumulatively, given that consultation on these matters remains ongoing. The submission	The EP is consistent with the Blue Whale Conservation Management Plan, which identifies seismic noise as a threat, by implementing measures that ensure blue whales can continue using the area without injury or displacement. This includes using MFOs and PAM, shutting down the seismic source if whales enter behavioural, or TTS-impact ranges, and complying with EPBC vessel-operation requirements such as maintaining a 300-metre caution zone. CGG states it will also avoid peak-abundance periods by commencing the survey after most SRWs have left the BIA and during months when blue whale numbers are low. Drawing on current scientific literature, the recovery plans, and detailed impact assessments, CGG maintains that all risks and impacts have been reduced to acceptable levels. While Appendix E7 initially identifies major impacts for SRWs and BWs due to their threatened status, CGG notes	EVT352

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	states that, based on CGG's own impact metrics, the proposed seismic activities may result in moderate to major impacts from underwater noise, major risks of vessel strikes, major impacts associated with climate change, and potentially more severe cumulative impacts. It references the Commonwealth's Significant Impact Guidelines, which define significant impact and list criteria for determining when an action may threaten an endangered species' survival or recovery. GMTOAC concludes that moderate to major impacts, especially when cumulative effects are considered, meet the threshold of significant impacts and are therefore unacceptable. Finally, the submission notes that both Recovery Plans and EPBC Act Policy Statement 2.1 emphasise that seismic surveys should avoid biologically important areas during biologically important times and assess 3-4 years of baseline data. GMTOAC argues that this principle is not met in the timing and location of the proposed Regia MSS survey, increasing the potential for displacement from critical habitats essential to whale survival and recovery.	that both species were reassessed in Appendix F3, which added further measures for SRWs; Appendix F3 concludes that residual impacts to both species are reduced to an acceptable level.	
4496	GMTOAC objects to CGG removing a previous control measure limiting seismic discharge in the Pygmy Blue Whale foraging BIA during periods of low whale presence, replacing it with a vague condition requiring CGG to determine whether whale presence is "compatible" with proceeding. GMTOAC argues this new measure lacks detail on how whale presence or "unacceptable disturbance" will be assessed, and that it fails to reference Recovery Plans which define unacceptable impacts. GMTOAC warns that the proposed survey timing (April–June 2026) coincides with peak Pygmy Blue Whale foraging season and Southern Right Whale migration and calving periods, meaning the seismic survey is likely to occur when both species are using their BIAs. Preventing whales from accessing these areas, or exposing them to injury while they remain, would constitute unacceptable impacts inconsistent with Recovery Plan objectives.	CGG has further reduced the likelihood of interactions with marine mammals by excluding the April–June period and commencing the survey only after 15 September. Because blue whales typically do not arrive from Western Australia until November, CGG argues that most of the survey will occur when blue whales are absent from the area. It adds that sighting data show very few blue whales in November and December, with peak abundance occurring later, from January to March during the Bonney Upwelling.	EVT352
4497	GMTOAC objects to 160dB threshold, noting that both Recovery Plans call for precaution, that behavioural impacts occur below 160 dB, and that	CGG's use of a 160 dB behavioural threshold for blue whales is consistent with industry standards, current	EVT352

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	NOAA and NMFS consider the 160 dB threshold a coarse midpoint, not a universal behavioural threshold. Recent research suggests a more precautionary threshold of around 139–140 dB for low-frequency cetaceans, and GMTOAC notes that some previous seismic proposals adopted stricter thresholds in recognition of species vulnerability.	scientific guidance, and established regulatory practice, noting that this threshold is appropriate for non-reproductive foraging stages when sensitivity to noise is lower. For Southern Right Whales, CGG has adopted an even more precautionary, real-time protection approach by verifying ambient sound levels and implementing immediate shutdowns for any SRW detected within the reproduction BIA, restarting only once whales have clearly departed. This provides a higher level of protection than numerical thresholds used by NOAA or NMFS and aligns with the intent of the National Recovery Plan. CGG also asserts that stakeholder reliance on U.S. "Take Authorization" documents is irrelevant to Australian regulation and that the stakeholder has misrepresented Darias-O'Hara et al. (2025). The study did not recommend a universal 139 dB threshold but instead reported a median expert-elicited response value with large uncertainty, limited applicability, and explicit caveats. CGG maintains that the stakeholder's interpretation selectively uses science out of context and does not reflect the study's stated limitations.	
4498	GMTOAC claims that CGG has not demonstrated these methods' effectiveness in conditions of low visibility or high ambient noise, and that CGG's analogy to motion sensors and security cameras greatly overstates the capability of detection systems. GMTOAC further notes that whale behaviours, such as Pygmy Blue Whales diving in response to vessels, or Southern Right Whale mother–calf pairs communicating quietly, reduce detectability and have not been adequately factored into the assessment.	No single detection method is fully reliable under all conditions, so the survey uses a multi-layered system combining visual observers, passive acoustic monitoring, autonomous detection buoys, vessel-based systems and aerial surveillance. Each method contributes different strengths, such as autonomous buoys providing near-real-time detections regardless of visibility, and visual observers offering species identification and behavioural interpretation, and together they compensate for the limitations of any one tool. This integrated approach maintains effective detection even when environmental conditions or animal behaviour reduce the performance of individual methods, providing a robust and precautionary system for managing uncertainty.	EVT352
4500	GMTOAC claims that the Regia MSS may contribute to cetacean strandings, particularly for vulnerable species such as Pygmy Blue Whales and Southern Right Whales. They note that the EP contains only minimal discussion of this issue and appears to dismiss the risk on the	Strandings were assessed in the EP using the best available evidence, which shows only a very low risk of seismic surveys causing cetacean strandings. CGG states that GMTOAC's reliance on a single, outdated reference (Castellote & Llorens 2016) misinterprets the current science, noting that CGG's	EVT352

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	basis that no conclusive evidence links seismic surveys to strandings. GMTOAC finds this reasoning inadequate, especially given that seismic surveys can occur outside the summer period typically referenced in studies and that CGG itself originally planned to survey in September 2025. CGG cites recent assessments and NOPSEMA's 2019 Senate Inquiry submission, which found no demonstrated causal links between seismic activity and strandings. However, GMTOAC points out that NOPSEMA acknowledges military sonar, another intense anthropogenic sound source, has been linked to mass strandings, and experts caution that seismic surveys often involve additional high-power acoustic equipment that significantly expands the acoustic footprint. International research by Castellote and Llorens indicates that existing mitigation guidelines do not account for behavioural reactions that may lead to strandings, and that such risks cannot be identified without dedicated monitoring during and after surveys. GMTOAC notes that the Regia MSS EP includes no such monitoring plans. Because the possibility of a seismic link to strandings cannot be ruled out, GMTOAC argues that the precautionary principle must apply and that scientific uncertainty should not be used to justify exposing Karntubul and other cetaceans to potentially unacceptable harm.	approach is in fact consistent with the review's main conclusion that seismic operations can alter cetacean behaviour—hence CGG's adoption of updated management and mitigation protocols. CGG emphasises that GMTOAC overlooked more recent literature, including Foord et al. (2019), which documents Victorian stranding patterns and shows no baleen whale strandings in the Otway region, with regular strandings involving only dolphins. CGG maintains that its management program for pygmy blue whales and southern right whales is informed by the latest scientific guidance (e.g., Southall et al. 2021, 2023; Popper et al. 2024; Accomando et al. 2025) and asserts that it has applied a precautionary approach supported by current evidence.	
4505	GMTOAC claims that the April 2025 EP removed the earlier restriction preventing seismic surveying in waters shallower than 50 metres and replaced it with a fixed 17 km buffer around Deen Maar. Given uncertainty in bathymetry data, GMTOAC questions how CGG will reliably ensure it avoids shallow waters outside this buffer. GMTOAC further questions whether either the 17 km buffer or the former 50 m depth limit would protect Koorn Moorn during foraging, as CGG itself notes that adult females feed widely between Portland and Cape Otway out to the 200 m contour. They also highlight NOPSEMA's earlier concerns that the EP did not adequately assess behavioural impacts on the Deen Maar seal colony, including effects on foraging and prey availability. GMTOAC therefore remains	Appendix B12 shows that the Regia MSS uses a 17 km buffer, which is the minimum distance between the active source area and Deen Maar where water depths are ≥50 m, ensuring no seismic work occurs in waters shallower than 50 m. Following NOPSEMA advice, Appendix E7 was updated to assess impacts on foraging Australian Fur Seals at Deen Maar and their prey.	EVT352

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	concerned that the revised control measures do not provide sufficient protection for this culturally important species or for cultural values associated with Deen Maar.		
4512	GMTOAC claims significant concerns about CGG's definition of "acceptable levels" of impact on Blue Whales and Southern Right Whales. CGG maintains that impacts are acceptable so long as each offshore operator conducts activities in a manner consistent with relevant Conservation and Recovery Plans, ensuring whales can continue using the area without injury or displacement. However, NOPSEMA has already criticised this approach, noting that measures designed for individual projects cannot simply be assumed to prevent cumulative impacts from overlapping noise fields without a clearer understanding of combined exposure regimes. Despite this critique, CGG appears to have carried this same rationale forward from its November 2024 EP into the April 2025 version, without addressing the deficiencies identified by NOPSEMA. GMTOAC argues that this is inadequate, especially in light of current environmental pressures affecting Nyamat Mirring.	CGG notes that GMTOAC appears to have referenced an outdated version of the Environment Plan. In the current EP, acceptable impact levels for Blue Whales and Southern Right Whales are defined using each species' Recovery Plan, and these levels are assessed through rigorous, literature-supported impact assessments in Appendices E7 and F3. In response to NOPSEMA's advice, the cumulative impact assessment was updated to include the sound sources and timing of all future and reasonably foreseeable activities. This added detail ensures that any potential cumulative impacts from additive sound exposure are assessed with appropriate contextual information.	EVT352
4513	GMTOAC claims that any cumulative impact assessment must incorporate the ongoing Karenia mikimotoi harmful algal bloom, as required under the Regulations for describing the affected environment and assessing all direct and indirect risks. They point out that harmful algal blooms have been linked to increased calf mortality in Southern Right Whales elsewhere, raising concerns that species already under stress may be unable to withstand additional impacts from CGG's proposed seismic survey.	CGG clarifies that the South Australian algal bloom is caused by Karenia cristata, not K. mikimotoi as stated by GMTOAC. Although the exact cause is not confirmed, the most likely drivers are Murray River flooding with agricultural runoff, upwelling of nutrient-rich deep water, and a marine heatwave. The bloom has been largely confined to the gulfs and northern Kangaroo Island and is now significantly reduced. While harmful algal blooms are known to cause marine mammal deaths, the species responsible in past cases differ from those present in South Australia, and there is little evidence linking K. cristata to whale mortality. The event is being closely monitored, and the Regia MSS EP will be updated if necessary.	EVT352

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
Dolphins							
Bottlenose Dolphin	Species or species habitat may occur within area						None identified
Common Dolphin, Short-beaked Common Dolphin	Species or species habitat may occur within area						None identified
Dusky Dolphin	Species or species habitat likely to occur within area		Migratory	Migratory Marine Species			None identified
Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin	Species or species habitat likely to occur within area						None identified
Risso's Dolphin, Grampus	Species or species habitat may occur within area						None identified
Southern Right Whale Dolphin	Species or species habitat may occur within area						None identified
Whales							

Common Name	Presence	Threatened Category	Migratory Status	Migratory Category	Marine Status	Biologically Important Area	Management Plan Conservation Advice Listing Advice
Andrew's Beaked Whale	Species or species habitat may occur within area					None identified	None identified
Antarctic Minke Whale, Dark-shoulder Minke Whale	Species or species habitat likely to occur within area		Migratory	Migratory Marine Species		None identified	None identified
Arnoux's Beaked Whale	Species or species habitat may occur within area					None identified	None identified
Blainville's Beaked Whale, Dense-beaked Whale	Species or species habitat may occur within area					None identified	None identified
Blue Whale	Foraging, feeding or related behaviour known to occur within area	Endangered	Migratory	Migratory Marine Species		Foraging (annual high use area)	Conservation Management Plan for the Blue Whale (DoE 2015c)
Cuvier's Beaked Whale, Goose-beaked Whale	Species or species habitat may occur within area					None identified	None identified
Dwarf Sperm Whale	Species or species habitat may occur within area					None identified	None identified

Common Name	Presence	Threatened Category	Migratory Status	Migratory Category	Marine Status	Biologically Important Area	Management Plan Conservation Advice Listing Advice
False Killer Whale	Species or species habitat likely to occur within area					None identified	None identified
Fin Whale	Foraging, feeding or related behaviour known to occur within area	Vulnerable	Migratory	Migratory Marine Species		None identified	Conservation Advice *Balaenoptera physalus* Fin Whale (TSSC 2015b)
Gray's Beaked Whale, Scamperdown Whale	Species or species habitat may occur within area					None identified	None identified
Hector's Beaked Whale	Species or species habitat may occur within area					None identified	None identified
Humpback Whale	Species or species habitat known to occur within area		Migratory	Migratory Marine Species		None identified	Listing Advice *Megaptera novaeangliae* Humpback Whale (DAWE 2022a)
Killer Whale, Orca	Species or species habitat likely to occur within area		Migratory	Migratory Marine Species		None identified	None identified
Long-finned Pilot Whale	Species or species habitat may occur within area					None identified	None identified

Common Name	Presence	Threatened Category	Migratory Status	Migratory Category	Marine Status	Biologically Important Area	Management Plan Conservation Advice Listing Advice
Minke Whale	Species or species habitat may occur within area					None identified	None identified
Pygmy Right Whale	Foraging, feeding or related behaviour likely to occur within area		Migratory	Migratory Marine Species		None identified	None identified
Pygmy Sperm Whale	Species or species habitat may occur within area					None identified	None identified
Sei Whale	Foraging, feeding or related behaviour known to occur within area	Vulnerable	Migratory	Migratory Marine Species		None identified	Conservation Advice *Balaenoptera borealis* sei whale (TSSC 2015c)
Short-finned Pilot Whale	Species or species habitat may occur within area					None identified	None identified
Southern Right Whale	Breeding known to occur within area	Endangered	Migratory (as Balaena glacialis australis)	Migratory Marine Species		Reproduction Migration	Conservation Management Plan for the Southern Right Whale (CoA 2012) National Recovery Plan for the Southern Right Whale (DCCEEW 2024)
Sperm Whale	Species or species habitat may occur within area		Migratory	Migratory Marine Species		None identified	None identified

Common Name	Presence	Threatened Category	Migratory Status	Migratory Category	Marine Status	Biologically Important Area	Management Plan Conservation Advice Listing Advice
Strap-toothed Beaked Whale, Strap-toothed Whale, Layard's Beaked Whale	Breeding known to occur within area					None identified	None identified
True's Beaked Whale	Species or species habitat may occur within area					None identified	None identified
Pinnipeds							
Australian Fur-seal, Australo-African Fur-seal	Breeding known to occur within area				Listed	None identified	None identified
Australian Sea-lion, Australian Sea Lion	Species or species habitat known to occur within area	Endangered			Listed	None identified	Conservation Advice *Neophoca cinerea* Australian Sea Lion (TSSC 2020b) Recovery Plan for the Australian Sea Lion (*Neophoca cinerea*) (DSEWPaC. 2013a)
Long-nosed Fur-seal, New Zealand Fur-seal	Species or species habitat may occur within area				Listed	None identified	None identified

Annex 4

Summary of Blue Whale Monitoring Data for Otway Regions

Several whale surveys have been undertaken in the Otway Regionwith a focus on blue whales. A summary of the publicly available studies is provided in this section.

Aerial Surveys (2001-02 to 2006-07)

Gill et al. (2011) undertook 69 seasonal aerial surveys for blue whales between Cape Jaffa and Cape Otway over six seasons (2001-02 to 2006-07). This study found that the general pattern of seasonal movement of blue whales is from west to east, with whales foraging in between the Great Australian Bight and Cape Nelson in November and spreading further east in December. Whales are typically widely distributed throughout Otway shelf waters from January through to April (Gill et al. 2011) (Figure E7-4 and Figure E7-5).

Blue whale encounter rates in the central and eastern study (Cape Nelson to Cape Otway) area by month is shown in Figure E7-3 with sighting and effort data presented geographically in Figure E7-4 and Figure E7-5. Data is pooled for all seasons, for central and eastern areas, overlaid on gridded aerial survey effort (10 km x 10 km squares), represented as minutes flown per grid square (key, upper right). Thick solid lines represent 50% and 95% probability contours for blue whale distribution from density kernel analysis. Dashed lines are central and eastern boundaries (Gill et al. 2011).

There had been fewer than 50 sightings of blue whales in Bass Strait up to the year 1999, but since that time feeding blue whales have been more regularly observed in the Discovery Bay area and more generally along the Bonney coast from Robe to Cape Otway. Gill et al. (2011) found that across the eastern zone (Cape Nelson to Cape Otway), there were no blue whale sightings in November (2001-2007) despite significant effort (Figure E7-2).

Based on the pooled aerial survey data (2001-2007), encounter rates increased from 1.6 whales per 1,000 km in December, to 9.8 whales per 1,000 km in February, decreased slightly to 8.8 whales per 1,000 km in March, then declined sharply to a single sighting for May (0.4 whales per 1,000 km) (Gill et al. 2011). A mean blue whale group size of 1.3±0.6 was observed per sighting with cow-calf pairs observed in 2.5% of the sightings. Gill et al. (2011) also identified that 80% of blue whale sightings are encountered in water depths between 50 and 150 m; 93% of sightings occurred in water depths <200 m and 10% of sightings occurred within 5 km of the 200 m isobath in the eastern and central zones.

The data from Gill et al. (2011) shows:

- Blue whales are typically widely distributed throughout central and eastern areas shelf waters from January through to April.
- Blue whale numbers are significantly lower in November, December and January in the eastern area compared to the central area.
- No blue whales were sighted in the eastern area during November for any season despite significant effort. Pooled monthly encounter rates increased from 1.6 whales 1,000 km–1 in December, 5 whales 1,000 km–1 in January, peaked at 9.8 whales 1,000 km–1 in February, dropped slightly to 8.8 whales 1,000 km–1 in March, then declined sharply to a single sighting for May (0.4 whales 1,000 km–1).
- Encounter rates in central and eastern zones peaked in February, coinciding with peak upwelling intensity and primary productivity.

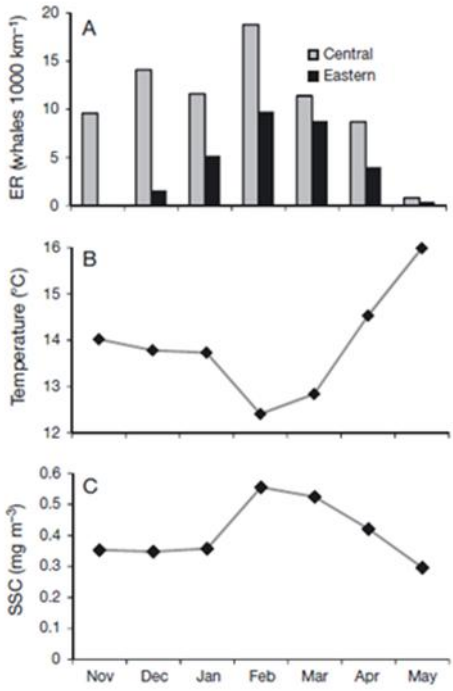


Figure E7-3 - Blue Whale Encounter Rates in the Central and Eastern Study (Cape Nelson to Cape Otway) Area by Month (Gill et al. 2011).

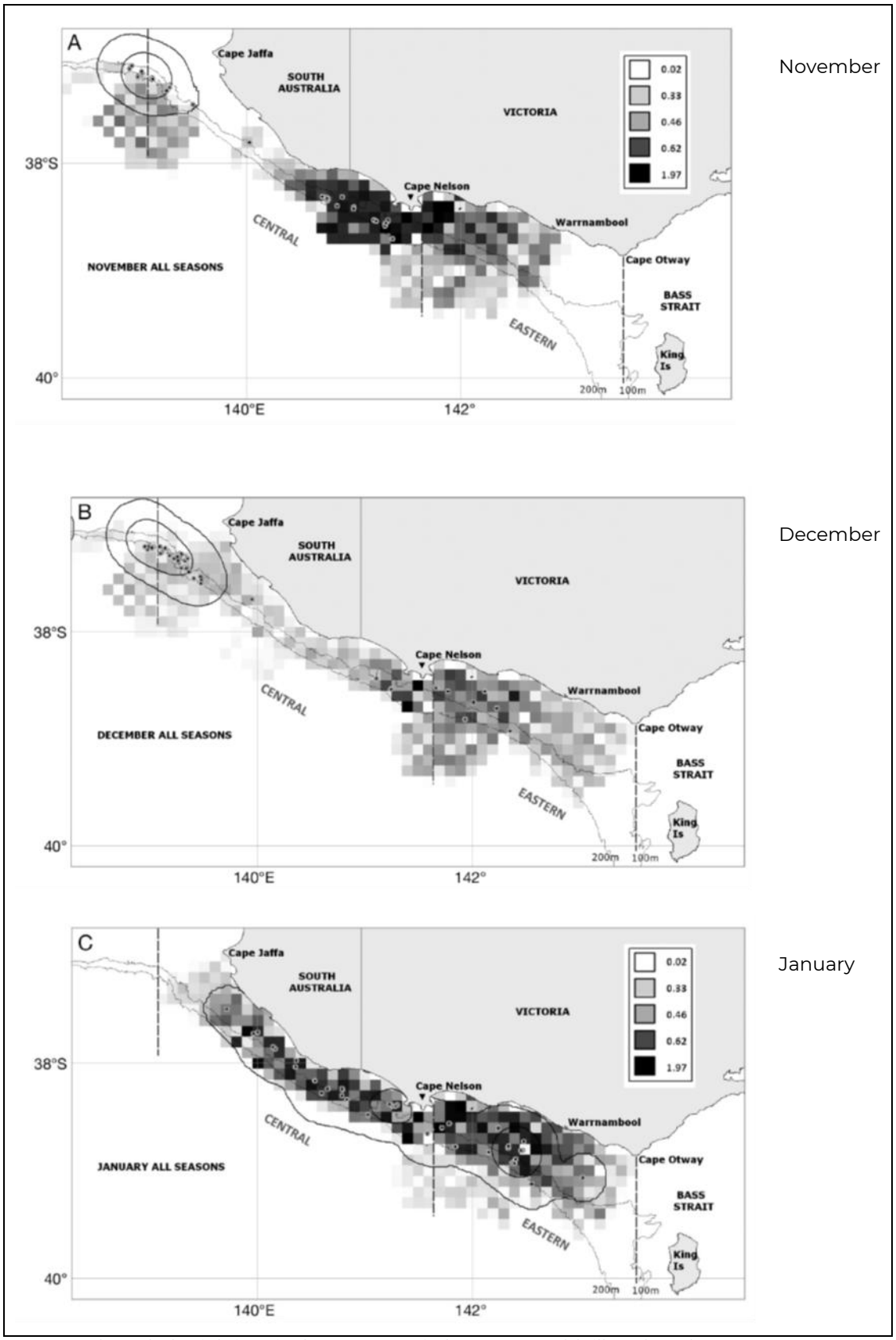


Figure E7-4 - Blue Whale Sightings in the Otway Basin (Nov, Dec, Jan) (Gill et al. 2011).

Note: Dots represent blue whale sightings while squares are aerial survey effort (10 km x 10 km squares) represented as minutes flown per grid square (key, upper right corner of the November and January figures).

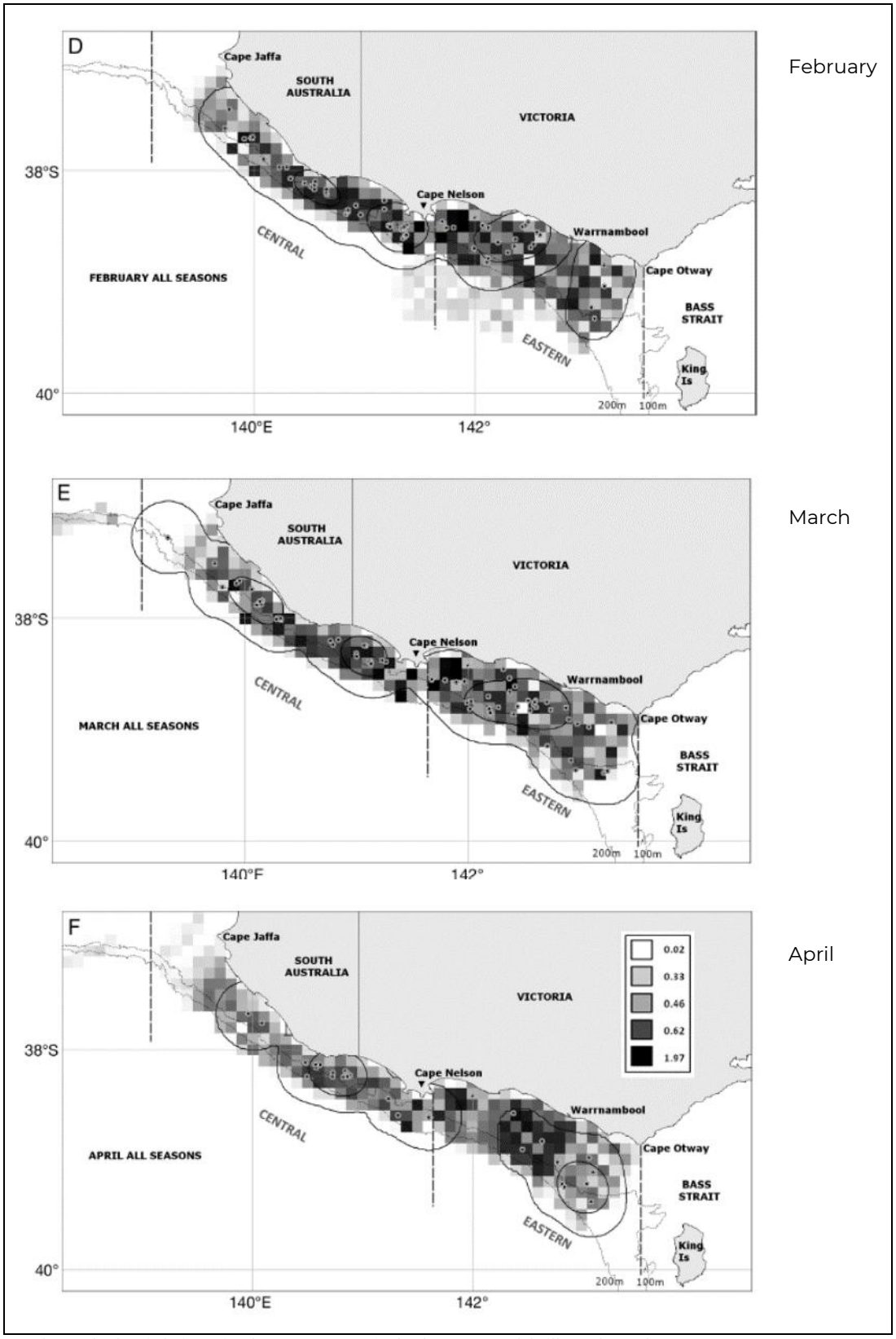


Figure E7-5 - Blue Whale Sightings in the Otway Basin (Feb, Mar, Apr) (Gill et al. 2011).

Note: Dots represent blue whale sightings while squares are aerial survey effort (10 km x 10 km squares) represented as minutes flown per grid square (key, upper right corner of the April figure).

Tagging Study (2015-2016)

Möller et al. 2020 analysis data from the tags of 13 pygmy blue whales that were tagged in the Bonney upwelling region in January 2015 with tags transmitting up to March 2016. In summary:

- Whale movements in the Great Southern Australian Coastal Upwelling System (GSACUS) ranged mostly from eastern South Australia, over the continental shelf south of Kangaroo Island, to between mainland Australia and Tasmania), with a few whales performing some movements to the continental slope and the deep-sea (Figure E7-6).
- In the GSACUS, most tagged whales remained over the continental shelf, utilising this region from at least January to July. This was the area of highest occupancy by the whales, with one whale returning to the Bonney Upwelling in January the year after and remaining there for at least three months. This timing coincides with the upwelling season, which generally occurs from November to March each year.
- A low probability of area restricted search (ARS) behaviour (i.e., high probability of transiting behaviour) was mainly observed between April and June, and then between November and December, suggesting that the pygmy blue whales were mainly migrating during those times.
- Seascape correlates of ARS behaviour for these whales suggested the importance of sea surface temperature, sea surface height anomaly, wind speed and chlorophyll a concentration as proxies of upwelling productivity and presence of krill patches.

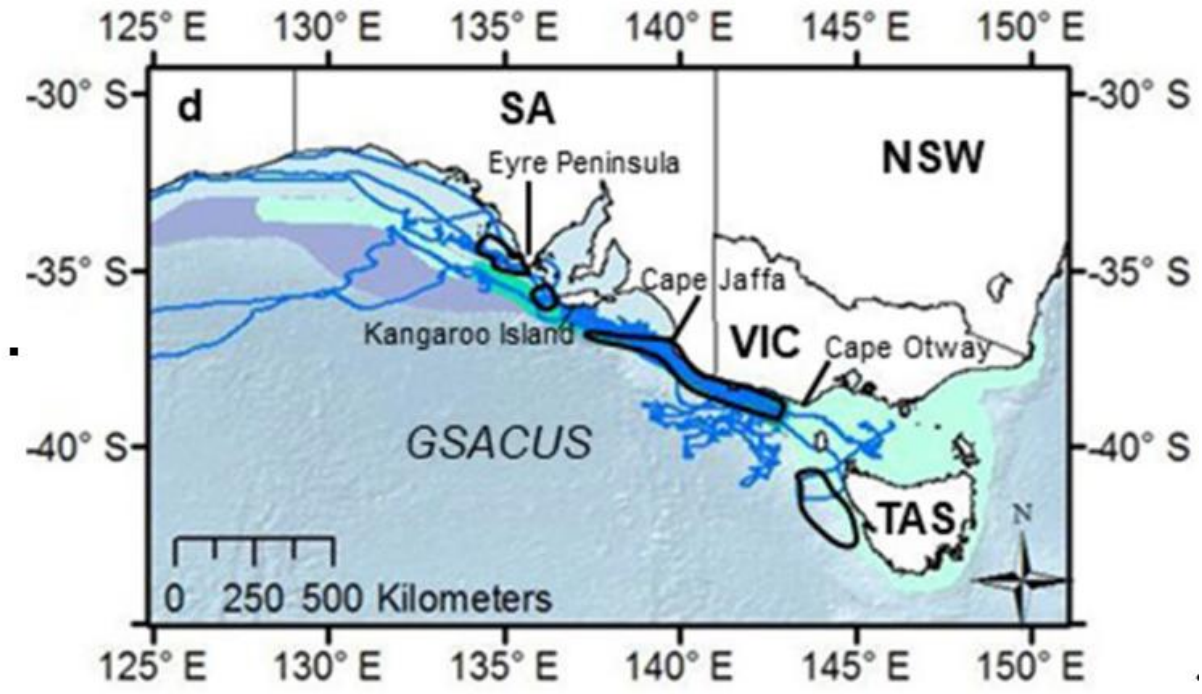


Figure E7-6 - Tracks of 13 Pygmy Blue Whales in the GSACUS (Möller et al. 2020).

Passive Acoustic Recorders (2009-2017)

Between 2009 and 2017 the Integrated Marine Observing System (IMOS) recorded underwater sound south of Portland, Victoria. McCauley et al. (2018) analysed the data from to look at blue whale presence, distribution, and population parameters.

McCauley et al. (2018) analysed data from passive acoustic recorders that were located around Australia to look at blue whale presence, distribution, and population parameters. The primary sites comprised central Bass Strait, western Tasmania, the southeast Australian coast, and the Great Australian Bight area. Each study area had multiple receivers and may have had several sites sampled within the area. Temporal sampling focussed on the southern Australian site southwest of Portland, Victoria. Data was used from 2004 to 2016. The study concluded:

- Antarctic blue whale calls were received via deep sound channel propagation south of Portland and the maximum chorus levels occurred from late February to late June with yearly increases in chorus levels. McCauley et al. (2018) suggests that acoustic detection of Antarctic blue whales indicate they predominantly occur along the entire southern coastline.
- Pygmy blue whales have three migratory stages around Australia; the "southbound migration stage" were predominantly between October to December (sometimes into January) whales travel from Indonesian waters down to the WA coast, the "southern Australian stage" where between January and June whales spread across the southern Australian waters, and the "northbound migration stage" where whales travel back up to Indonesia between April and August.
- The "southern stage" involves animals searching for feeding sites, feeding, and then marking their way north towards June.
- Along the southern Australian coastline pygmy blue whales are most frequently detected towards the east along the Bonney coast over late February to early June, utilising secondary productivity produced by a seasonal upwelling event.
- Within a season it is difficult to predict whale numbers and their specific locations, but when correlated across seasons the strength and persistence of this upwelling event as given by time integrated water temperature south of Portland, significantly correlates with time integrated number of individual whales calling from the same site.
- The Bonney coast upwelling is a strong predicator of pygmy blue whale presence at Portland where whale presence in the area is linked to prey availability.
- Sea noise data was available from the Portland site from 2009 to early 2017 detailed:
    - In 2009 and 2011 pygmy blue whales arrived in November or December whereas in the other years, calls were not detected until January or February (Figure E7-7). There was substantial variation in presence within a season, with some whales remaining in the Portland detection area until mid-June each year.
    - There was considerable variability in whale persistence and presence within a season (Figure E7-7) with no consistent trend other than a peak in presence somewhere over February to June.
- It is difficult to predict numbers within a season but when correlated across seasons the strength and persistence of the Bonney coast upwelling, given by time integrated water temperature, significantly correlates with time integrated number of individual whales calling from the same site. The upwelling index explains 83% of the variability in blue whale calling presence across seasons when using seasonal whale counts (not corrected for population growth). When a growth rate of 4.3% is applied a correlation of 90% of the variance in seasonal occurrence is predicted by the upwelling index.
- The number of pygmy blue whale calling in Portland could be expected in increase yearly with whale population growth.

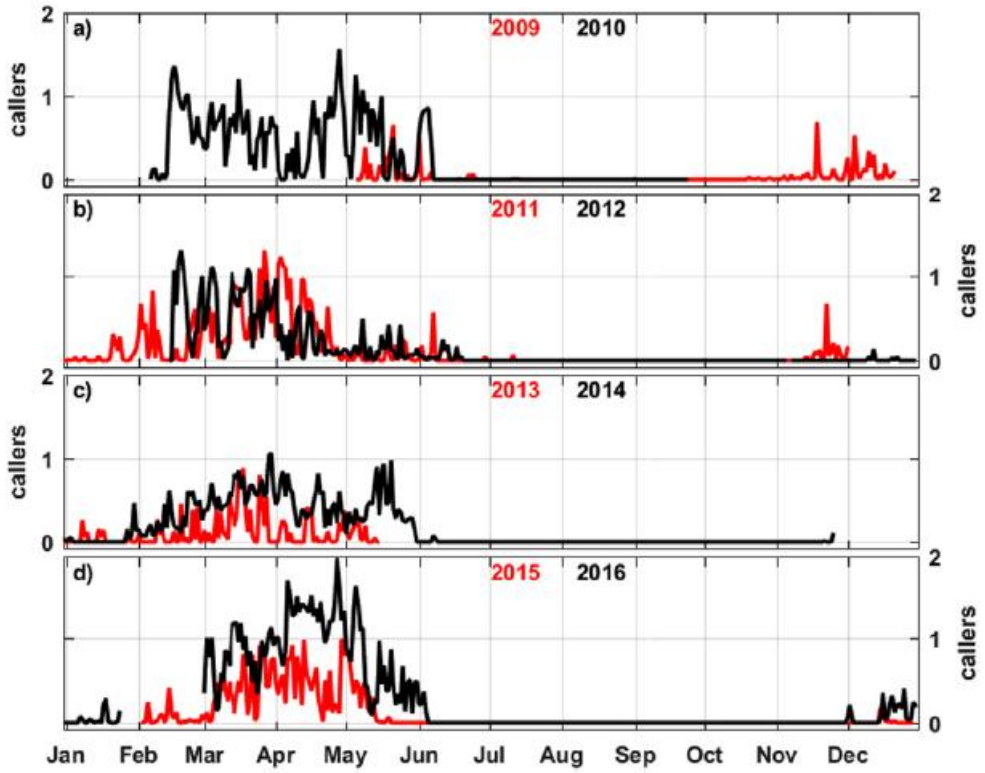


Figure E7-7 - Mean Number of Individual Pygmy Blue Whales Calling (McCauley et al. 2018).

Beach Energy Surveys 2021

Beach Energy commenced its Otway drilling program in February 2021 and engaged the Blue Whale Study to undertaken aerial surveys from February to May 2021 to identify blue whale and krill surface swarms within the Otway Development Area and outside of this area (Beach Energy 2022). A preliminary data summary provided to Beach detailed:

- Nine aerial surveys were undertaken from 25 February to 21 May 2021.
- There were 34 blue whale sightings consisting of 43 individuals.
- The highest number of blue whale sightings was on 7 April with 19 blue whales sighted.
- The first blue whale was sighted 25 February and final blue whale sighted 7 April.
- Blue whales and krill surface swarms were distributed throughout the area surveyed.

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