

DRAFT DECISION

Under

the Fast-Track Approvals Act 2024 (the *FTAA*).

In the matter of

the deliberations and draft decision of the Expert Panel appointed under section 50 and Schedule 3 of the FTAA for the Taranaki VTM application requiring:

- (a) A marine consent to extract up to approximately 50 million tonnes of seabed material per year, over 20 years, recover up to approximately 5 million tonnes of vanadium-rich titanomagnetite concentrate, return the de-ored material to the seabed, and monitor environmental recovery for up to 5 years post-extraction.

Expert Panel

Hon Kit Toogood KC
(*Chair*)

Loretta Lovell (*Member*)

Dr Hilke Giles (*Member*)

Gavin Kemble (*Member*)

Natalie Hampson (*Member*)

**Comments received under
Section 53 of the FTAA:**

6 October 2025

**Details of any hearing under
Section 57 of the FTAA:**

A legal issues hearing was held on the 26 November 2025

Record of Draft Decision of the Expert Consenting Panel under Section 87 of the Fast-Track Approvals Act 2024	
Dated 4 February 2026	
DRAFT DECISION: THE APPLICATION IS PROPOSED TO BE DECLINED	
Date of Draft Decision:	4 February 2026
Date of Issue:	4 February 2026

Draft decision

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EXECUTIVE SUMMARY

- i. Trans-Tasman Resources Ltd applied under the Fast-track Approvals Act 2024 (**FTAA**) for approvals for the Taranaki VTM project to extract and process seabed material requiring marine consents and marine discharge consents. More specifically, the project involves, in each year for 20 years, extraction of up to approximately 50 million tonnes of seabed material, recovery of up to approximately five million tonnes of vanadium-rich titanomagnetite concentrate, and the return of approximately 45 million tonnes of de-ored sediment to the seabed.¹ Monitoring of environmental recovery is proposed for up to five years post-extraction. The project is located between 22km and 36km offshore in the South Taranaki Bight (**STB**).
- ii. The project is listed in Schedule 2 of the FTAA. An expert panel was established on 25 August 2025 to determine the application. As the activity is proposed within the Exclusive Economic Zone, the relevant decision-making provisions of the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (**EEZ Act**) are applied as part of the Panel's assessment of the application under the FTAA.
- iii. Section 87(2) FTAA requires that a decision document must state the panel's decision, the reasons for the decision, a statement of the principal issues that were in contention, and the main findings of the panel on those issues. In accordance with s 87 FTAA, the principal issues that were in contention and the Panel's main findings are summarised as follows.
- iv. **The Panel's decision:** Pursuant to s 81 FTAA, and for the reasons summarised below and appearing in the substantive reasons for our decision, **the Panel declines the approvals sought** in the substantive application made by Trans-Tasman Resources Limited for marine consents to enable all activities associated with the Taranaki VTM project, listed in Schedule 2 of the FTAA.

Summary of reasons

- v. Extent of benefits: the Panel considers that the project has significant regional benefits and some national benefits. These benefits relate to diversification of the economy, royalties, tax contributions, gross domestic product contributions, employment, household income increases, establishment of a Community Trust, workforce skills development and indirect climate related benefits. The Panel finds that the project's contribution to regional gross domestic product and employment are its most significant benefits.
- vi. Sediment plume and deposited sediment scale and extent: the Panel finds that there is uncertainty as to the scale and extent of the sediment plume and deposited sediment resulting from the project, in circumstances where those matters are critical to assessing the project's effects on the environment and on existing interests. The Panel is not satisfied that conditions could control the sediment plume in a way that would avoid material harm to sensitive species and habitats.

¹ All quantities relate to the dry weight of sediments and concentrate.

- vii. Underwater noise: the Panel finds that there is uncertainty regarding the underwater noise that would be generated by the project. An assessment restricted to the integrated mining vessel and crawler as modelled sources of underwater noise does not represent a realistic worst case for total project noise, in circumstances where those matters are critical to assessing the project's effects on the environment and existing interests. The Panel is not satisfied that conditions could control noise levels to avoid material harm to sensitive species.
- viii. Effects on the environment: the Panel finds that granting the approvals would result in material harm to benthic primary productivity, and benthic ecosystems; that material harm is likely to Māui dolphins; and that there is a credible risk of material harm to other marine mammal species, kororā/little penguin and fairy prion. The Panel also finds that the geomorphological changes associated with tailings backfill (flow liquefaction and related runout) carry a risk of material harm to benthic ecosystems and that the project presents a credible risk of adverse local effects on fish distribution and habitat function. In summary:
- a. The Panel finds that material harm would occur to benthic primary production because impacts on macroalgal primary production in downstream sensitive areas are highly likely and of a magnitude that would alter rocky reef flora composition and functioning. Unquantified uncertainties in optical and primary production modelling and insufficient conditions to avoid chronic turbidity and excess deposition mean these effects cannot be reliably constrained.
 - b. *Euchone* wormfields are naturally rare ecosystems that stabilise sediment. Losing these structures would likely increase sediment mobility, resulting in resuspension of sediment into the wider environment. The Panel finds that material harm would occur to *Euchone* wormfields because of the scale predicted changes to community structure and seabed stability reduction. Recovery of these wormfields is uncertain, and there is no reliable means to remedy or mitigate these effects once they occur.
 - c. The Panel finds that material harm and, in some parts of the coastal marine area, significant adverse effects would occur on rocky reefs within two to three km of the project area and at downstream sites. This is due to the likelihood of cumulatively high sediment and light-reduction impacts on vulnerable rocky reef habitats, while key information on reef distribution, habitat characteristics, and sediment-related responses remains uncertain.
 - d. The Panel finds that material harm is likely to Māui dolphins and there is a credible risk of material harm to other marine mammals because the project would not avoid exposing animals to underwater noise levels at or above 135 dB re 1µPa within 500 m, and because of uncertainty whether conditions limiting noise exposure are sufficient to protect marine mammals from material harm.
 - e. The Panel finds there is a credible risk of material harm to kororā/little penguin and fairy prions, and potentially other seabirds using the STB, because foraging success and colony productivity may be adversely affected by changes in prey availability, visibility, and artificial lighting. There is substantial uncertainty in

population-level information, at-sea use, and the ability of the proposed monitoring and conditions to detect and manage these effects.

- f. The Panel finds there is a credible risk of adverse local effects on fish distribution and habitat function, particularly at sensitive reef and nursery habitats and for benthic feeders that have high site fidelity to area affected by the suspended sediment plume. The project also presents a credible risk of adverse effects on fish distribution from underwater noise through avoidance and redistribution. The magnitude, duration, and spatial extent of such effects remain uncertain.
 - g. The Panel finds that material harm to benthic habitats is likely from the fate of tailings backfill (the de-ored sediment) after it is returned to the seabed. The risk of flow liquefaction and runout from loose tailings, including effects on biogenic shell and bryozoan rubble habitats offshore beyond ~45–50 m, is materially uncertain. This cannot be reduced to a non-material level through conditions, given key information gaps on tailings behaviour and the uncontrollable nature of triggering storm or seismic events.
- ix. Effects on natural character: The project would affect the level of natural character within the project area and in parts of the coastal marine area, including some of the identified areas of outstanding natural character. A notable impact on the existing level of natural character occurs as a consequence of what would be a notable adverse visual amenity effect on water clarity, particularly at locations for recreation and which are deemed to be ecologically and culturally important. The geomorphological impacts of the project, with changes to seabed morphology from pits and mounds, and ongoing movement of sediment possible through liquefaction would be notable and adverse and is projected to persist for decades to centuries. The consequence of such effects is a notable reduction in the natural character of the project area and beyond for at least the period of the mining, and in some respects (such as geomorphology and suspended sediments) well beyond the period of proposed mining. The Panel finds that the project would significantly affect the level of natural character within the project area and in parts of the coastal marine area.
- x. Effects on existing interests: The Panel's finding on existing interests are these:
 - a. Tikanga-based relationships with the moana and its resources would be adversely affected by the project, including effects on mauri, disruption of customary supply systems, and constraints on the practical exercise of kaitiakitanga. There would be constraints on the ability to implement tikanga led management responses such as rāhui and the protection of taonga species.
 - b. Māori commercial and customary fishing existing interests would be adversely affected by localised displacement, operational exclusion, and loss of practical access and certainty arising from project activities (including the mining, sediment plume and underwater noise footprints). The Panel does not accept that these fishing activities could be readily transferred to alternative locations without loss of value or practical function.
 - c. The project would adversely affect commercial fishing interests through localised exclusion, displacement of fishing effort, increased operating costs

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and risk, and uncertainty that would materially alter fishing behaviour and market participation.

- d. There would be effects on recreational use of the STB, particularly recreational diving where key dive sites would be significantly adversely affected by reduced water clarity for much longer periods than currently occurs.
- e. The risks to the Kupe Well Head Platform from potential collision by project vessels could be managed through conditions and the existing safety exclusion zones applied by applicable regulations. However, the Panel has concerns regarding the long-term instability of mining tailings and the uncertainty this creates for potential effects on Kupe infrastructure.
- f. Impacts on aquaculture interests could be effectively managed through a combination of compliance with other relevant marine management regimes and conditions.
- g. Impacts on navigation and maritime safety could be effectively managed through a combination of compliance with other relevant marine management regimes and conditions.
- xi. The importance of protecting the biological diversity and integrity of marine species, ecosystems, and processes: the Panel finds that granting the approvals would be inconsistent with such protection.
- xii. The importance of protecting rare and vulnerable ecosystems and the habitats of threatened species: the Panel finds that granting the approvals would not protect vulnerable ecosystems and threatened species' habitats.
- xiii. The nature and effect of other marine management regimes: the Panel finds that the project is inconsistent with the nature and effect of the Resource Management Act 1991, the New Zealand Coastal Policy Statement, the Fisheries Act 1996 and the Hector's and Māui Dolphin Threat Management Plan.
- xiv. Best available information: the EEZ Act requires decisions to be based on the best available information but the Panel finds that, for certain key matters, the information before it does not meet that standard.
- xv. Uncertainty or inadequacy in the information available: The EEZ Act requires the Panel to take into account any uncertainty or inadequacy of the information before it and, where there is uncertainty or inadequacy, to favour caution and environmental protection. The Panel finds that the information available on key matters including sediment plume, noise generation, benthic habitat impact and recovery, and associated effects is uncertain or inadequate. That uncertainty is critical not only to the assessment of biophysical effects, but also to the Panel's ability to assess effects on existing interests, including Māori cultural interests and Treaty settlement interests that are place-based and dependent on the integrity of the receiving environment.
- xvi. For the marine consent, the Panel has considered whether an adaptive management approach could address those uncertainties, as required by s 61(3) EEZ Act. We are not satisfied that adaptive management would be effective in this case.

- xvii. While the application of s 61 EEZ Act informs the Panel's assessment of effects and risk, the Panel has not treated uncertainty or inadequacy of information as a separate or standalone ground for decline, but as a consideration that reinforces its conclusions under the FTAA.
- xviii. Weighting of those matters under cl 6 of Sch 10 FTAA: In determining the matters under clause 6 of Sch 10 of the FTAA that we are required to take into account, the Panel has given the greatest weight to the purpose of the Act, which is to facilitate the delivery of infrastructure and development projects with significant regional or national benefits.
- xix. One of the purposes of the EEZ Act, in areas such as the STB, is "to protect the environment from pollution by regulating or prohibiting the discharge of harmful substances".² In all cases, the Panel has considered whether consent conditions could address the issues raised. The Panel finds that any suite of consent conditions would be insufficient to achieve the purpose of the EEZ Act.
- xx. The Panel finds that the adverse impacts of the project are sufficiently significant to be out of proportion to its regional and national benefits, even after taking into account the potential use of conditions. **In the exercise of our discretion under s 85(3) FTAA, we consider the application should be declined.**
- xxi. Obligation to act in a manner that is consistent with the obligations arising under existing Treaty settlements: The Panel is required by s 7 FTAA to act in a manner that is consistent with the obligations arising under existing Treaty settlements. We find that Taranaki and Whanganui iwi own and utilise settlement fisheries quota and annual catch entitlements under the Māori Fisheries Act 2004 and exercise customary fishing through the Fisheries (Kaimoana Customary Fishing) Regulations 1998 in the project area and adjacent waters, and that Ngāti Ruanui, Ngāruahine, Ngā Rauru Kītahi, and Taranaki iwi have individual iwi Treaty settlements. The Panel finds that granting the approvals before it would be inconsistent with the practical operation of those settlement obligations and would breach s 7 FTAA. **Approval of the project application must be declined, therefore, under s 85(1)(b) of the FTAA.**
- xxii. **Acting pursuant to s 81(1)(b) FTAA, therefore, the Panel declines the approvals sought in the application.** This is a draft of the Panel's decision in accordance with s 69 of the FTAA.

² EEZ Act, s 10(1)(b).

PART I INTRODUCTION AND APPLICATION

1 Introduction

1.1 Application

1. Parliament has established the legislative framework of the Fast-Track Approvals Act 2024 (**FTAA**) for streamlined decision making process “to facilitate the delivery of infrastructure and development projects with significant national or regional benefits”.³ The FTAA was aimed at establishing a permanent fast-track regime that would make it easier and quicker to gain approvals, being a ‘one-stop-shop’ approach to get the approvals usually required for large and complex projects.
2. The Taranaki VTM project (**project**) is a listed project in Schedule 2 of the FTAA. Schedule 2 describes the project as:

Extract up to approximately 50 million tonnes of seabed material per year, over 20 years, recover up to approximately 5 million tonnes of vanadium-rich titanomagnetite concentrate, return the de-ored material to the seabed, and monitor environmental recovery for up to 5 years post-extraction
3. The Panel is satisfied that the substantive application is for the project described in Schedule 2.
4. The location of the project is described as:

65.76 square kilometres located between 22 kilometres and 36 kilometres from the coastline of South Taranaki
5. Trans-Tasman Resources Limited (**TTRL**) is the authorised person for the project for the purposes of s 42 of the FTAA (**the applicant**). TTRL is a New Zealand company, wholly owned by Australian firm Manuka Resources.

History of the application

6. This is not the first application for the project, with the initial application being made in November 2013 under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (**EEZ Act**). Approval was declined. Later, there was a further application that was granted in 2017. This decision was challenged to the High Court, Court of Appeal and ultimately the Supreme Court. The Supreme Court found errors of law in the Decision Making Committee’s decision and referred the matter back to the Environmental Protection Authority (**EPA**) for reconsideration in light of the Supreme Court’s judgment.⁴ In 2023 a new Decision Making Committee was formed to reconsider the application, but TTRL withdrew this application due to the imminent introduction of the FTAA.

³ Fast-Track Approvals Act 2024, section 3.

⁴ *Trans-Tasman Resources Ltd v Taranaki-Whanganui Conservation Board* [2021] NZSC 127 at [12]

7. Accordingly, there is a significant body of material generated through those earlier application processes. This application lodged under the FTAA relies heavily on the material that was prepared for the 2016 application, with some updates.
8. While the previous decisions are not binding on this Panel, the Supreme Court's reasoning and findings are relevant to the interpretation and application of the EEZ Act. This is discussed further in section 3 of this decision.

1.2 Appointment and role of the Panel

9. The Panel was appointed by the Panel Convener⁵ and comprises:
 - a. Hon Kit Toogood KC (chair);
 - b. Loretta Lovell (local authority nominee);
 - c. Dr Hilke Giles (marine science);
 - d. Gavin Kemble (planning); and
 - e. Natalie Hampson (economics).
10. On 15 August 2025, the Panel Convener issued a Minute setting out the timing for a decision on the application being 100 working days following the receipt of invited comments. Given the significance of the application and its lengthy history, the Panel received extensive input, including 55 responses to the request for comment; an immense volume of information for the Panel to consider under severe time constraints.
11. The relevant parts of the EEZ Act are brought into the Panel's assessment, with decision-making criteria drawn from the EEZ Act. The application is for marine consents that would otherwise be applied for under the EEZ Act. As set out in s 42(4) of the FTAA, a substantive application may seek one or more approvals under various acts, and subsection (k) includes a marine consent that would otherwise be applied for under the EEZ Act.
12. The Panel's role is to decide whether to grant the approvals and set any conditions to be imposed on the approvals; or decline the approvals.⁶ In doing so, the Panel:
 - a. must consider the substantive application and any advice, report, comment, or other information received by the panel under ss 51, 52, 53, 55, 58, 67, 68, 69, 70, 72, or 90;
 - b. must apply the applicable clauses for the approval type, which for this substantive application means clauses 6 and 7 of Sch 10;⁷

⁵ Minute of the Panel Convener dated 12 August 2025 at [7].

⁶ Section 81(1) FTAA

⁷ Section 81(3)(l) FTAA

- c. must comply with s 82, if applicable;
 - d. must comply with s 83 in setting conditions;
 - e. may impose conditions under s 84; and
 - f. may decline the approval only in accordance with s 85.
13. Clauses 6 and 7 of Sch 10 of the FTAA set out the criteria for the assessment of applications for marine consent and conditions, with direct references to sections of the EEZ Act. Clause 6(1)(a) requires the greatest weight to be given to the purpose of the FTAA.
14. In practical terms, this means that the Panel has started by considering the project's benefits, then undertaken its analysis under the relevant EEZ Act provisions. The Panel then weighs its findings from that analysis in the manner directed by clause 6 Sch 10 FTAA.

1.3 Structure of the decision

15. The decision has been structured into eight parts:
- Part I: Introduction and application
 - Part II: Legislative framework
 - Part III: Benefits
 - Part IV: Description of the environment
 - Part V: Evaluation of effects
 - Part VI: Other considerations relevant to the decision-making criteria
 - Part VII: Conditions
 - Part VIII: Assessment of relevant factors and decision
16. Given the technical nature of the application and process, some terms and documents have been abbreviated in the body of this decision, for ease. In each instance the full name is detailed upon its first occurrence, followed by the abbreviation in brackets. However, for the sake of clarity, a full list of acronyms is also provided as Appendix A to this decision. Appendix B contains a glossary of Te Reo Māori terms used throughout the decision.
17. Appendix C to this decision sets out the procedural history of the substantive application and our decision making process. Appendix D provides a summary of s 53 comments received. Appendix E summarises requests for information issued by

the Panel. Appendix F provides a summary of iwi evidence. Appendix G contains a table comparing impacts and benefits.

Involvement of others

18. Given the significance of the project and its lengthy history, the Panel recognises and appreciates the substantial and on-going engagement of TTRL, iwi, local authorities, environmental groups, businesses with interests in the area, and the wider community. This was evidenced by the willing responses to requests for further information, the Hāwera conference, the legal issues hearing, expert conferencing and the 55 responses to the request for comment.⁸

2 Description of the activity

2.1 Value of the natural resource

19. The seabed of the STB contains the minerals vanadium and titanium, also known as a vanadiferous titanomagnetite (**VTM**) resource, which the project proposes to extract. Based on exploratory drilling, TTRL estimates the amount of VTM in the STB to be 3.2 billion tonnes. This would make the vanadium component one of the largest known and reported deposits of its kind in the world. TTRL holds a mining permit (MMP55581) for iron sand extraction and processing, but marine consents (the subject of this application) are required before any mining activity can begin.
20. Iron ore is used to produce steel and steel alloys. TTRL states that magnetite ore like the VTM resource are playing a role in the push toward lower-emissions steel production, unlike traditional processes using hematite ores. TTRL states that magnetite ore requires less energy to reduce in a direct reduced iron setup, especially when paired with hydrogen as the reducing agent. This would reduce carbon emissions and, according to TTRL, also makes magnetite a preferred feedstock for emerging low-carbon steel technologies. The Panel records these statements as part of the application's rationale but does not make findings in this section on market demand, technology uptake, or the commercial viability of 'green steel' pathways.
21. Vanadium is required to strengthen steel, is a key component for utility-scale battery storage and is used for renewable energy storage systems. TTRL state that global demand for vanadium exceeds supply. Titanium is a vital component of clean energy technologies, aerospace, aircraft, electronics, paints, paper, medical instruments and implants and is used in a wide range of industrial applications. The vanadium and titanium co-products in the VTM resource would require further processing to be extracted from the iron ore concentrate.
22. TTRL has already conducted small scale laboratory tests which it considers confirm the ability to extract the vanadium co-product (albeit with waste by-products and harmful emissions that would need to be addressed). TTRL indicates that, as part

⁸ Section 53 of the FTAA.

of the project, it proposes to build a scaled-up pilot plant to further refine the vanadium extraction capabilities. TTRL states that any processing to recover vanadium (and/or titanium) at an industrial scale would occur outside New Zealand. None of the iron ore concentrate extracted by TTRL in the STB will be brought ashore.

23. TTRL states that exporting iron ore concentrates from the STB has a freight advantage over other iron ore suppliers such as those in West Africa, Brazil and Australia (the latter two being the two main iron ore exporters currently and West Africa being an existing but expanding exporter). This is because the STB is relatively closer to China, which continues to make up half of the global demand for iron ore. According to TTRL's Pre-Feasibility Study, these relatively lower shipping costs further contribute to the commercial viability of the proposed mining operation.
24. MBIE⁹ released A Critical Minerals List for New Zealand in early 2025. Vanadium and titanium are both included in the list, although VTM iron ore is not. Vanadium and titanium are also included in critical minerals lists for Australia, the United States of America, Canada, the United Kingdom, the European Union and China, highlighting their global economic importance and shared concerns on supply risk. According to TTRL, the project will place New Zealand as a significant global producer, and potentially the third-largest vanadium producer in the world (and the largest in the western world). TTRL states that the project's output of iron ore concentrate will be of significant interest to a number of steel mills in a range of geographic locations including Asia. The Panel notes that not all commenters agreed with TTRL's assumptions and optimism on the demand and marketability of the STB VTM resource.¹⁰

2.2 Description of the project

Site and surrounding environment

25. The activity is proposed within an area of approximately 65.76 km² within the South Taranaki Bight (**STB**), located between 22 and 36 km offshore in the Economic Exclusion Zone (**EEZ**) (beyond the 12 nautical miles from the New Zealand coastline) (**project area**). Water depths in the area are between 20 and 50 m deep. The applicant has defined the project area to provide sufficient space for all project related operations including extraction, re-deposition, anchor handling, and grade control drilling. The portion of the project area where extraction will take place is approximately 44 km². The project area falls within TTRL's mining permit MMP55581.

⁹ Ministry for Business, Innovation and Employment.

¹⁰ This includes Whanganui District Council and Kiwis Against Seabed Mining Incorporated and Greenpeace Aotearoa Incorporated.

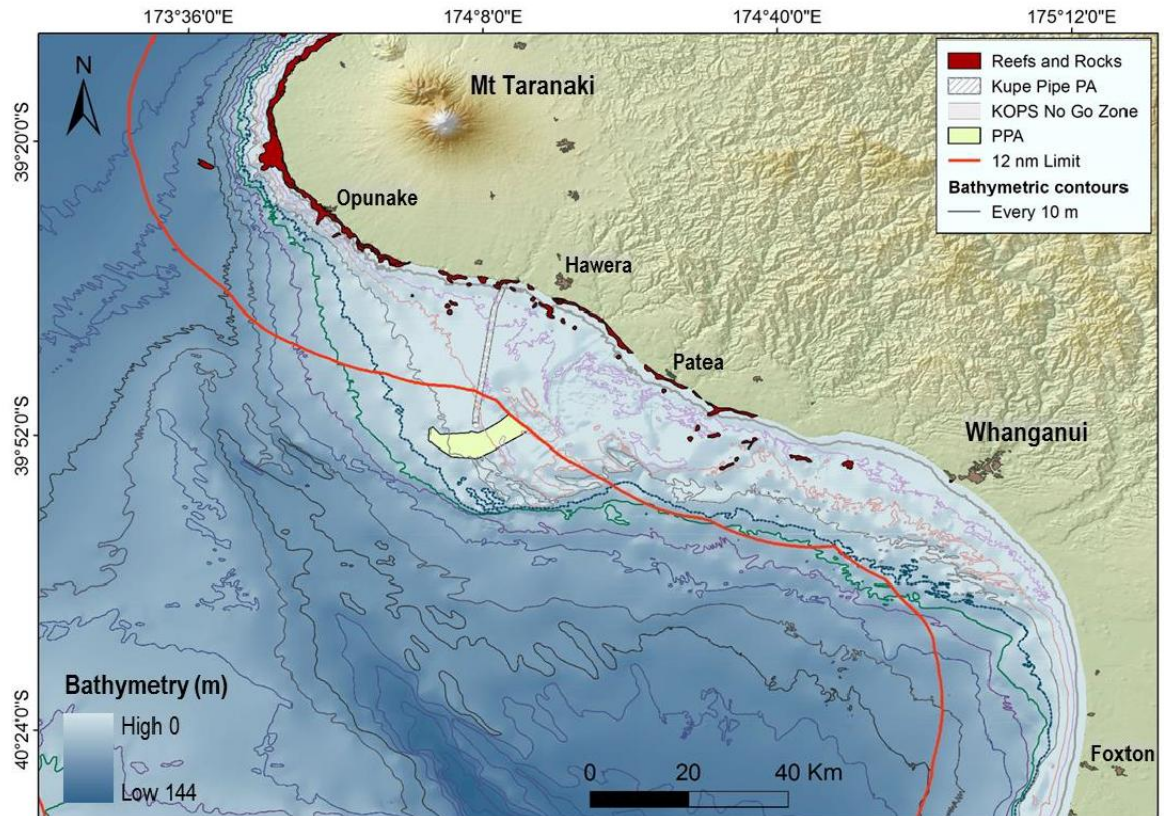


Figure 1: Location of the proposed project area (source: *Taranaki VTM Project Application*, April 2025)

Mining Activity

26. Grade control drilling will precede the mining activities. It involves seabed sampling at 100 m spacing within a defined grid (or on an as-required basis) to further define the extent and depth of the extraction area as well as further characterisation of the sediments prior to extraction occurring. A reverse circulation drilling rig (approximately 11.4 m in height) will be periodically lowered to the seabed and will collect representative samples at 1 m vertical intervals to a depth of 11 m. The volume of sediment removed in each grade control drilling sample will be no more than approximately 0.086 m³. The drilling rig will be launched and retrieved from a geotechnical support vessel that will be anchored to the seabed via two anchors. The geotechnical support vessel has berths for up to five crew and TTRL anticipate it will be based at Whanganui Port.
27. TTRL proposes to extract seabed and subsoil material to a maximum excavation depth of 11 m below the existing seabed, with an average excavation depth of about 5 m. Sediment extraction will be undertaken using a remote controlled subsea 'crawler' tethered to the integrated mining vessel (IMV) which will mobilise the sediment using seawater jets and then pump the sediment (as a slurry) to the IMV which follows the crawler along lanes in a planned grid pattern (illustrated in Figure 2). There will be two subsea crawlers, but only one deployed at a time to allow

onboard maintenance of the other subsea crawler to support continuous operation. Each grid area of seabed will only be disturbed once during the mining activities.

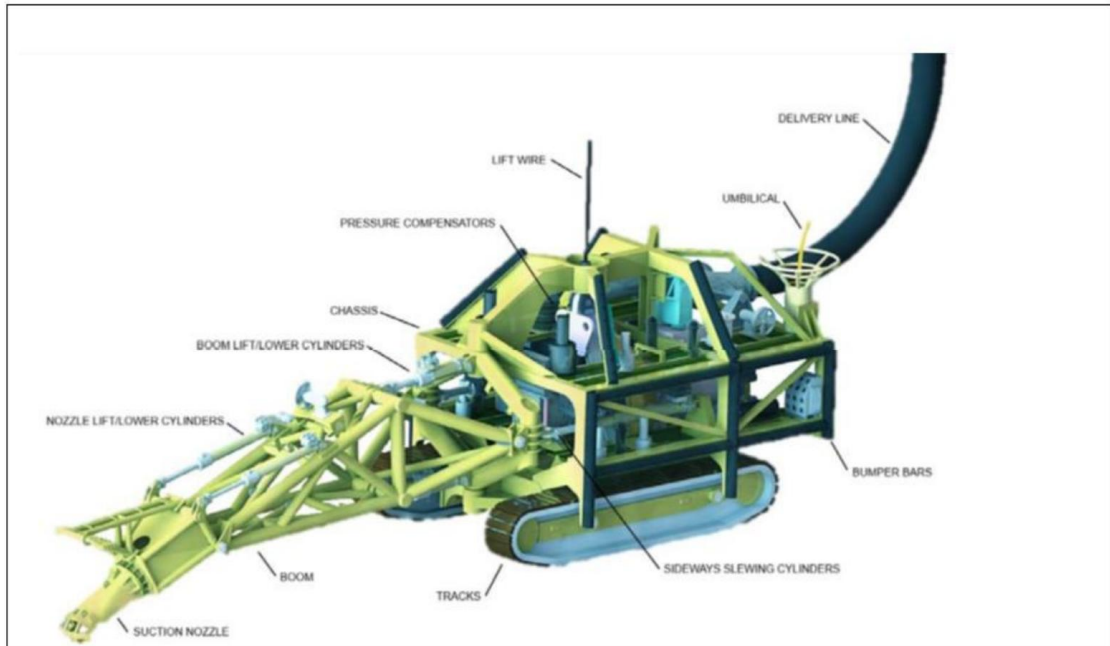


Figure 2: Example of seabed crawler configuration (Source: Application dated 15 April 2025, Figure 2.2)

28. The IMV, which will have an overall length of 345 m and a draught of 12 m, will periodically be repositioned and this will involve moving its anchors. A dedicated 80 tonne bollard pull anchor handling vessel, anticipated by TTRL to be based at Port Taranaki, will assist with the relocation and placement of the anchors and mooring lines for the IMV. It will also provide refuelling assistance, provision the project's offshore vessels, and be equipped to assist in the case of any fuel spills or a fire.
29. Sediment will be processed on the IMV through separation of iron ore using gravity, milling (comminution), and magnetic separation processes. No chemicals or toxins are used in the processing of the sediment. Up to 50 Mt (dry basis) of seabed material per year will be extracted from the seabed for processing, of which around 10% will be iron ore concentrate retained for export (i.e. up to 5 Mt on a rolling 12-month average). The remaining 45 Mt of de-ored sediment will be returned as a slurry to the seabed where (with some exceptions) it was recently extracted from via a controlled tailings deposition pipe located near the bow of the IMV at a depth of approximately four metres above the seabed (as illustrated in Figure 3).

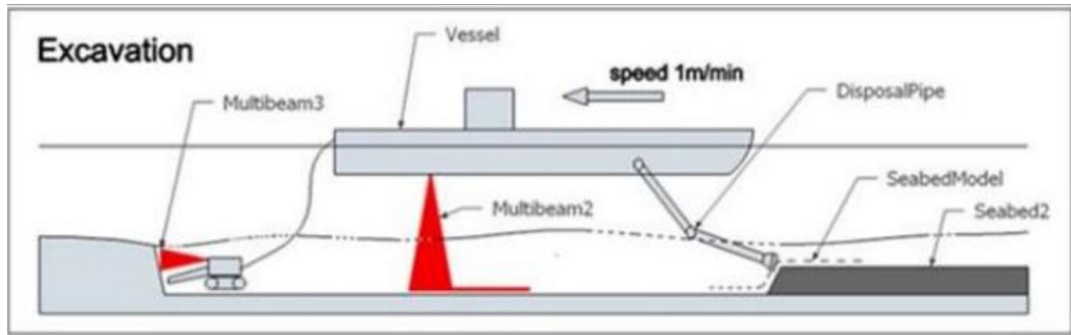


Figure 3: Diagram of proposed extraction and discharge activity showing crawler and IMV (Source: Application dated 15 April 2025, Figure 2.8, page 28)

30. Residual pits and mounds will occur at the ends of the lanes in which iron sand extraction and deposition occurs. The proposed conditions limit the height of any mounds to 4 m above the level of the original seabed (with a maximum variation of 1 m due to recording accuracy) and the depth of any pits to 10 m maximum depth and 5 m average depth below the pre-mined seabed level.
31. The processed iron ore concentrate will be transferred from the IMV to a 230 m floating storage and offloading vessel (**FSO**) via a floating slurry line (using desalinated seawater produced onboard the IMV using a reverse osmosis system as a transport medium). The iron ore concentrate, having been rinsed with the desalinated transport water, will then be dewatered on the FSO using hyperbaric disc filtration. The clean re-salinated water from the filter system would be discharged into the sea via an outfall pipe located one m below the water surface near the bow of the FSO.
32. The FSO has a capacity of 60,000 tonne of dry iron ore concentrate. When full, it will periodically transfer the iron ore concentrate to a bulk carrier export vessel (referred to as a Cape-sized export vessel (**CEV**)) via belt conveyors. This transfer will take place at least two kilometres from the IMV, and likely to be located southwest of the project area. Each FSO return trip to the CEV will take just over three days. The export vessel will remain anchored while the FSO makes three return trips (over nine days), after which it will depart to an offshore port (not specified in the application) for unloading before returning to the STB. If travelling to a port in China, the indicative return trip for the export vessel will be around 47 days (inclusive of the 9-10 days of FSO loading).
33. All maintenance of the project vessels (including hull cleaning) is proposed to be undertaken in the project area. These project vessels are not intended to come into port, but in severe weather conditions, mining will cease, and if necessary, project vessels will seek shelter in Admiralty Bay in the Marlborough Sounds under controlled conditions. While mining activity is described as a continuous operation, some downtime for weather, mechanical or maintenance reasons is anticipated. Annual downtime is estimated at 28% spread throughout the year.

Ancillary Activities

34. The project will involve, and be dependent on, a number of ancillary activities described in the application. The Panel has focused on the activities for which consent is sought (discussed below) and therefore does not address consents that may be required for ancillary activities, although the activities themselves have been relevant to our consideration.

Head office

35. TTRL states that it intends to establish its head office in New Plymouth subject to business decisions and staff availability. The head office is indicated as supporting 35 professional staff in corporate management, human resources, health and safety, ore marketing, metallurgy, geosciences, recruitment, accounting and project administration.

Pilot plant for vanadium recovery testing

36. This is signalled in the application although it is not clear where this will be located and its duration of operation. However, the Panel notes that the indicative cost for the pilot plant stated in the Metallurgical Report is similar to a capital expenditure cost attributed to the local area (being the combined South Taranaki District and Whanganui District). It is stated as being suitable within a standard industrial warehouse type building.

Hāwera training and helicopter logistics facility

37. TTRL states that it will establish a training facility in Hāwera along with a helicopter logistics base for personnel and supplies transfers to the offshore vessels (i.e. the IMV and FSO). Initially, the training facility is intended, by TTRL, to support the start-up phase of operations, focusing on the recruitment, induction, and upskilling of personnel required for the project's commencement. After mining commences, TTRL intends the facility to provide ongoing training and workforce development, providing specialised courses and certifications for the offshore and extractive industries, supporting both operational readiness and sustained workforce capability in the region.

Helicopter transport services

38. TTRL indicates that a total of 173 crew will be required on the IMV and FSO – split into two shifts. Crew will be transferred to and from the project vessels by a third-party helicopter service company. The application states that the project will be serviced by helicopters operating out of Whanganui, Hāwera and / or New Plymouth. The Pre-Feasibility Study mentions the major helicopter port at New Plymouth that already services offshore installations. That report makes no mention of existing services at Whanganui. As noted above, a base will be created in Hāwera for helicopters to come and go from.

Geotechnical and marine monitoring base

39. In addition to providing a berth for the geotechnical support vessel, Whanganui Port has been identified as a potential operational base for the geotechnical and environmental monitoring support services. TTRL states that this would require targeted upgrades at the port, including improved berthing and mooring facilities, expanded laydown and staging areas for specialised marine equipment, and the installation of new utilities and support infrastructure to service vessels and crews. The Panel understands that the potential for these upgrades has yet to be discussed or confirmed with Port owners.¹¹

Environmental monitoring

40. While TTRL has been using a vessel for environmental research to date, the application indicates that future environmental monitoring (subject to consent approval) will be carried out using the geotechnical support vessel (i.e. it will be a multipurpose vessel). TTRL propose to carry out a range of environmental monitoring during the pre-commencement stage, during mining operations, and post mining operations. This will occur in the coastal marine area and in the EEZ. Activities associated with the environmental monitoring will involve (but may not be limited to):
- a. the placement, mooring (with anchor blocks or ground lines) and removal of monitoring equipment on the seabed. These monitoring sites will have surface buoys and will be illuminated at night;
 - b. benthic grab sampling at 19 sites, with three additional sites added after each year of extraction;
 - c. water column sampling (monthly, increasing to fortnightly);
 - d. acoustic surveys around the mining operation vessels;
 - e. zooplankton sampling, epibenthic surveys using drop and video tows above the seabed;
 - f. bathymetry surveys and wave and current instrument analysis; and
 - g. diver surveys.

Sewage and waste servicing

41. Sewage and waste created on board the IMV and FSO, including all chemicals used in the operation of the reverse osmosis (desalination) plant on the IMV, will be transferred onshore for disposal by approved operators. The application does not specify the receiving port or disposal methods for these wastes.

¹¹ S 53 comments by the Whanganui Port Limited Partnership.

Fuel bunkering

42. The IMV and FSO will run on intermediate fuel oil 380 imported from Singapore to Port Taranaki. The IMV will also require diesel at certain times of operation. TTRL estimates that the IMV will consume up to 7,500 tonnes of intermediate fuel oil 380 per month (and have a storage capacity of 35,000 tonnes). The FSO will consume up to an estimated 1,500 tonnes of intermediate fuel oil 380 per month (and have a storage capacity of 20,000 tonnes). The delivery of fuel to the IMV and FSO (aka the bunkering service) will be contracted to a third party operator based at Port Taranaki who will carry out ship to ship transfer within the project area.

Port Taranaki

43. TTRL expects Port Taranaki to be the base of the anchor-handling vessel, the project's port support activities (including vessel calls and logistics) and (we assume) potentially waste/sewage service providers. The Port Taranaki Port Guide records operational requirements for vessels using the port, including pre-arrival reporting and communications (via New Plymouth Harbour Radio/VHF), pilotage/pilotage exemption arrangements, and under-keel clearance and weather/swell constraints that can affect port access.¹² Any project vessels using Port Taranaki will be subject to the Port's operational requirements.
44. TTRL considers that as a result of these planned ancillary services, a review of the berthing facilities, fuel and supply handling systems, maintenance and storage areas, and coordination hubs to support the project's marine logistics will be required. However, beyond those high-level references, the material before us does not confirm the scope, timing, funding, consenting requirements, or deliverability of any such upgrades.

2.3 Consents sought

The application

45. Approvals are being sought for the two types of consents required by the EEZ Act. 35-year terms are sought for both types of consent.
46. The marine consent relates to activities that will disturb the bed of the EEZ and continental shelf. The applicant considers that in the absence of regulations which permit the activities as of right (the Panel was advised that no such regulations exist) its application is to be assessed as a discretionary activity under section 36(1)(c) of the EEZ Act, which means that it may be granted or declined, and if granted, approved subject to conditions.¹³ Table 1 sets out those aspects of the project that require a marine consent.

¹² Port Taranaki Port Guide ss 2.1.3 (weather), 2.1.2 (Under Keel Clearance), 3.1.1 (Pre-arrival reporting), 3.3 (Pilotage), 8.1.1 (fuel)

¹³ Application, section 4.1 and 4.11.

DRAFT DECISION

Section of the EEZ Act	Activity for which Marine Consent is Required	Project Element
s20(2)(a)	The construction, placement, alteration, extension, removal, or demolition of a structure on or under the seabed.	The placement, movement and removal of the IMV anchor, including the anchor spread, on the seabed. The placement, movement and removal of the SBC on the seabed. The placement, movement and removal of the grade control drilling equipment on the seabed. The placement, movement and retrieval of moored environmental monitoring equipment on the seabed.
s20(2)(d)	The removal of non-living natural material from seabed or subsoil.	The removal of sediment from the seabed and subsoil using the SBC and by grade control drilling. The taking of sediment and benthic grab samples from the seabed and subsoil associated with environmental monitoring
s20(2)(e)	The disturbance of the seabed or subsoil in a manner that is likely to have an adverse effect on the seabed or subsoil.	The disturbance of the seabed and subsoil associated with the placement, movement and removal of the IMV anchor, including the anchor spread. The disturbance of the seabed and subsoil associated with seabed material extraction via the SBC, through re-deposition of de-ored sediments, and from grade control drilling. The disturbance of the seabed and subsoil associated with the placement, deployment, retrieval and mooring of environmental monitoring equipment. The disturbance of the seabed and subsoil associated with the taking of sediment and benthic samples associated with environmental monitoring.

DRAFT DECISION

Section of the EEZ Act	Activity for which Marine Consent is Required	Project Element
s20(2)(f)	The deposit of any thing or organism in, on, or under the seabed.	The re-deposition of de-ored sediments in, on or under the seabed. The deposition of small amounts of marine organisms and solids in, on or under the seabed as a result of vessel maintenance, hull cleaning (biofouling).
s20(2)(g)	The destruction, damage, or disturbance of the seabed or subsoil in a manner that is likely to have an adverse effect on marine species or their habitat.	The disturbance and damage of the seabed as a result of the placement, movement and removal of the IMV anchor on the seabed. The disturbance and damage of the seabed as a result of seabed material extraction via the SBC, the re-deposition of de-ored sediments, and the grade control drilling. The disturbance and damage of the seabed as a result of the placement, deployment, retrieval and mooring of environmental monitoring equipment. The disturbance and damage of the seabed as a result of the taking of sediment and benthic samples associated with environmental monitoring.
s20(4)(a)	The construction, mooring or anchoring long-term, placement, alteration, extension, removal, or demolition of a structure, part of a structure, or a ship used in connection with a structure.	The anchoring of the IMV to the seabed, and the associated placement, movement and removal of the IMV anchor on the seabed. The placement, movement and removal of the SBC in the water column above the seabed. The placement, movement and removal of the grade control drilling equipment in the water column above the seabed. The placement, deployment, retrieval and mooring of environmental

DRAFT DECISION

Section of the EEZ Act	Activity for which Marine Consent is Required	Project Element
		monitoring equipment in the water column above the seabed.
s20(4)(b)	The causing of vibrations (other than vibrations caused by the normal operation of a ship) in a manner that is likely to have an adverse effect on marine life.	Vibration caused by the IMV and SBC during iron sand extraction activities.

Table 1: Marine consent requirements (*Source: Application dated 15 April 2025, section 4.1.1*)

47. The second type of consent being sought by TTRL is a marine discharge consent. Sections 20B(1) and 20C(1) of the EEZ Act list discharges of 'harmful substances' that may not be undertaken within the EEZ unless they are permitted as of right or have secured a marine consent. Sediment is deemed to be a harmful substance, both in accordance with the definition of this term within the EEZ Act, and in the EEZ Regulations 2015. Of note is that discharges of the nature proposed in this instance also fall squarely within the bounds of the EEZ Acts definition of the term 'mining discharge'. Given this, the discharges proposed as part of the mining activity interact with s 20B(1) and 20C(1) in a way that requires a marine discharge consent for a number of different activities.¹⁴ Table 2 lists those aspects of the project that require a marine discharge consent.

Section of the EEZ Act	Activity for which Marine Discharge Consent is Required	Project Element
s20B(1)	The discharge of a harmful substance from a structure into the sea or into or onto the seabed of the EEZ	The release of seabed material (sediments) as a result of the seabed disturbance during grade control drilling activities; The release of disturbed seabed material (sediments) as a result of the seabed disturbance during the SBC extraction operations; and De-ored sediments and any associated contaminants discharged back to the water column from the IMV. The release of disturbed seabed material (sediments) as a result of

¹⁴ Application dated 15 April 2025, section 4.1.3

DRAFT DECISION

Section of the EEZ Act	Activity for which Marine Discharge Consent is Required	Project Element
		taking of sediment and benthic samples associated with environmental monitoring.
s20C(1)	The discharge of a harmful substance (if the discharge is a mining discharge) from a ship into the sea of the EEZ or into or onto the continental shelf	All discharges from the IMV including de-ored sediments and any associated contaminants discharged back to the water column from the IMV.

Table 2: Marine discharge consent requirements (*source: Application dated 15 April 2025, section 4.1.2*)

48. The EEZ Act records that there are a range of activities that it does not regulate. The EEZ Act is clear that marine consents for these activities cannot be sought, but that the effects of these activities are relevant under both sections 59(2)(b)(i) and 59(2)(h) of the EEZ Act. In this regard, the applicant contends that the following activities are 'unregulated'.¹⁵
- a. the discharge of synthetic biodegradable hydraulic fluid;
 - b. ship to ship ore transfer;
 - c. ship to ship fuel transfer;
 - d. taking of seawater associated with the iron sand extraction activity;
 - e. discharge of de-salinated and / or re-salinated water following the processing of the seabed material;
 - f. discharge of residual biodegradable hydraulic fluids from the SBC and other operational equipment;
 - g. discharges to air and effects on air quality;
 - h. navigational safety and vessel movement;
 - i. taking of seawater for the purposes of environmental monitoring;
 - j. unplanned oil / fuel spills;

¹⁵ Application dated 15 April 2025, section 4.1.3.

- k. vessel lighting; and
- l. antifouling and biosecurity activities.

Additional Approvals

49. While the project would be located in the EEZ, a related question was whether the application needed additional resource consents under the Resource Management Act (**RMA**) to proceed. This matter was a focus of the legal issues hearing that was conducted by the Panel on 26 November 2025. The Panel heard submissions that further resource consents are needed before the project can proceed, with some parties adducing legal submissions as to the type of resource consents that may be required. It was clear to us that some of the commenters were contending that the Panel was not able to grasp the full extent of the project if the full details of all the possible applications (including those required under the RMA) were not before it.
50. Several commenters invited the Panel to make a finding that the applicant's project requires approval under the RMA. Some suggested that if the applicant does require RMA approvals, these must be sought at the same time as the marine consents are applied for under the FTAA. Others submitted that the need for additional consents is relevant (in various suggested ways) to the Panel's assessment of the application. For example, several submitted that the Panel cannot determine the significance of the Project's regional and national benefits if the application is contingent upon the approval of additional resource consents.
51. The applicant's position was initially that no resource consents are required¹⁶. The Ministry for the Environment report advises that this is the case also.¹⁷ The applicant's position was that even if it requires an approval under the RMA (which it does not accept), the FTAA enables it to lodge a substantive application for any single approval it needs, so it is able to apply only for marine consent if it chooses, and the Panel must determine that application. However, the applicant conceded at the legal issues hearing that some additional RMA resource consents may be needed.¹⁸ This was highlighted by a report produced on the applicant's behalf by Seicap NZ which alluded to the need for resource consent for the placement of moorings and surface buoys in the coastal marine area (noted above in regards to the project's ancillary activities).¹⁹
52. As a starting point the Panel agrees with the applicant and most commenters that while the FTAA is described as a 'one stop shop', that description is used in the sense that it enables, rather than requires, an applicant to seek multiple approvals under the FTAA. There is nothing in the FTAA that requires an applicant to seek all approvals at the same time, or all under the FTAA, and no equivalent of s 91 RMA which enables deferral of notification or hearing where the consent authority

¹⁶ Application to be a listed project in the FTAA; Project Application Form 15 April 2025.

¹⁷ FTA#008: Application for listed project under the Fast-track Approvals Bill - Taranaki VTM Project for Schedule 2A, July 2024, page 3 (bullet point 3).

¹⁸ Transcript of the Legal Issues Hearing, 26 November 2025, pages 7 and 68.

¹⁹ Taranaki VTM Project Pre-Feasibility Study Offshore Iron Sands Project, Seicap NZ, 25 March 2025, section 13.8.2.12

considers other resource consents are required. Accordingly, even if the project requires additional approvals to those sought in the substantive application, that is not a matter that the Panel needs to determine. However, there is an important caveat to that general position.

53. The caveat is that if the application is for an ineligible activity, the Panel cannot grant it. The definition of 'ineligible activity'²⁰ is framed in such a way that the activities that a project comprises must not contravene any of the clauses of s 5(1) FTAA. Consequently, even if the reason for the ineligibility is unrelated to the marine consent approvals sought, the activity is ineligible and cannot be approved. On that basis, the Panel asked commenters to consider the relevance of s 5(1)(l) FTAA, noting that s 5(1)(l)(ii) makes an activity ineligible if it is described in s 15B RMA and is a prohibited activity under that Act or regulations made under it. Section 15B(1) RMA provides that no person may, in the coastal marine area, discharge a harmful substance or contaminant, from a ship or offshore installation into water, onto or into land, or into air, unless:
- a. the discharge is permitted or controlled by regulations made under the RMA, a rule in a regional coastal plan, proposed regional coastal plan, regional plan, proposed regional plan, or a resource consent, or
 - b. after reasonable mixing, the harmful substance or contaminant discharged (either by itself or in combination with any other discharge) is not likely to give rise to specified effects in the receiving waters, or
 - c. the harmful substance or contaminant, when discharged into air, is not likely to be noxious, dangerous, offensive, or objectionable to such an extent that it has or is likely to have a significant adverse effect on the environment.
54. Section 15B(2) RMA provides that no person may, in the coastal marine area, discharge water into water from any ship or offshore installation, unless the discharge is permitted or controlled by regulations made under this Act, a rule in a regional coastal plan, proposed regional coastal plan, regional plan, proposed regional plan, or a resource consent; or after reasonable mixing, the water discharged is not likely to give rise to any significant adverse effects on aquatic life.
55. Given the broad definition of 'ship', which includes 'a submarine or other submersible',²¹ the Panel considered it necessary to determine whether the project includes an activity that involves a discharge in the coastal marine area of a harmful substance or contaminant, from a ship or offshore installation into water. On this issue, Ngāti Ruanui submitted that there is nothing in s 15B RMA that requires that the ship or installation that is the source of the discharge to itself be within the coastal marine area (rather that section focuses on the location of the discharge).
56. The applicant's position was that granting approval to TTRL's project would not amount to approving an activity to which s 15B RMA applies, because that provision

²⁰ Section 5 FTAA.

²¹ Section 2, Maritime Transport Act 1994.

relates solely to discharges in the coastal marine area whereas the discharges involved in TTRL's project will occur outside the coastal marine area.²² The Panel agrees with the applicant. The text of s 15B RMA prevents a person 'in the coastal marine area' discharging a harmful substance or contaminant, indicating that the source of the discharge must be within the coastal marine area. That interpretation is supported by:

- a. The reference to discharges 'into water'. Water is defined to include 'coastal water', which means 'seawater within the outer limits of the territorial sea'.
- b. The statutory context, whereby discharges in the EEZ are regulated under the EEZ Act, with provision for the effects of such discharges to be considered under that Act even if they are experienced in the coastal marine area.

57. Even if it were engaged, we were told that the activity is not a prohibited activity under the Act or regulations. On that basis, the Panel considers that s 15B RMA does not apply.

58. Section 15B RMA does not address the deposition of substance within the coastal marine area, and the Panel makes no finding on whether the project may require approval under s 12(1)(d) RMA or indeed any other RMA provision that is not part of the substantive application before it.

Findings

59. The Panel finds that the list of marine consents needed for the project to proceed accord with those identified by the applicant.

60. The EEZ Act does not regulate a number of activities related to the project, but we note that some of the items listed by the applicant as being 'not regulated under the EEZ Act' could be characterised as potential effects of the activities for which consent is sought, for example 'unplanned oil / fuel spills'. Having assessed the information and arguments before us, the Panel finds that we do not need to distinguish between activities that are 'unregulated' and those that are potential effects of the activities for which consent is sought. Both must be taken into account under s 59 of the EEZ Act.

61. We accept that any resource consents required under the RMA do not need to be sought now. Further, we do not need to determine whether resource consents are needed under the RMA to realise the project. Put plainly, the Panel's analysis and determinations do not hang off the need for such resource consents. Their need is a matter for another day, should the various marine consents sought under the auspices of the EEZ Act and the FTAA be secured.

²² Submissions for TTRL on Identified Legal Issues dated 14 November 2025 at [9]. For completeness the Panel records the applicant's position that the effects of TTRL's project are required to be assessed wherever in the environment they occur (i.e. regardless of the CMA boundary).

PART II LEGISLATIVE FRAMEWORK

3 FTAA

62. This section sets out the decision-making criteria applicable to a marine consent and marine discharge consent when these are applied for under the FTAA. As this is the first Panel decision to address those types of approval under the FTAA, this decision includes consideration of relevant authorities and commenters' legal submissions on legal issues that were in dispute.

3.1 The FTAA regime

63. The FTAA provides a single process for seeking a range of approvals that would otherwise be applied for under separate statutes and by different processes. For this application, that aspect of the regime is less relevant, as the application solely seeks marine consents under the EEZ Act.
64. A general description of the FTAA was given in *Ngāti Kuku Hapū Trust v Environmental Protection Agency* [2025] NZHC 2453:

[7] ...The FTA is designed to facilitate the delivery of infrastructure and development projects with significant regional or national benefits. It promises to streamline and accelerate the approval process for major projects which may otherwise have spent years navigating the complexities of the RMA. Suitable projects are referred to expert panels. All those who perform functions under the FTA, including expert panels, are under a statutory duty to act promptly. Panel conveners must set a time frame within which the panel will complete its work; if no time frame is set, the panel must issue its decision within 30 working days of receiving comments on the substantive application from interested parties.

[8] There are two ways a project may be considered for fast-tracking. The Government invited promoters of appropriate projects to apply to have them listed in the legislation while the Bill made its way through Parliament. The second schedule to the FTA lists a series of projects the relevant Ministers determined, during the legislative process, were suitable candidates for the new regime. Promoters of projects which are not listed in sch 2 may make a "referral application" under s 13...

3.2 Section 3 Purpose

65. Section 3 of the FTAA states:

The purpose of this Act is to facilitate the delivery of infrastructure and development projects with significant regional or national benefits.

66. Environmental Defence Society (**EDS**) submitted that the statutory purpose in s 3 FTAA is procedural not substantive. It said that where delivery of projects is to be 'facilitated' this means "placed before the decision-making panel on an expedited basis". EDS submitted that the purpose does not of itself provide a direction as to the substantive outcome, and that this is reflected in the detailed machinery

provisions of the Act, which ensure speedy consideration but not necessarily approval of referred and listed projects.

67. Royal Forest and Bird Protection Society of New Zealand (**Forest and Bird**) submitted that ‘facilitate’ “does not equate to guaranteeing approval” and could be understood as streamlining processes but not as enabling deficient applications to pass. Forest and Bird relied on the purpose indicated by the Legislative Statement, being “to ensure key infrastructure and other development projects with significant benefits for communities are not declined where the benefit of approving the project outweighs any issue identified.” It submitted that where the benefit of approving is outweighed by issues identified, that statutory purpose is implemented by declining the approval.
68. The applicant submitted that the meaning of ‘facilitate’ in s 3 (and the meaning of s 3 as a whole) is not that projects with significant regional or national benefits must be approved (which would be contrary to the provisions that provide the limited grounds on which an approval may be declined). Rather the process by which they might be approved is an easier process, and one that makes the granting of approval more likely, than exists under the EEZ Act.
69. The Panel does not agree with EDS that ‘facilitate’ has a purely procedural meaning; if so the term ‘expedite’ could have been used. The Panel considers that ‘facilitate’ has a partly substantive meaning, as described by the applicant; i.e. that “the process by which [a project] might be approved is an easier process, and one that makes the granting of approval more likely” than under (in this case) the EEZ Act. That is supported by the text: the common meaning of the word ‘facilitate’ is to make something possible or easier;²³ and the scheme of the Act: the purpose of the Act must be given the most weight,²⁴ and approvals must be granted unless specific grounds for decline are made out.
70. The Panel also notes the High Court’s observation in *Ngāti Kuku Hapū Trust v Environmental Protection Agency* [2025] NZHC 2453 that:

[66] In enacting the FTA, Parliament made a deliberate decision to de-emphasise factors which might militate against approval. For example, the cabinet minute which approved the inclusion of the 149 listed projects noted it was the Government’s intention to establish a consenting and permitting process that “makes it substantially easier for projects to be approved than the status quo, with a high bar needing to be reached for a panel to decline a project”. ...

3.3 Section 10 procedural principles

71. Section 10 of the FTAA states that every person performing functions and duties and exercising powers under this Act must take all practicable steps to use timely, efficient, consistent, and cost-effective processes that are proportionate to the

²³ Cambridge Dictionary <https://dictionary.cambridge.org/dictionary/english/facilitate> accessed 21 December 2025

²⁴ Clause 6 Sch 10 (for marine consents) and analogous provisions for other approval types.

functions, duties, or powers being performed or exercised. The Panel has been mindful of that obligation throughout its consideration of the application.

3.4 Decision-making criteria

Section 81 FTAA

72. The starting point for the panel's decision is s 81 FTAA. For each approval sought in a substantive application, the panel must decide whether to grant the approval and set any conditions to be imposed on the approval; or decline the approval.²⁵
73. Section 81(2) then says that:
- (2) For the purpose of making the decision, the panel—
 - (a) must consider the substantive application and any advice, report, comment, or other information received by the panel under section 51, 52, 53, 55, 58, 67, 68, 69, 70, 72, or 90;
 - (b) must apply the applicable clauses set out in subsection (3) (see those clauses in relation to the weight to be given to the purpose of this Act when making the decision);
 - (c) must comply with section 82, if applicable;
 - (d) must comply with section 83 in setting conditions;
 - (e) may impose conditions under section 84;
 - (f) may decline the approval only in accordance with section 85.
74. The Panel has considered the substantive application and any advice, report, comment, or other information received by the Panel under s 51, 52, 53, 55, 58, 67, 68, 69, 70, 72, or 90.
75. Because the application is for marine consents, the “applicable clause” for the purpose of s 81(2)(b) is subsection (3)(l), which directs the panel to clauses 6 and 7 of Sch 10. Clause 6 imports relevant parts of the EEZ Act and directs how they are to be weighed in relation to the purpose of the FTAA. Clause 7 imports relevant EEZ Act provisions that relate to conditions. These clauses are addressed below.

Clause 6 of Schedule 10

76. Clause 6 of Sch 10, which is headed *Criteria for assessment of application for marine consent*, says:
- (1) For the purposes of section 81, when considering an application for a marine consent, including conditions in accordance with clause 7, the panel must take into account, giving the greatest weight to paragraph (a),—
 - (a) the purpose of this Act; and
 - (b) sections 10 and 11 of the EEZ Act; and

²⁵ Section 81(1) FTAA

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(c) any relevant policy statements issued under the EEZ Act; and

(d) sections 59, 60, 61(1)(b) and (c) and (2) to (5), 62(1A) and (2), 63, and 64 to 67 of the EEZ Act.

(2) For the purposes of subclause (1)(d), the panel must take into account that section 62(1A) of the EEZ Act would normally require an application to be declined, but must not treat that provision as requiring the panel to decline the approval the panel is considering.

77. A direction to “take into account” identified matters requires a decision-maker to give genuine attention to each of the identified matters, weigh them, and give each matter appropriate weight given the circumstances. While normally weight is a matter for the decision-maker, under the FTAA the weighting exercise is influenced by the statutory direction that “the greatest weight” is to be given to the purpose of the FTAA. The balancing exercise is not an even one. One of the ways in which the FTAA implements this statutory weighting is through the limited bases for declining an application in s 85.
78. The Panel is required to separately consider each of the subsections in cl 6 before those factors are weighed in accordance with the prescribed hierarchy. That approach is supported by the Court of Appeal’s decision in *Enterprise Miramar Peninsula Incorporated v Wellington City Council*.²⁶ In *Enterprise Miramar* the Court of Appeal considered the correct interpretation and application of the provision under which approvals were decided in the Housing Accords and Special Housing Area Act 2013. Although the weighting hierarchy was different in that statute, the decision-making provision was the same in that it required decision-makers to take into account a list of matters and then weigh them in accordance with statutory direction about how the weighting exercise should be undertaken. The other FTAA panel decisions to date that the Panel has reviewed (including Bledisloe Wharf, Maitahi Village, Waihi North and Milldale) have adopted this approach.
79. The Panel has taken that approach: it has assessed the matters in cl 6(a) to (d) on their own terms, before standing back and ensuring that in taking those matters into account, it has given the greatest weight to the purpose of the FTAA. The Panel records its understanding that the EEZ Act considerations are matters to factor into its decision under the FTAA and that the EEZ Act considerations do not themselves determine whether consent is granted or declined.

Clause 6(1)(a)

80. Under cl 6 the Panel must take into account the matters listed in cl 6(1)(a)-(d) giving the greatest weight to paragraph (a) which is “the purpose of this Act [FTAA]”. The purpose of the FTAA “is to facilitate the delivery of infrastructure and development projects with significant regional or national benefits.” When taking the purpose of the Act into account under cl 6 the Panel “must consider the extent of the project’s regional or national benefits”.²⁷

²⁶ *Enterprise Miramar Peninsula Incorporated v Wellington City Council* [2018] NZCA 541 at [52]-[53], [59]

²⁷ Section 81(4) FTAA

81. The term “significant” is not defined in the FTAA. The panel that determined the Maitahi Village substantive application looked to the ordinary meaning of ‘significant’ and on that basis used the meaning “sufficiently great or important to be worthy of attention; noteworthy”. The Waihi North panel said:

[842] “Significant” is a word of indeterminate meaning. It can, for instance, be used in the sense of “game-changing”. But it can also have meanings along the lines of “worthy of note”.

[843] In the context of “deliver significant economic benefits” and “development of natural resources including mining”, it is not particularly likely that any one mining project will produce game-changing effects, certainly across the country as a whole. The same can be said of any one project to “increase the supply of housing”. Indeed, in a large city, even a substantial housing project is unlikely to make a material change to the supply of housing. All of this supports the view that “significance” is not to be determined by reference to whether implementation of the project will appreciably change national or regional gross domestic product or the annual tax revenue of the Government. Rather it is an indication of scale.

82. The term ‘benefit’ is also not defined. Its ordinary meaning is ‘advantage’. Other panels have referred to s 22 FTAA as providing useful guidance for what constitutes a benefit. It appears to have been Parliament’s intention that s 22 would be used for this purpose, despite this not being stated in the FTAA.²⁸ Commentary in the Select Committee Final Report on the FTAA²⁹ states that the matters listed in cl 17(3) (now s 22(2)) “lists the matters that would help guide applicants as to what may be considered when the significance of a project’s benefits is assessed”³⁰ (although the Select Committee Report is clear that ‘benefit’ was intentionally left undefined).³¹
83. The assessment of the extent of the TTRL project’s benefits, and whether they are significant, is a factual question based on evidence and informed by judgement.³² That factual assessment is undertaken against a regional or national reference point which asks whether the benefits are significant to the region or to New Zealand. Determining if this threshold is met is context-dependent: what constitutes a significant benefit may differ from one region to the next.³³
84. Despite the project being listed in the FTAA, the Panel needs to reach its own conclusion on whether the project has significant benefits, and their extent. As set out by the Maitahi Panel:

[85] The Applicant’s submissions suggest that the Panel can rely on the fact that the Project is listed in Schedule 2 for any finding that it has significant regional or national

²⁸ This approach is supported by the commentary in the Select Committee Final Report on the FTAA (18 October 2024 31-2), which states that the matters listed in cl 17(3) (now s 22(2)) “lists the matters that would help guide applicants as to what may be considered when the significance of a project’s benefits is assessed” (pg. 4)

²⁹ 18 October 2024 31-2

³⁰ (pg. 4)

³¹ Pg 4-5

³² The Panel agrees with the Maitahi Village panel on this approach.

³³ *CJ Industries Ltd v Tasman District Council* [2025] NZEnvC 213 at [286]-[287]. This decision related to an application to extract aggregate within an area alongside the Motueka River. The regionally significant benefit question arose in context of the National Policy Statement Highly Productive Land, and whether the proposal met the tests required to enable extraction on highly productive land. The Court found that it did. The proposals regionally significant benefits were an important consideration in reaching that conclusion.

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benefits. The Panel does not accept this submission. It is true that the Ministry for the Environment reported to the Fast-Track Projects Advisory Group stated that the Project would provide significant regional developments. It is also the case that the Advisory Group placed the Project in Priority Group one – the highest tier within the housing and land development sector.

[86] However, these findings were made by bodies other than the Panel which has statutory responsibility for making decisions on approvals sought in a substantive application under s 81. By virtue of s 81(4), it falls to the Panel, when taking the purpose of the FTAA into account, to consider the regional or national benefits and the extent thereof. This is something the Panel itself must do in the context of its analysis of, and findings on the existence or otherwise of any regional or national benefits

85. The Panel asked the applicant and commenters to address how ‘benefits’ should be interpreted under the FTAA when considering the extent of the project’s regional or national benefits and the purpose of the FTAA, including:
- a. whether a gross benefit approach is required, whether disbenefits or other costs are relevant, and whether a net benefit or cost-benefit approach is required; and
 - b. whether the same approach applies when the Panel takes into account “the economic benefit to New Zealand of allowing the application” under s 59(2)(f) EEZ Act.
86. The Supreme Court held that in assessing the economic benefit to New Zealand under s 59(2)(f) EEZ Act it is necessary to take into account any material economic dis-benefits/costs; in other words, that s 59(2)(f) is concerned with net economic benefits. It held that it is not necessary to include a cost-benefit analysis encompassing environmental, social and cultural costs under s59(2)(f). Analysis of environmental, social, and cultural benefits and costs is of course required under other s 59 clauses, and a qualitative assessment of those matters is permissible.³⁴
87. EDS submitted that the FTAA requires the Panel to first assess the extent of regional or national benefits by discounting from any claimed benefit any comparable adverse impact or element of the counterfactual (in other words, an assessment of the net economic benefit, along with the net outcome of any other claimed benefits such as relating to climate). Then for the purpose of s 85(3) FTAA, to consider whether the broader (not already discounted) impacts are sufficiently significant to be out of proportion to the extent of regional or national benefits assessed under the first step. Such impacts would include intrinsic environmental and social impacts, and any other matter raised that weighs against granting the approval. EDS submitted that is consistent with the approach confirmed by the Court of Appeal and Supreme Court in relation to s 59(2)(f) of the EEZ Act, whereby a determination as to whether there will be an economic benefit to New Zealand requires “material economic costs” to be taken into account.
88. Most commenters similarly proposed a net approach to the benefits assessment, while also cautioning that costs should not then be “double-counted” as adverse

³⁴ *TTR* at [10] and per William Young and Ellen France JJ at [189] – [196]

impacts for the purpose of the s 85(3) assessment. The Panel understood the applicant to broadly agree that the extent of benefits should be assessed on a net basis (discounting any relevant disbenefits), provided that at the s 85(3) stage those disbenefits are not treated as “adverse impacts”, so that there is no “double counting” at the s 85(3) stage.

89. Commenters differ in their view on whether a cost-benefit assessment incorporating environmental, social and cultural costs is required. Kiwis Against Seabed Mining Incorporated (**KASM**) / Greenpeace Aotearoa Incorporated (**Greenpeace**) argued in favour of such a requirement, whereas Ngāti Ruanui submitted that:

While it is tempting to say that the assessment of net benefit should be derived from a cost-benefit analysis, it is acknowledged that double-counting must be avoided, given that s 85 provides for a balancing of regional and national benefits against adverse impacts.

90. EDS submitted that a net cost-benefit analysis (**CBA**) is required at the second stage under s 85(3). Without a CBA, the significance of benefits and impacts cannot be comparatively assessed, nor can the extent of benefits that accrue within New Zealand be reliably assessed.

91. The panel that decided the Waihi North substantive application addressed whether a CBA is necessary under the FTAA. An economist (Dr Meade) who presented evidence on behalf of a commenter (Coromandel Watchdog) took the position that a complete CBA should have been provided by the applicant, with non-market values attributed to adverse impacts where that was necessary. The panel said:

[782] We agree that where economic benefits are relied on by an applicant, any economic disbenefits should be allowed for, particularly if the benefits and disbenefits are of the kinds that have market values against which they can be measured in money terms. But parting company with Dr Meade, we do not accept that adverse environmental impacts must be monetised and factored directly into the assessment of economic benefits. Instead, we are of the view that we can assess the benefits relied on by OGNZL separately from any adverse environment impacts.

92. The Panel agrees with that approach.

93. Taking all those matters into account, the Panel's approach to benefits has involved three steps. It has:

- a. first assessed the extent to which any regional or national benefits are established, and the extent to which there may be comparable disbenefits by assessing the veracity of the information provided about each;
- b. second, discounted any comparable established disbenefits from any established benefits; and
- c. third, for the purpose of s 85(3) FTAA, considered whether any adverse impacts (that have not already been accounted for as disbenefits) are sufficiently significant to be out of proportion to the extent of the project's regional or national benefits.

94. Where the benefits are economic, the first and second steps require the same analysis as is required under s 59(2)(f) of the EEZ Act. Accordingly, the Panel has not needed to undertake two separate economic benefit assessments.
95. The Panel does not consider that a formal CBA of the type proposed by KASM/Greenpeace is required as part of the third step. The FTAA requires an assessment and comparison of non-like considerations and the Panel has undertaken that assessment.

Clause 6(1)(b) FTAA

96. Under cl 6(1)(b) the Panel must take into account ss 10 and 11 of the EEZ Act.
97. Before discussing those provisions, the Panel notes that this application is somewhat unusual in that there is a Supreme Court decision³⁵ on appeals from a previous decision on a previous application by TTRL for substantially the same project. The Panel invited submissions on the extent to which the Supreme Court's decision is binding on the Panel or of highly persuasive significance.
98. Talley's Group Limited and Seafood New Zealand submitted that the decision is:
- a. binding in terms of interpretation and application of the EEZ Act, which forms a core part of the panel's assessment under the FTAA;
 - b. not relevant to interpretation or application of the FTAA; and
 - c. highly persuasive to the extent it made findings of fact or endorsed findings of fact by the 2017 Decision Making Committee.
99. All commenters support the proposition that the decision is binding in terms of interpretation of the EEZ Act. The applicant similarly submitted that the decision is "the most authoritative guidance on the correct application of some key provisions of the EEZ Act". However, it cautioned that all of those provisions are matters to be "taken into account", and the relevance of the Supreme Court's guidance on each provision must be considered in that light. The applicant also cautioned that care must be taken in relation to aspects of the Supreme Court's decision that are based on the Court's understanding of factual dimensions of the Project, given the Supreme Court was reliant on the factual findings of the 2017 Decision Making Committee.
100. The Panel's approach aligns with the applicant's submissions. It considers that the Supreme Court's decision is binding with respect to interpretation of relevant EEZ Act provisions, but the Panel has reached its own findings of fact and has been cautious with Supreme Court legal findings that are integrally connected to previous factual findings. The Panel has also been cautious in light of the multiple judgments comprised within the Supreme Court's decision.

³⁵ *Trans-Tasman Resources v Taranaki-Whanganui Conservation Board* [2021] NZSC 127

101. The Panel understands that the EEZ Act provisions are an ‘input’ into its overall FTAA decision, which must be weighed and determined in accordance with the FTAA.

Section 10 EEZ Act

102. Section 10 sets out the purpose of the EEZ Act. It says:

- (1) The purpose of this Act is—
 - (a) to promote the sustainable management of the natural resources of the exclusive economic zone and the continental shelf; and
 - (b) in relation to the exclusive economic zone, the continental shelf, and the waters above the continental shelf beyond the outer limits of the exclusive economic zone, to protect the environment from pollution by regulating or prohibiting the discharge of harmful substances and the dumping or incineration of waste or other matter.
- (2) In this Act, sustainable management means managing the use, development, and protection of natural resources in a way, or at a rate, that enables people to provide for their economic well-being while—
 - (a) sustaining the potential of natural resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
 - (b) safeguarding the life-supporting capacity of the environment; and
 - (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.
- (3) In order to achieve the purpose, decision-makers must—
 - (a) take into account decision-making criteria specified in relation to particular decisions; and
 - (b) apply the information principles to the development of regulations under section 27, 29A, 29B, or 29E and the consideration of applications for marine consent.

103. As confirmed by the Supreme Court, s 10 provides the basis for the purposive interpretation of the other relevant sections of the EEZ Act. It also provides an overarching guiding framework for decision-making under the EEZ Act and, to this extent, has substantive or operative force.³⁶ It means that the panel needs to weigh the relevant s 59 EEZ Act decision-making considerations in a way that achieves the sustainable management purpose in s 10(1)(a) and, for marine discharges, both the sustainable management purpose and the protection purpose in s 10(1)(b).³⁷

104. The Panel considers that the relationship between s 10 and the other EEZ Act decision-making considerations, as described by the Supreme Court, remains relevant under the FTAA. The output of the Panel’s consideration of the project under the EEZ Act provisions is not determinative; rather, it must be factored into the cl 6 Sch 10 and s 81 FTAA analysis.

105. In s 10(1)(a) EEZ Act, ‘sustainable management’ means:

³⁶ *TTR* at [4] and per Glazebrook J at [240]. William Young and Ellen France JJ similarly found that the s 59 matters must be considered with a view to ensuring the s 10(1) purposes are met, describing s 10 as the “ultimate touchstone” at [55].

³⁷ *TTR* at [4] and per Glazebrook J at [249], and per William Young and Ellen France JJ at [55]

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(2) In this Act, sustainable management means managing the use, development, and protection of natural resources in a way, or at a rate, that enables people to provide for their economic well-being while—

- (a) sustaining the potential of natural resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- (b) safeguarding the life-supporting capacity of the environment; and
- (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

106. 'Environment' means:

the natural environment, including ecosystems and their constituent parts and all natural resources, of—

- (a) New Zealand;
- (b) the exclusive economic zone;
- (c) the continental shelf;
- (d) the waters beyond the exclusive economic zone and above and beyond the continental shelf

107. 'Natural resources' means:

- (a) in relation to the exclusive economic zone, includes seabed, subsoil, water, air, minerals, and energy, and all forms of organisms (whether native to New Zealand or introduced); and
- (b) in relation to the continental shelf, means the mineral and other non-living resources of the seabed and subsoil and sedentary species

108. Taken together, these definitions mean that the focus of sustainable management in the EEZ Act is on providing for *economic* well-being while managing effects on the *natural environment* (a narrower concept than under the RMA). *Social* and *cultural* wellbeing are relevant only to the extent provided in other EEZ Act or FTAA provisions.

109. Section 10(1)(b) applies to discharges of harmful substances. The discharge of sediment from mining is by definition a harmful substance.³⁸ Section 10(1)(b) requires protection of the environment from pollution by regulating or prohibiting these discharges. The Supreme Court majority referred to this as a "bottom line".³⁹ While s 10(1)(b) does not operate as a "bottom line" in an application under the FTAA, consistency with s 10(1)(b) is nonetheless an important consideration that must be factored into the Panel's decision.

110. The Supreme Court interpreted 'protect' as meaning "protect from material harm": if the environment is materially harmed, then it cannot be said to have been protected from pollution.⁴⁰

111. What amounts to 'material harm' and the period over which this is measured is for the decision-maker to determine on the facts of each case. In describing what

³⁸ EEZ Regs 2015

³⁹ Per Glazebrook J at [253], Williams J at [292], Winkelmann CJ at [305 and [314].

⁴⁰ *TTR* at [3]

‘material harm’ means, Glazebrook J used this term in contradistinction to immaterial harm:⁴¹

It seems most unlikely that the purpose of s 10(1)(b) was to protect the environment against immaterial harm

112. Read together with the *King Salmon* and *Port Otago* decisions, the Panel understands material harm to equate to a ‘more than minor’ environmental effect.⁴² While simply substituting one descriptor for another may not assist much, many of the technical reports and briefs of evidence (including several of the applicant’s experts) framed their assessments in terms of whether effects would be minor rather than in terms of ‘material harm’.⁴³ The Panel has frequently needed to ‘translate’ effects assessments into terms that can sensibly be applied to the EEZ Act and FTAA framework.
113. Harm does not have to be permanent to be material. Temporary harm can be material.⁴⁴ The assessment of whether there is material harm has qualitative, temporal, quantitative and spatial aspects that have to be weighed.⁴⁵ What is required is a consideration of the ‘multiplicity of factors’ that might contribute to assessing whether harm is material.⁴⁶ In *Port Otago* (in the RMA context) the Supreme Court held that those matters must be interpreted in light of what is sought to be protected.⁴⁷
114. Conditions can be imposed to avoid, remedy or mitigate adverse effects, where:⁴⁸
- a. avoid means avoid material harm.
 - b. mitigation must bring any harm below the threshold of material harm. Remediation means that it may be permissible for discharges to cause harm, so long as the decision-maker is satisfied that any effects can be remedied and so rendered immaterial.
 - c. remediation will have to occur within a reasonable time in the circumstances of the case and particularly in light of the nature of the harm to the environment, the length of time that harm subsists, existing interests and human health. The assessment of what is a reasonable time must take into account not only the duration of any recovery once the activity has ceased but

⁴¹ *TTR* at [252]

⁴² The Court in *King Salmon*, addressing the effect of “avoid adverse effects” policies, held that “It is improbable that it would be necessary to prohibit an activity that has a minor or transitory adverse effect in order to preserve the natural character of the coastal environment, even where that natural character is outstanding” (at [145]). The Court in *Port Otago*, also dealing with the effect of “avoid adverse effects” policies, said it was “clear from *Trans-Tasman* that the concepts of mitigation and remedy may serve to meet the “avoid” standard by bringing the level of harm down so that material harm is avoided” (at [65]).

⁴³ Effects on Primary Production of proposed Iron Sand Mining in the South Taranaki Bight, NIWA dated October 2015

⁴⁴ *TTR* per Glazebrook J at [252]

⁴⁵ *TTR* at [3] and per Glazebrook J at [255] and Winkelmann CJ at [310]

⁴⁶ At [310] per Winkelmann CJ, with Glazebrook J concurring at [255] and Williams J making findings to similar effect at [293]

⁴⁷ *Port Otago* at [68]

⁴⁸ *TTR* at [4] and per Glazebrook J at [256]

also the total duration of the projected harm before remediation will occur. The longer the period before remediation occurs, the longer there will have been harm to the environment.⁴⁹

115. The Supreme Court majority provided a three-step process for assessing whether a discharge consent could be granted:⁵⁰

(a) Is the decision-maker satisfied that there will be no material harm caused by the discharge ...? If yes, then step (c) must be undertaken. If not, then step (b) must be undertaken.

(b) Is the decision-maker satisfied that conditions can be imposed that mean:

(i) material harm will be avoided;

(ii) any harm will be mitigated so that the harm is no longer material; or

(iii) any harm will be remedied within a reasonable timeframe so that, taking into account the whole period harm subsists, overall the harm is not material? If not, the consent must be declined. If yes, then step (c) must be undertaken.

(c) If (a) or (b) is answered in the affirmative, the decision-maker should perform a balancing exercise taking into account all the relevant factors under s 59, in light of s 10(1)(a), to determine whether the consent should be granted.

116. The Supreme Court's three step process remains relevant for the Panel in considering the marine discharge consent application under the FTAA, except that the outcome of step (c) does not determine whether consent should be granted. Rather the outcome of step (c) then needs to be weighed under cl 6 Sch 10 and s 85(3) FTAA.

117. Section 10(3) FTAA requires decision-makers to apply the information principles in s 61 EEZ Act: those that are relevant under the FTAA are addressed below.

Section 11 EEZ Act

118. Section 11 of the EEZ Act states that

This Act continues or enables the implementation of New Zealand's obligations under various international conventions relating to the marine environment, including—

(a) the United Nations Convention on the Law of the Sea 1982:

(b) the Convention on Biological Diversity 1992:

(c) the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL):

(d) the Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter, 1972 (the London Convention).

119. William Young and Ellen France JJ addressed s 11 in the following terms:⁵¹

[99] We agree with the Court of Appeal that these instruments all inform the interpretation of the EEZ Act. ...

⁴⁹ *TTR* at [4] and per Glazebrook J at [257].

⁵⁰ *TTR* at [5]

⁵¹ Winkelmann CJ similarly addresses international conventions at [324]

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[100] ... The legislative purpose was that decision-makers would apply the EEZ Act rather than the international text, but resort can be had to the relevant international instruments to clarify the meaning of the Act.

[101] Here, neither the LOSC nor the Convention on Biological Diversity imposes absolute requirements on states parties to these Conventions. They do nonetheless provide support for the proposition that s 10(1)(b) imposes a heightened threshold in favour of environmental protection. ...

120. The Panel considers that those findings remain relevant to its assessment of the application under the EEZ Act. However, should the FTAA require outcomes that do not “continue or enable implementation” of New Zealand’s international obligations, the FTAA requirements must prevail.
121. Relevant United Nations Convention on the Law of the Sea (**UNCLOS**) provisions are discussed by the Supreme Court, and include art 192⁵², art 193,⁵³ art 194⁵⁴ and art 208.⁵⁵
122. The Panel asked the commenters to address whether international climate conventions are relevant under s 11 at the legal issues hearing.
123. The applicant submitted that the EEZ Act does not require that regard must be had to specific considerations drawn from international obligations but rather s 11 sends a signal that the Act itself is intended to implement New Zealand’s obligations under the relevant instruments.
124. KASM/Greenpeace submitted that obligations in international climate-related conventions are relevant. They noted that these conventions are directly relevant because s 11 is inclusive (not exclusive) and also through the reference in s 11 to United Nations Convention on the Law of the Sea (**UNCLOS**). A 2024 International Tribunal for the Law of the Sea (**ITLOS**) Advisory Opinion addressed several key issues regarding application of UNCLOS in the climate change context including the specific obligations of States to reduce greenhouse gas emissions. The ITLOS Opinion concluded that “States Parties to the Convention have specific obligations under article 194 of UNCLOS to take all necessary measures to prevent, reduce, and control marine pollution from anthropogenic GHG emissions and to endeavor to harmonize their policies in this connection”.

⁵² Art 192 UNCLOS sets out States’ “general obligation” “to protect and preserve the marine environment”.

⁵³ Art 193 UNCLOS: States have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment.

⁵⁴ Under Art 194(1) UNCLOS, States parties are required to take ... all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies in this connection. Under Art 194(3), measures taken need to deal with all sources of pollution of the marine environment, with measures to include “those designed to minimize to the fullest possible extent” pollution from various sources, including pollution from seabed activities subject to national jurisdiction.

⁵⁵ Art 208(1) provides for coastal states to “adopt laws and regulations to prevent, reduce and control pollution of the marine environment arising from or in connection with sea-bed activities subject to their jurisdiction”. Under art 208(3), the national legislation and regulations in this respect are to be “no less effective” than international rules.

125. The EEZ Act specifically excludes consideration of the effects on climate change of discharging greenhouse gases into the air⁵⁶ (so in this respect the express language of the EEZ Act must prevail over the implementation of UNCLOS and any relevant international climate conventions). However, KASM/Greenpeace emphasised the Advisory Opinion's finding that:

[390] The ocean is the world's largest sink. Coastal "blue carbon" ecosystems, such as mangroves, tidal marshes, and seagrass meadows, are also important sinks and can contribute to ecosystem-based adaptation The obligation to protect and preserve the marine environment is therefore of dual significance in that it promotes the conservation and resilience of living marine resources, while also mitigating anthropogenic GHG emissions by enhancing carbon sequestration through measures to restore the marine environment.

126. The Panel is satisfied that UNCLOS and New Zealand's international climate commitments involve climate-related considerations and obligations that go beyond discharges of greenhouse gases to air, including with respect to carbon sequestration. It agrees that those considerations must inform its understanding of relevant EEZ Act provisions, in that it should prefer an interpretation of the relevant EEZ Act provisions that is consistent with enabling the implementation of New Zealand's international obligations on those matters.

127. The Panel agrees with the applicant that the FTAA does not contain a provision equivalent to s 11 EEZ Act, and records for clarity that it has taken into account conventions that are relevant under s 11 in the manner directed by cl 6 of Sch 10 FTAA (as addressed further in Section 33 of the Decision). To that extent, New Zealand's international obligations under UNCLOS and international climate conventions are relevant to the Panel's consideration of the project's effects on seabed carbon sequestration as discussed at section 18 below.

128. The Convention on Biological Diversity objectives are:⁵⁷

... the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources
...

129. Its preamble includes a version of the precautionary approach.⁵⁸ The Supreme Court majority held that there is no requirement under the EEZ Act to apply a precautionary approach in addition to (i.e. separately from) the information principles in s 61.⁵⁹ The Panel has taken that approach.

⁵⁶ Section 59(5)(b) EEZ Act

⁵⁷ CBD art 1

⁵⁸ CBD Preamble: Noting also that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat.

⁵⁹ At [113] per William Young and Ellen France JJ and [325] per Winkelmann CJ

Schedule 10 cl 6(1)(c) FTAA

130. Clause 6(1)(c) of Sch 10 of the FTAA requires the Panel to take into account any relevant policy statements issued under the EEZ Act. There are none.

Schedule 10 cl 6(1)(d) FTAA

131. Clause 6(1)(d) of Sch 10 of the FTAA requires the panel to take into account sections 59, 60, 61(1)(b) and (c) and (2) to (5), 62(1A) and (2), 63, and 64 to 67 of the EEZ Act. Clause 6(2) says that for the purposes of subclause (1)(d), the panel must take into account that s 62(1A) of the EEZ Act would normally require an application to be declined, but must not treat that provision as requiring the panel to decline the approval the panel is considering.

Previous Decision Making Committee decisions and evidence before those Decision Making Committees

132. As discussed in section 1.1, versions of this project have come before Decision Making Committees on previous occasions. This raised issues as to the relevance of factual findings by those Decision Making Committees on previous applications, and evidence that was before those Decision Making Committees. The Panel asked commenters about the relevance, if any, of factual findings by Decision Making Committees on previous applications by the applicant.
133. Taranaki Regional Council submitted that factual findings by the Decision Making Committee on a previous application may be informative (unless they have been rejected by any higher Court decision, or factual circumstances have changed) but cannot constrain the Panel's ability to make its own findings on the current application based on the evidence before it. Other commenters submitted that the Decision Making Committees' factual findings are highly relevant and/or strongly persuasive, while generally acknowledging the need to consider whether any previous factual findings had been impacted by fresh evidence or changes in the legislative regime since those decisions were issued.
134. Several iwi/Māori commenters submitted that the continuing relevance of the Decision Making Committee's factual findings is illustrated by the fact that the Supreme Court elected to append to its decision an illustrative diagram and table of Decision Making Committee findings prepared by the iwi/Māori parties in those proceedings.
135. The applicant submitted that the 2014 Decision Making Committee's findings of fact are of no relevance because it was decided in a materially different legal context than the present application and because the evidence on which the 2014 decision was based was substantially reviewed, revised and updated by TTRL in response to the 2014 decision. It submitted that the 2017 Decision Making Committee's findings of fact are also of no relevance, as that Decision Making Committee's decision was quashed and the application subsequently withdrawn, so in a legal sense, none of the factual findings of the 2017 Decision Making Committee 'survive'.

136. The Panel agrees that it must reach its own views on the factual matters that are raised by the application. It has referred to the factual findings of the previous Decision Making Committees where those provide useful context to inform its own assessment of the facts, based on the information before it in the present process, but has not relied on any previous factual findings.

137. Many references have been made by the applicant and commenters to evidence before previous decision-making committees. The Panel has had regard to that prior evidence where the evidence has been tendered to the Panel.

Section 59 EEZ Act

138. Section 59 EEZ Act sets out the key decision-making considerations under that Act.

139. Under s 59(2)(a) the panel must take into account any effects on the environment or existing interests of allowing the activity. In the EEZ Act, 'environment' means:⁶⁰

the natural environment, including ecosystems and their constituent parts and all natural resources, of—
(a) New Zealand;
(b) the exclusive economic zone;
(c) the continental shelf;
(d) the waters beyond the exclusive economic zone and above and beyond the continental shelf

140. The 'natural environment' means ecosystems and their constituent parts, and natural resources. It does not include people and communities.⁶¹ Through the reference to 'New Zealand', the territorial sea / coastal marine area (from mean high water springs to the 12 nautical mile limit) is part of the 'environment' for the purpose of the Panel's assessment.

141. 'Effect' is defined as:⁶²

(1) In this Act, unless the context otherwise requires, effect includes—
(a) any positive or adverse effect; and
(b) any temporary or permanent effect; and
(c) any past, present, or future effect; and
(d) any cumulative effect that arises over time or in combination with other effects;
and
(e) any potential effect of high probability; and
(f) any potential effect of low probability that has a high potential impact.
(2) Subsection (1)(a) to (d) apply regardless of the scale, intensity, duration, or frequency of the effect.

142. The EEZ Act requires specific consideration of 'cumulative effects'. In the RMA context, there is some disagreement in the authorities about whether this refers to: (i) the effects of a project being considered (which may cumulatively have a greater impact than if considered individually); or (ii) the effects of a project being

⁶⁰ Section 4 EEZ Act

⁶¹ C.f. s 2 RMA.

⁶² Section 6 EEZ Act

considered plus similar effects from other unrelated activities.⁶³ The EEZ Act requires separate consideration of the effects of “other activities undertaken in the area covered by the application or in its vicinity,”⁶⁴ indicating ‘cumulative effects’ refers to the effects of the project being considered.

143. Relevant effects are those that are not too remote: “a causal relationship, tempered by considerations of nexus and remoteness, must be identified”.⁶⁵ The question is not whether a given effect on the environment is excluded as a matter of principle, but rather as a matter of fact and degree.⁶⁶
144. The Supreme Court unanimously held that tikanga-based customary rights and interests may qualify as existing interests⁶⁷ under s 59(2)(a) EEZ Act.⁶⁸ The Supreme Court considered that paragraph (a) of the definition could extend to capturing rights and interests claimed under the Marine and Coastal Area (Takutai Moana) Act 2011 (**MACA Act**) but not yet granted. William Young and Ellen France JJ noted that this might give rise to questions about the nature and extent of existing interests in a particular case, but this is an evidential issue.⁶⁹
145. William Young and Ellen France JJ found that although the Decision Making Committee had referred to concepts like kaitiakitanga.⁷⁰

[160] ... the DMC did not effectively grapple with the true effect of the proposal for the iwi parties or with how ongoing monitoring could meet the iwi parties’ concern that they will be unable to exercise their kaitiakitanga to protect the mauri of the marine environment, particularly given the length of the consent and the long term nature of the effects of the proposal on the environment

146. In terms of what was required of the Decision Making Committee, William Young and Ellen France JJ said⁷¹:

[161] What was required was for the DMC to indicate an understanding of the nature and extent of the relevant interests, both physical and spiritual, and to identify the relevant principles of kaitiakitanga said to apply ... The DMC then needed to explain, albeit briefly, why these existing interests were outweighed by other s 59 factors, or sufficiently accommodated in other ways.

⁶³ In *Dye v Auckland Regional Council* (2001) 7 ELRNZ 209 the Court of Appeal referred to cumulative effects as a gradual build-up of consequences over time or from the combination of effects, all of which are effects that are going to happen **as a result of the activity under consideration**. However, this was in the context of distinguishing between cumulative effects and potential or precedent effects of activities which may or may not occur. *Outstanding Landscape Protection Society Inc v Hastings District Council* (2006) 12 ELRNZ 299 and *Emerald Residential Ltd v North Shore City Council* [2004] ELHNZ 74 critiqued the restrictive approach in *Dye*, advocating for a broader interpretation that aligns with the plain meaning of section 3 and the purpose of sustainable management, but acknowledged that *Dye* remains binding authority.

⁶⁴ Under s 59(2)(b) EEZ Act

⁶⁵ *Protect Aotea v Auckland Council* [2021] NZEnvC 140 at [58]

⁶⁶ *Sustainable Ōtakiri Inc v Whakatāne District Council* [2025] NZSC 158 at [71]

⁶⁷ *TTR* at [8]. ‘Existing interests’ is defined at paragraph 484.

⁶⁸ *TTR* SC at [154]

⁶⁹ *Ibid*

⁷⁰ Kaitiakitanga brings in whanaungatanga because kaitiakitanga is based on familiar relationships (whanaungatanga) and ahi kaa. See *Trans-Tasman Resources* (SC) at [153]

⁷¹ Williams J indicated broad agreement with those findings at [296].

147. Clause 6(1)(d) of Sch 10 of the FTAA requires the Panel to take into account the s 59(2) EEZ Act matters. However, the EEZ Act's Treaty clause⁷² is not one of the provisions incorporated by reference into the FTAA, and the FTAA does not contain an express reference to the principles of the Treaty of Waitangi. The Panel asked commenters to address the relevance of Treaty principles, cultural values and kaitiakitanga to the Panel's consideration, and where they fit within the assessment framework.
148. At the legal issues hearing, iwi commenters submitted that although there is no express requirement in the FTAA to consider the Treaty and/or its principles (beyond reference to consistency with Treaty settlements), it is a well-accepted and established principle of law that the Treaty is a relevant extrinsic aid to statutory interpretation in the absence of express wording to the contrary. They submitted that tikanga-based rights and interests are existing interests for the purpose of an application that is considered under the FTAA.
149. The applicant submitted that the FTAA does not incorporate the principles of the Treaty of Waitangi, and that without direct incorporation the principles are not to be read into the legislation. It said there is no case law which supports reading in the principles without direct incorporation. It said that the definition of 'existing interest' in the EEZ Act is "clear on its face".
150. The Panel agrees with the Iwi commenters. The Supreme Court in *TTR* noted the move in contemporary legislation to include provisions giving more precise consideration to how Parliament wants the particular legislative scheme to provide for and protect Māori interests in light of the Crown's responsibilities under Te Tiriti. However, the Court emphasised that this move does not axiomatically give support to a narrow interpretation of Treaty clauses. Given the Treaty's 'constitutional significance',⁷³ and following numerous authorities,⁷⁴ William Young and Ellen France JJ said:⁷⁵
- [151] ... The courts will not easily read statutory language as excluding consideration of Treaty principles if a statute is silent on the questions ... An intention to constrain the ability of statutory decision-makers to respect Treaty principles should not be ascribed to Parliament unless that intention is made quite clear.
151. Although s 12 EEZ Act is not part of the Panel's consideration, there is no provision saying that the Treaty of Waitangi is not relevant to the Panel's assessment or excluding tikanga-based rights and interests from the purview of the definition of existing interest in s 59. The applicant noted that the High Court in *Ngāti Kūku* said that decision-makers "are not required to consider the principles of the Treaty".⁷⁶ That statement is part of the Court's recital of the relevant clauses applicable to

⁷² Section 12 EEZ Act

⁷³ *TTR* at [150]

⁷⁴ *Huakina Development Limited v Waikato Valley Authority* [1987] 2 NZLR 188 at 210 and 233; *Barton-Prescott v Director-General of Social Welfare* [1997] 3 NZLR 179 (HC) at 184; *Tukaki v Commonwealth of Australia* [2018] NZCA 324, [2018] NZAR 1597 at [36]–[37]; and *Ngaronoa v Attorney-General* [2017] NZCA 351, [2017] 3 NZLR 643 at [46].

⁷⁵ This finding was agreed to by all members of the Court at [8].

⁷⁶ *Ngāti Kūku* at [64]

RMA approvals. It is not a finding about what the scheme of the FTAA requires, let alone what it requires where the approvals are sought under the EEZ Act.

152. Having said that, the Panel is acutely conscious of the need to distinguish between cultural values and interests that qualify as 'existing interests' that fall to be considered under s 59 EEZ Act, and obligations arising under Treaty settlements that are relevant under ss 7, 81(2)(c), 82(3), 84 and 85(1)(b) FTAA.
153. In considering any effects on existing interests, s 60 EEZ Act directs the panel to have regard to:
- (a) the area that the activity would have in common with the existing interest; and
 - (b) the degree to which both the activity and the existing interest must be carried out to the exclusion of other activities; and
 - (c) whether the existing interest can be exercised only in the area to which the application relates; and
 - (d) any other relevant matter.
154. The Panel has applied s 60 in considering effects on existing interests.
155. Under s 59(2)(b) the panel must take into account any effects on the environment or existing interests of other activities undertaken in the area covered by the application or in its vicinity, including the effects of activities that are not regulated under the EEZ Act and effects that may occur in New Zealand or in the waters above or beyond the continental shelf beyond the outer limits of the exclusive economic zone.
156. Section 59(2)(c) directs the panel to take into account the effects on human health that may arise from effects on the environment. For marine discharges, the obligation is to take into account the effects on human health of the discharge of harmful substances.⁷⁷ Sediments from mining activities are by definition a 'harmful substance'.⁷⁸
157. Under s 59(2)(d) EEZ Act the panel must take into account the importance of protecting biological diversity (which is defined by reference to the RMA definition as "the variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems"). This provision is intended to implement New Zealand's obligations under the Convention on Biological Diversity. The Panel understands the reference to the 'importance of protecting' biodiversity and marine ecosystem integrity as going to the weight attributed to this consideration at the EEZ Act stage of its analysis, and as reinforcing the s 10 purpose of environmental protection.
158. Section 59(2)(e) requires the panel to take into account the importance of protecting rare and vulnerable ecosystems and the habitats of threatened species. "Threatened species" is defined in s 4(1) to include any species that falls within the definition of threatened species in s 2(1) of the Biosecurity Act 1993 or is declared to be a threatened species or an at-risk species by the Minister of Conservation

⁷⁷ Section 59(2A)

⁷⁸ EEZ Regs 2015

under s 19 EEZ Act. The Minister of Conservation has issued a Declaration as to which species are threatened under s 19 EEZ Act.⁷⁹

159. Under the Biosecurity Act 1993, threatened species includes “any species within the meaning given to the terms extinct in the wild, critically endangered, endangered, and vulnerable by the International Union for Conservation of Nature and Natural Resources”. The International Union for Conservation of Nature (**IUCN**) Red List is the world’s most comprehensive information source on the conservation status of animal, fungi and plant species.⁸⁰ It classifies species into nine categories, four of which are extinct in the wild, critically endangered, endangered, and vulnerable. The IUCN Red List defines these terms as:⁸¹
- a. Extinct in the Wild: “A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A Taxon is presumed Extinct in the Wild when exhaustive surveys in know and/or expected habitat, at appropriate times (diurnal, seasonal, annual), throughout its historic range have failed to record an individual.”
 - b. Critically endangered: “A taxon is Critically Endangered when the best available evidence indicates that it meets any of the criteria A to E for Critically Endangered, and it is therefore considered to be facing an extremely high risk of extinction in the wild.”
 - c. Endangered: “A taxon is Endangered when the best available evidence indicates that it meets any of the criteria A to E for Endangered, and it is therefore considered to be facing a very high risk of extinction in the wild.”
 - d. Vulnerable: “A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A to E for Vulnerable, and it is therefore considered to be facing a high risk of extinction.”
160. Under s 59(2)(f), the panel must take into account the economic benefit to New Zealand of allowing the application. The Supreme Court held that any material economic dis-benefits/costs must be taken into account in assessing a project’s economic benefit.⁸² In other words, it is a net economic benefit.⁸³ However, the panel does not need to include environmental, social and cultural costs in the s59(2)(f) assessment of economic benefit.⁸⁴ A qualitative analysis of environmental, social, and cultural benefits and costs [under other s 59 clauses] is permissible.⁸⁵

⁷⁹ Declaration Notice dated 11 July 2013: <https://gazette.govt.nz/notice/id/2013-go4245>

⁸⁰ <https://www.iucnredlist.org/>

⁸¹ Ibid

⁸² *Trans-Tasman Resources* (SC) per William Young and Ellen France JJ at [189], with other members of the Court concurring at [10]

⁸³ *Trans-Tasman Resources* (SC) per William Young and Ellen France JJ at [190] and other members concurring at [10]

⁸⁴ *Trans-Tasman Resources* (SC) per William Young and Ellen France JJ at [195]–[196] and other members concurring at [10]

⁸⁵ Ibid

161. Section 59(2)(g) EEZ Act requires the Panel to take into account the efficient use and development of natural resources. This provision raises the question whether possible alternative uses of the site require assessment. As discussed further in section 26, the Panel has concluded that an alternatives assessment is not required.
162. Under s 59(2)(h) the panel needs to take into account the nature and effect of other marine management regimes. ‘Marine management regime’ is defined as including the regulations rules, and policies made and the functions, duties and powers conferred under an Act that applies to the territorial sea, exclusive economic zone and/or continental shelf, including those established under the statutes listed in s 59(2)(h). The panel is required to consider “the key features of the other management regimes and how they would apply if the activity were being pursued under those regimes”.⁸⁶
163. The panel is required to take into account best practice in relation to an industry or activity under s 59(2)(i) EEZ Act.
164. Under s 59(2)(j) the panel must take into account the extent to which imposing conditions under s 63 might avoid, remedy, or mitigate the adverse effects of the activity. This provision has been at the forefront of the Panel’s consideration. It is considered throughout the effects assessment and in section 31.
165. Section 59(2)(k) directs the panel to take into account relevant regulations. The Exclusive Economic Zone and Continental Shelf (Environmental Effects—Permitted Activities) Regulations 2013 (**EEZ Regs 2013**) and the Exclusive Economic Zone and Continental Shelf (Environmental Effects—Discharge and Dumping) Regulations 2015 (**EEZ Regs 2015**) are relevant. The EEZ Regs 2013 state which activities are permitted activities for the purpose of the EEZ Act, and the conditions for undertaking those permitted activities without a marine consent. They also set out the EPA’s monitoring duties and include notification and other pre-commencement requirements for permitted activities. The EEZ Regs 2015:
 - a. specify that sediment discharged from mining is a discretionary activity.⁸⁷
 - b. state matters that must be included in an impact assessment for a marine discharge consent.⁸⁸
166. Section 59(2)(l) EEZ Act requires the panel to take into account other applicable law. The Supreme Court held that tikanga Māori can be part of other “applicable law”.⁸⁹

[172] As we have discussed, we see tikanga as also covered by the effect of s 12 as it relates to s 59. It seems more likely that because the primary issues in an application for a marine consent will be directed to the effects on existing interests, the focus will, for practical purposes, be on s 59(2)(a) and (b). But we accept that tikanga could also be

⁸⁶ *Trans-Tasman Resources* (SC) per William Young and Ellen France JJ at [189], with other members concurring at [10].

⁸⁷ Reg 10.

⁸⁸ Reg 35.

⁸⁹ *TTR* at [9] and per William Young and Ellen France JJ at [172].

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covered by s 59(2)(l) in those cases where the issues facing the decision-maker require its consideration.

167. The Panel considers that this finding applies to an application under the FTAA, despite s 12 EEZ Act being excluded. The Supreme Court's findings on this point were not predicated on s 12.⁹⁰ Rather, they were based on broad applicability of Te Tiriti o Waitangi as a constitutional founding document. Given the background documents do not reveal an express intent to exclude Te Tiriti from the FTAA, and neither does the FTAA's text, the Panel considers those same principles support application of the Supreme Court's approach to its decision.⁹¹
168. 'Tikanga Māori' means Māori customary values and practices.⁹² In terms of what this requires of the panel, William Young and Ellen France JJ found tikanga will fall under s 59(2)(l):
- [172] ... where the issues facing the decision-maker require its consideration ... the decision-maker would look at the tikanga itself and consider what it might say about the rights and interests of customary "owners" or of the resources itself. To give just one illustration, the iwi parties in this case emphasise the mauri of the area. Considering the proposed activity in terms of tikanga may indicate that material harm extends beyond the physical effects of a discharge, or that pollution can be spiritual as well as physical.
169. Under s 59(2)(m) the panel must take into account any other matter it considers relevant and reasonably necessary to determine the application. The Courts have addressed the scope of relevant considerations under such provisions. In *Unison Networks Ltd v Commerce Commission*⁹³ the Supreme Court said:
- [53] A statutory power is subject to limits even if it is conferred in unqualified terms. Parliament must have intended that a broadly framed discretion should always be exercised to promote the policy and objects of the Act. These are ascertained from reading the Act as a whole...
- ...
- [55] Often, as in this case, a public body, with expertise in the subject matter, is given a broadly expressed power that is designed to achieve economic objectives which are themselves expansively expressed. In such instances Parliament generally contemplates that wide policy considerations will be taken into account in the exercise of the expert body's powers.
170. The applicant submits that the Minerals Strategy⁹⁴ and Critical Minerals List⁹⁵ are relevant under this provision. The Panel addresses these documents at section 29.1.
171. Under s 59(3)(aa) the panel must have regard to any EEZ policy statements. However, there are none.

⁹⁰ This is likely because of the framing of s 12 which refers to four aspects of the EEZ Act as being how the Treaty principles will be given effect to

⁹¹ See also the discussion at paragraphs 147 to **Error! Reference source not found.** above.

⁹² Section 4(2) EEZ Act, s 2(1) RMA

⁹³ *Unison Networks Ltd v Commerce Commission* [2008] 1 NZLR 42 (SC)

⁹⁴ New Zealand Government, *A Minerals Strategy for New Zealand to 2040*, January 2025

⁹⁵ New Zealand Government, *A Critical Minerals List for New Zealand*, January 2025

172. Section 59(3)(c) requires the panel to have regard to any advice received from the Māori Advisory Committee. The Panel has not received advice from the Māori Advisory Committee.
173. Section s 59(5) EEZ Act directs the panel not to have regard to:
- a. trade competition or the effects of trade competition;
 - b. effects on climate change of discharging greenhouse gases into the air; and
 - c. any effects on a person's existing interest if the person has given written approval to the proposed activity and not subsequently withdrawn that approval.
174. The EEZ Act does not define 'trade competition' or contain any additional provisions to guide the exclusion of trade competition considerations, unlike the RMA which contains a statutory code on the topic.⁹⁶ Trade competition relates to rivalrous commercial behaviour and does not extend to wider market or environmental effects.⁹⁷ The Panel does not consider trade competition to be relevant to the application.
175. With respect to greenhouse gases, 'discharge' is defined broadly in the EEZ Act. It includes "any release, disposal, spilling, leaking, pumping, emitting, or emptying".⁹⁸ So s 59(5) would prevent consideration of the discharge to air of stored carbon that is released from the seabed. This prohibition is not framed in a way that prevents consideration of effects of releasing stored carbon into seawater, or of reductions in carbon flux to the seabed, as discussed above.
176. There are no relevant written approvals.

Sections 61 and 62 EEZ Act

177. Section 61 is headed 'Information principles'.
178. The relevant parts of s 61 are subs (1)(b) and (c) and (2) – (5). Those provisions say:
- (1) When considering an application for a marine consent, a marine consent authority must—
 - ...
 - (b) base decisions on the best available information; and
 - (c) take into account any uncertainty or inadequacy in the information available.
 - (2) If, in relation to making a decision under this Act, the information available is uncertain or inadequate, the marine consent authority must favour caution and environmental protection.
 - (3) If favouring caution and environmental protection means that an activity is likely to be refused, the marine consent authority must first consider whether taking an adaptive management approach would allow the activity to be undertaken.
 - (4) Subsection (3) does not—

⁹⁶ Part 11A RMA

⁹⁷ *Bunnings Ltd v Hastings DC* [2011] NZEnvC 330.

⁹⁸ Section 4 EEZ Act

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- (a) apply to an application for—
 - (i) a marine dumping consent; or
 - (ii) a marine discharge consent; or
 - (iii) a marine consent in relation to an activity referred to in section 20(2)(ba);
 - or
 - (b) limit section 63 or 64.
- (5) In this section, best available information means the best information that, in the particular circumstances, is available without unreasonable cost, effort, or time.

179. The Panel is not subject to the direction in s 61(1)(a) EEZ Act to “make full use of its powers to request information from the applicant, obtain advice, and commission a review or a report”. However, the Panel has needed to request information in order to ensure that its decision properly addresses the decision-making criteria and is based on the best available information to the extent possible in the time available.
180. Other than s 61(1)(a), the requirements of s 61 are directly relevant in several ways. They must be taken into account when the panel is considering the application.⁹⁹ They are part of the decision-making criteria.¹⁰⁰ They must be applied in achieving the purpose of the EEZ Act.¹⁰¹ Their importance is reinforced by a marine consent authority’s express discretion under s 62(2) EEZ Act to refuse consent where the decision-maker does not have adequate information to determine an application.¹⁰²
181. In addition, the requirement to favour caution and environmental protection if the information available is uncertain or inadequate is a statutory implementation of the precautionary principle,¹⁰³ which is expressed in Principle 15 of the Rio Declaration on Environment and Development 1992 (potentially relevant under s 11 EEZ Act¹⁰⁴). The Panel must take s 11 EEZ Act into account when considering the application.¹⁰⁵
182. There was no agreement on whether s 62(2) EEZ Act forms a standalone ground for declining a marine consent in this process (or whether instead the Panel’s powers to decline are confined to the matters in s 85 FTAA). The applicant submitted that the approach that accords the most with the intention of the provisions as a whole is that the cross-reference in cl 6 of Sch 10 to s 62(2) EEZ Act should be read as adding one additional ground on which a Panel might decline an approval (namely inadequate information) to the list in s 85 FTAA. Some commenters, including Talley’s Group Limited and Seafood New Zealand, agree with that interpretation. Other commenters¹⁰⁶ submitted that s 62(2) EEZ Act is not a standalone ground for declining an approval, but rather inconsistency with s 62(2) would be relevant as an adverse impact that weighs against granting the approvals

⁹⁹ Section 81(2)(b) and (3)(l) FTAA; cl 6(1)(d), sch 10 FTAA; s 61 EEZ Act.

¹⁰⁰ *Trans-Tasman Resources* (SC) at [103].

¹⁰¹ Section 10(3)(b) EEZ Act.

¹⁰² The relevance of s 62(2) to an application under the FTAA is addressed below.

¹⁰³ *Trans-Tasman Resources* (SC) at [324].

¹⁰⁴ Although the Rio Declaration is not expressly referenced in s 11, Winkelmann CJ discussed the Rio Declaration and noted that the list of conventions in s 11 is expressed to be non-exclusive. William Young and Ellen France JJ disagreed with its relevance.

¹⁰⁵ cl 6(1)(b), sch 10 FTAA, s 11 EEZ Act

¹⁰⁶ EDS, Forest & Bird, Greenpeace/KASM, Ngāti Ruanui and Taranaki Regional Council

(in other words, that it can be considered in the proportionality assessment under s 85(3) FTAA). The Panel agrees with the latter interpretation.

183. Section 62(2) EEZ Act is a matter that the panel must ‘take into account’¹⁰⁷ rather than ‘apply’ or ‘comply with’ directly,¹⁰⁸ and s 81(2)(f) FTAA is clear that a panel may decline the approval only in accordance with section 85 FTAA (which does not list s 62(2) EEZ Act as a basis for declining consent). The same is true of the requirement to favour caution and environmental protection if information is uncertain or inadequate.
184. That is not to say that inadequate information cannot be a basis for declining consent. If: (i) information is inadequate or uncertain such that favouring caution is required, and ‘favouring caution’ cannot be achieved through conditions, or (ii) the Panel considers that it does not have adequate information to determine the application, these scenarios would meet the definition of an ‘adverse impact’ in s 85(5), which is “any matter considered by the panel in complying with s 81(2) that weighs against granting the approval”. As such, the inadequacy of information could provide the basis for declining the approval if the panel considers that adverse impact, by itself or in combination with any other adverse impact, is sufficiently significant to be out of proportion to the project’s regional or national benefits.¹⁰⁹ This is addressed below in relation to s 85 FTAA.
185. ‘Best available information’ means the best information that, in the particular circumstances, is available without unreasonable cost, effort, or time.¹¹⁰
186. The Decision Making Committee that determined TTRL’s 2016 application requested a wide range of information, commissioned reports on the sediment plume and propagation of noise and convened further expert conferencing to contribute to the analysis of that information, to ensure it had access to the best available information upon which to base its decision. The Decision Making Committee’s approach throughout the process was to “reduce uncertainty but also to recognise that the cost of augmenting some of the knowledge of the marine environment by way of survey efforts may not meet the Act’s definition of best available information”.¹¹¹ It gave the following example:¹¹²

For example, in respect of potential adverse impacts of marine mammals Professor Slooten told us that a minimum of 3 years’ survey effort would be required to establish knowledge about the seasonal patterns of marine mammals. She also said that establishing changes in reproductive rates or feeding efficiency would require a decade of study. Similarly, Mr van Helden drew our attention to deficiencies in scientific understanding of even the full range of marine mammals that might be found in the STB.

¹⁰⁷ CI 6 of Sch 10 FTAA

¹⁰⁸ Compare s 81(2)(c) FTAA

¹⁰⁹ Noting that the Panel may not form the view that an adverse impact meets the threshold in s85(3)(b) **solely** on the basis that the adverse impact is inconsistent with or contrary to a provision of the EEZ Act or any other document that a panel must take into account or otherwise consider in complying with section 81(2).

¹¹⁰ EEZ Act, s 34(4).

¹¹¹ Decision Making Committee decision at 13

¹¹² At 14

187. The Decision Making Committee exercised its judgment about what information is the best available information for the application, having regard to issues of cost, effort and time.¹¹³
188. The Supreme Court held that the Decision Making Committee's approach was orthodox. It was required to make a factual assessment of what constitutes unreasonable cost and delay in the circumstances of the case,¹¹⁴ and did so. The Panel has taken the same approach to assessing what information constitutes the best available information in the circumstances, while also factoring the fast-track context within which the application is being considered. The context includes the decision timeframe and the s 10 FTAA obligation to use timely, efficient, consistent, and cost-effective processes that are proportionate to the functions, duties, or powers being performed or exercised.
189. The Supreme Court held that the EEZ Act does not require complete information. Discharge consents may be granted even on incomplete information, as long as that is the best available information and that, taking a cautious approach and favouring environmental protection, the decision-maker is satisfied that the bottom line in s 10(1)(b) is met: that there is no material harm from pollution or that material environmental harm can be avoided, remedied (within a reasonable timeframe) or mitigated (so that it is not material) through the use of conditions.¹¹⁵ That approach must also apply (discharge consents may be granted on incomplete information) under the FTAA, given that ss 10 and 61 – 62 EEZ Act are matters to 'take into account'.
190. However, the Supreme Court majority¹¹⁶ found that the Decision Making Committee could not have met the s 10(1)(b) requirement to favour caution and environmental protection, given "the almost total lack of information in this case on seabirds and marine mammals and the similar issues with the sediment plume and suspended sediment levels".¹¹⁷ Glazebrook J said:
- [275] This information deficit could not legitimately be compensated for by conditions designed to collect the very information that would have been required before any conclusion at all could be drawn as to the possible effects, any possible material harm and any effect of any possible conditions. No conclusion was therefore possible on whether the bottom line could be met and a consent could not legitimately be granted.
191. The Panel considers that this finding illustrates the way in which the substantive requirements of the EEZ Act inform the level of information needed and the extent to which pre-commencement monitoring conditions can be relied upon to fill information gaps.
192. For activities other than the marine discharge consent, the panel must take into account that if favouring caution and environmental protection means that an activity

¹¹³ At 25

¹¹⁴ *Trans-Tasman Resources* (SC) per William Young and Ellen France JJ at [138], with Glazebrook J concurring at [279] and Winkelmann CJ concurring at [330]

¹¹⁵ *TTR* at [10].

¹¹⁶ *TTR* at [275] per Glazebrook J, [294] per Williams J and [328] per Winkelmann CJ

¹¹⁷ At [274] per Glazebrook J.

is likely to be refused, the panel must first consider whether taking an adaptive management approach would allow the activity to be undertaken.

193. An 'adaptive management approach' includes:¹¹⁸
- a. allowing an activity to commence on a small scale or for a short period so that its effects on the environment and existing interests can be monitored;
 - b. any other approach that allows an activity to be undertaken so that its effects can be assessed and the activity discontinued, or continued with or without amendment, on the basis of those effects.
194. The Supreme Court addressed whether, in imposing conditions seeking to avoid particular effects and requiring ongoing monitoring to achieve that outcome, the Decisions Making Committee had in fact applied an adaptive management approach.¹¹⁹ William Young and Ellen France JJ considered this in respect of the two broad categories of conditions imposed: (i) those involving pre-commencement monitoring; and (ii) those involving ongoing monitoring.¹²⁰ An example of pre-commencement monitoring conditions was Condition 9(a) which stated that "There shall be no adverse effects at a population level of [various threatened] seabird species that utilise the South Taranaki Bight" at all times during the terms of the consent. Conditions 66(b) and (c) required a Seabirds Effects Mitigation and Management Plan to set out indicators of adverse effects at a population level for those seabirds and identify responses or actions to be undertaken by TTRL if the indicators were reached. The broad consenting terms in condition 9(a) ("no adverse effects") were "left to be 'flesh[ed] out' in management plans prepared following extensive post-decision information gathering". William Young and Ellen France JJ said:
- [205] ... There is much force in the argument for the first respondents that these conditions and other pre-commencement monitoring conditions are a mechanism for providing baseline information as to effects, which was lacking in TTR's application. There is some support for that in the descriptions used in the decision of the DMC. And we agree, as the Court of Appeal also found, that these conditions suffer the more fundamental problem we have identified above in that they do not meet the requirement to favour caution and environmental protection.
195. In relation to ongoing monitoring conditions, William Young and Ellen France JJ accepted the need to distinguish between orthodox review conditions, which the EPA is expressly empowered to impose, and those which constitute adaptive management conditions, which are prohibited.¹²¹ The Court approved of the Court of Appeal's 'consent envelope' approach:¹²²

[224] A set of conditions may amount to an adaptive management approach whether they contemplate adjustment of the consent envelope by the EPA or some other decision-

¹¹⁸ EEZ Act, s 64(2).

¹¹⁹ At [200] per William Young and Ellen France JJ. The Court was largely in agreement on this point as recorded at [10]. See also Glazebrook J at [281].

¹²⁰ At [204].

¹²¹ At [206] per William Young and Ellen France JJ.

¹²² At [207] per William Young and Ellen France JJ. The Court was largely in agreement: at [10].

maker in light of the monitoring that has occurred, or an adjustment that occurs automatically by reference to benchmarks established in the conditions. An adaptive management approach will often involve reference back to a decision-maker to assess the implications of the ongoing monitoring and adjust the consent envelope in light of that assessment. But that is not, in our view, an essential element of an adaptive management approach.

[225] The consents that were granted by the DMC in this case provide for pre-commencement monitoring to establish relevant baselines, development of management plans, and ongoing monitoring by reference to the relevant conditions and the monitoring plans. The monitoring plans are required to provide for operational responses in the event that the requirements of the consent and the monitoring plans are not met.

[226] However, the conditions imposed by the DMC do not contemplate adjustment of the consent envelope in response to monitoring and assessment of the effects of the consented activities. The proposed mining activities are authorised in their entirety, not in stages. The conditions do not contemplate the scaling back of the authorised mining activities, or any adjustment of the effects permitted under the consent, over and above the adjustments contemplated by the EEZ Act in relation to consents generally. The conditions do contemplate TTR adjusting the way it carries out its operations to ensure it remains within the consent envelope — but that does not amount to adaptive management.

196. The Panel has carefully assessed the suite of proposed conditions to determine whether they constitute adaptive management. If so, this will weigh against the approval (but will not be a bar to the Panel imposing such conditions under the FTAA).

Sections 63, 64, 65, 66 and 67 EEZ Act and cl 7 Sch 10 FTAA

197. Sections 63 – 67 EEZ Act must be taken into account by the panel under cl 6 of Sch 10 of the FTAA. Those provisions also apply “with any necessary modifications as if the references to a marine consent authority in those sections were references to the panel” under cl 7 of Sch 10 of the FTAA.
198. Section 63(1) (conditions of marine consents) empowers the panel to grant a marine consent on any condition that it considers appropriate to deal with adverse effects of the activity authorised by the consent on the environment or existing interests. Section 63(2) lists in a non-exclusive way the types of conditions that may be imposed, including bond and public liability insurance conditions.
199. The panel must take into account that under s 63(3) and (4) EEZ Act it cannot impose a condition:
- a. if it would be inconsistent with the EEZ Act or any regulations.
 - b. to deal with an effect if the condition would conflict with a measure required in relation to the activity by another marine management regime or the Health and Safety at Work Act 2015.
200. Sections 63(3) and (4) EEZ Act do not prevent the panel imposing conditions that do not comply with those limitations. However, non-compliance with the limitations

may be an adverse impact that the panel factors into its proportionality assessment under s 85(3) FTAA.

- 201. Sections 63(2)(a)(i) and 65 EEZ Act provide for the imposition of a bond condition.
- 202. Sections 63(2)(a)(iii) and 66 provide for conditions relating to recording and sampling.
- 203. Sections 63(2)(a)(iv) and 67 specify requirements where the panel imposes a condition requiring the consent holder to appoint an observer.

Clause 6 Sch 10 weighting

- 204. As set out above, the Panel has weighed cls 6(a) to (d) in the manner directed: by giving the greatest weight to paragraph (a) – the purpose of the FTAA set out in s 3.

Section 81(2)(c) - Section 82

- 205. Section 81(2)(c) directs the panel to “comply with” s 82. It guides the effect of Treaty settlements on decision making. Section 82 says:

82 Effect of Treaty settlements and other obligations on decision making

(1) This section applies if a Treaty settlement, the Marine and Coastal Area (Takutai Moana) Act 2011, or the Ngā Rohe Moana o Ngā Hapū o Ngāti Porou Act 2019 is relevant to an approval.

(2) If the settlement or Act provides for the consideration of any document, the panel must give the document the same or equivalent effect through the panel's decision making as it would have under any relevant specified Act.

(3) The panel must also consider whether granting the approval would comply with section 7.

(4) In this section, document—

(a) means any document, arrangement, or other matter; and

(b) includes any statutory planning document amended as a result of the settlement or Act referred to in subsection (1).

- 206. Treaty settlement is defined as:

Treaty settlement means—

(a) a Treaty settlement Act; or

(b) a Treaty settlement deed

- 207. Further to this, a Treaty settlement Act is defined as:

(a) an Act listed in Schedule 3 of the Treaty of Waitangi Act 1975; or

(b) any other Act that provides redress for Treaty of Waitangi claims, including Acts that provide collective redress or participation arrangements for claimant groups whose claims are, or are to be, settled by another Act, including—

(i) the Maori Commercial Aquaculture Claims Settlement Act 2004;

(ii) the Ngā Mana Whenua o Tāmaki Makaurau Collective Redress Act 2014;

(iii) the Nga Wai o Maniapoto (Waipa River) Act 2012;

(iv) the Ngāti Tuwharetoa, Raukawa, and Te Arawa River Iwi Waikato River Act 2010;

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(v) the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 and secondary legislation that gives effect to section 10 of that Act and is made under Part 9 of the Fisheries Act 1996

208. A Treaty settlement deed is defined as:

- (a) means a deed or other agreement that—
 - (i) has been signed by or on behalf of a Minister of the Crown and representatives of a group of Māori; and
 - (ii) is in settlement of the claims of that group or in express anticipation, or on account, of that settlement; and
- (b) to avoid doubt, includes a deed or other agreement of the kind described in paragraph (a) that relates to the claims of a collective or combination of Māori groups; but
- (c) does not include an agreement in principle or any document that is preliminary to a signed and ratified deed

209. The background documents referred to in paragraph 223 above are clear that upholding Treaty settlements is intended to be the primary mechanism through which the FTAA respects the Crown's commitment to the Treaty of Waitangi. This suggests that a broad approach to determining relevance should be adopted, given the constitutional importance of the Treaty and the Art 2 guarantee.

210. A document is defined in s 82(4) as:

- a. any document, arrangement, or other matter; and
- b. includes any statutory planning document amended as a result of the settlement.

211. If a Treaty settlement provides for consideration of a 'document', the panel must give that document "the same or equivalent effect through the panel's decision making as it would have under any relevant specified Act."

212. The panel must also consider whether granting the approval would comply with s 7. Section 7 is addressed below in relation to s 85(1) FTAA.

Section 81(2)(d) - Section 83

213. Section 81(2)(d) requires the panel to comply with s 83 in setting conditions. Section 83 provides that the panel "must not set a condition that is more onerous than necessary to address the reason for which it is set in accordance with the provision of this Act that confers the discretion." Onerous is not defined by the FTAA but its ordinary meaning is well understood as 'burdensome'.¹²³ In the RMA context, case law establishes that conditions must not be unreasonable and must be proportionate to the issue.¹²⁴ These concepts were codified in s 108AA RMA as a requirement for conditions to be 'directly connected' to an adverse effect or rule.¹²⁵ The requirement for conditions to be not more onerous than necessary appears to

¹²³ Pocket Oxford Dictionary, 4th Ed, pg. 550

¹²⁴ See *Waitakere City Council v Estate Homes Ltd* [2006] NZSC 112 [66] and *Newbury DC v Secretary of State for the Environment* [1981] A.C 578

¹²⁵ Section 108AA(1)(b) RMA

go beyond that 'directly connected' concept. There is no exemption for volunteered conditions; even those conditions put forward by the applicant must meet s 83. Conditions set under s 84 (addressed next) are also subject to s 83.

Section 81(2)(e) - Section 84

214. Section 81(2)(e) empowers the panel to impose conditions under s 84. Section 84(1) provides that for the purposes of s 7, the panel may set conditions to recognise or protect a relevant Treaty settlement and any obligations arising under the MACA Act or the Ngā Rohe Moana o Ngā Hapū o Ngāti Porou Act 2019. Section 84(1) applies in addition to, and does not limit, any other powers to set conditions under the FTAA.¹²⁶
215. The Ngā Rohe Moana o Ngā Hapū o Ngāti Porou Act 2019 is not relevant to the area affected by the project, and no customary marine title or protected customary rights have yet been recognised in the area affected by the project. The MACA Act itself has limited 'obligations' in relation to applicants who do not yet have a customary right recognised under the MACA Act. Accordingly, the Panel's focus has been on Treaty settlements for the purpose of s 84.

Section 81(2)(f) – Section 85

Section 85(1)

216. Section 81(2)(f) specifies that the panel may decline approvals only in accordance with s 85 FTAA. Section 85(1) sets out when the panel must decline an approval. Section 85(3) empowers the panel to decline an approval if the circumstances of s 85(3) are met.
217. Section 85(1)(a) requires the panel to decline an approval that is for an ineligible activity. Whether the project includes an ineligible activity has already been addressed in section 2.3 of this decision.
218. Section 85(1)(b) EEZ Act provides that the panel must decline an approval if it considers that granting the approval would breach s 7. Section 7 says:

7 Obligation relating to Treaty settlements and recognised customary rights

- (1) All persons performing and exercising functions, powers, and duties under this Act must act in a manner that is consistent with—
- (a) the obligations arising under existing Treaty settlements; and
 - (b) customary rights recognised under—
 - (i) the Marine and Coastal Area (Takutai Moana) Act 2011;
 - (ii) the Ngā Rohe Moana o Ngā Hapū o Ngāti Porou Act 2019.
- (2) To avoid doubt, subsection (1) does not apply to a court or a person exercising a judicial power or performing a judicial function or duty.
- (3) In this section, existing Treaty settlements means Treaty settlements that exist at the time the relevant function, power, or duty is performed or exercised (rather than only those that exist at the commencement of this Act).

¹²⁶ Section 84(2) FTAA

219. This raises the question whether the panel is a ‘person exercising a judicial power or performing a judicial function or duty’ when deciding a substantive application. If so, s 7(1) will not apply to panel decisions.
220. The meaning of s 7 must be ascertained from its text in light of its purpose and context.¹²⁷ The relevant terms are ‘person’ and ‘judicial power, function or duty’. ‘Person’ includes a body of persons,¹²⁸ so would include a panel. ‘Judicial power, function or duty’ is not defined.
221. In *Panel Convener v Ngāti Paoa Trust Board* the Court of Appeal found, in the context of a challenge to the Panel Convener’s decision under the Covid 19 Recovery (Fast-track Consenting) Act 2020 not to appoint a person to a panel, that panels “perform a quasi-judicial function ... they occupy a position somewhere between a local authority and the Environment Court”.¹²⁹ Panels under the FTAA perform a similar function with similar powers, so that finding would be equally applicable.¹³⁰
222. While a quasi-judicial function may for some purposes be treated in the same way as a judicial function, the wider FTAA purpose and context indicates that s 7(2) does not encompass panels exercising a quasi-judicial function. Parliament intended Treaty settlements to be upheld in panel decisions under the FTAA,¹³¹ and this was carried through in the requirements for panels to:
- a. consider whether granting the approval would comply with s 7;¹³²
 - b. set conditions ‘for the purposes of s 7’;¹³³ and
 - c. decline an approval that the panel considers would breach s 7.¹³⁴
223. The intention that the s 7(2) exclusion does not apply to panels is clear from the Environment Committee’s report applying the recommendation of the Ministry’s Departmental report to the Select Committee in response to submissions.¹³⁵ The Ministry stated in that report:

170. The Chief Justice questioned “whether [clause 6] is intended to apply to judges in the exercise of judicial powers and, if it is, whether that is appropriate. [...] In the context of cases coming before them, the courts will also be required to determine what the

¹²⁷ Section 10 Legislation Act 2019.

¹²⁸ Section 4(2)(a) FTAA, s 2 RMA

¹²⁹ *Panel Convener v Ngāti Paoa Trust Board* [2023] 3 NZLR 379 at [30]. The Supreme Court’s decision declining leave in *Glenpanel Development Ltd v Expert Consenting Panel* [2025] NZSC 109 at [7] also referred to “the tests for apparent bias and conflicts of interest for lawyers who **act in a quasi-judicial capacity** as members of expert consenting panels.”

¹³⁰ Clause 3, Sch 3 FTAA.

¹³¹ In the Bill’s first reading, Minister Bishop said “We are determined to cut through the thicket of red and green tape holding New Zealand back by fast tracking consents for projects of regional and national significance whilst protecting Treaty settlements and the environment” Bishop, C. (7 March 2024) New Zealand Parliamentary Debates vol 774. Available at: https://www3.parliament.nz/en/pb/hansard-debates/rhr/combined/HansD_20240307_20240307 (Accessed 10 October 2025).

¹³² Section 83(3) FTAA

¹³³ Section 84(1) FTAA

¹³⁴ Section 85(1)(b) FTAA

¹³⁵ [Ministry for the Environment \(Departmental report\) - New Zealand Parliament](#) pages 41-43.

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legislation (including Clause 6) requires of decision-makers, and whether those requirements have been met. It is unusual, against that background, to apply a provision such as Clause 6 directly to the courts".

..

76. Further changes to the clause are not within the scope of the policy intent. We agree with the Chief Justice's submission and note that there was no policy intent to include courts within the scope of this clause.

..

Recommendation 19. We recommend that clause 6 does not apply to the courts, or procedural and administrative matters concerning courts.

224. Accepting the Ministry's recommendation and in inserting cl 6(2), which became s 7(2), the Select Committee said:¹³⁶

We also recommend inserting clause 6(2) to make clear that clause 6(1) does not apply to the courts, or to any procedural or administrative matters concerning courts.

225. The Panel invited submissions on this issue. Te Korowai o Ngāruahine and Ngāti Ruanui submitted that section 7(2) FTAA was not intended to apply to the Panel, otherwise the directive in s 85(1)(b) FTAA to consider whether an approval breaches s 7 would be redundant. The applicant submitted that the members of the Panel are exercising a judicial power or performing a judicial function or duty, and that the nature of the Panel's role to impartially determine the application, including by evaluating and deciding matters of contested fact supports this interpretation. It submitted that the obligation in s 7(1) 'may not' apply to panels. However, in oral submissions at the Legal Issues hearing, counsel for the applicant also submitted that a Panel could not give effect to s 85(1) if it were to apply s 7 'according to its face', and acknowledged that the applicant's interpretation may not have been one that Parliament intended.

226. The Panel is satisfied that the s 7(2) exclusion does not apply to panels, and that the obligation in s 7(1) to act in a manner that is consistent with obligations arising under Treaty settlements is intended to apply to panel decisions, for the reasons set out above.

227. 'Existing Treaty settlements' is defined as Treaty settlements "that exist at the time the relevant function, power, or duty is performed or exercised (rather than only those that exist at the commencement of this Act)".¹³⁷

228. In respect of the Marine and Coastal Area (Takutai Moana) Act 2011 (**MACA Act**), the obligations under s 7 concern "customary rights recognised under" the MACA Act. Under the MACA Act customary rights are recognised when they are confirmed by a protected customary rights order or an agreement.¹³⁸ This means that the scope of rights relevant to the panel's s 7 assessment is smaller than the scope of rights relevant to its assessment of existing interests under s 59 EEZ Act. It is limited

¹³⁶ <https://selectcommittees.parliament.nz/v/SelectCommitteeReport/71eb1c85-d5ea-4006-4936-08dceefd594f?lang=en> page 10.

¹³⁷ Section 7(3) FTAA.

¹³⁸ MACA Act, s 9(1) definition of "protected customary right".

to customary rights that have been recognised through completion of the MACA Act process (of which, presently, there are none).

229. Section 7 requires the panel to consider if granting an approval is “consistent with” the obligations under existing Treaty Settlements and recognised customary rights. In *Greenpeace v Hiringa Energy* the Court of Appeal considered whether there was any legal error in a panel decision where the requirement was for the panel to be “consistent with” the principles of the Treaty. Importantly, iwi and hapū views on the project’s cultural effects did not align, leading to some being in support and some in opposition to the project. In that context, the Court relevantly found that:

- a. the decision-maker must show it has engaged with the cultural issues raised and satisfied itself that the adverse cultural effects which would prevent ‘consistency’ with the principles of the Treaty have been addressed.¹³⁹
- b. the assessment of the panel must take place within the legislative scheme based on the evidence before it at the time it heard the application.¹⁴⁰
- c. a finding that a project is not fully consistent with Māori cultural and spiritual values does not mean a project is not consistent with the principles of the Treaty.¹⁴¹

230. The Panel has sought to identify the Treaty settlement obligations that are relevant to the project and to determine whether granting the approvals is consistent with those obligations. This is covered in sections 4 and 32 respectively of the decision.

Section 85(3) – (5)

231. Section 85(3) – (5) says:

(3) A panel may decline an approval if, in complying with section 81(2), the panel forms the view that—

- (a) there are 1 or more adverse impacts in relation to the approval sought; and
- (b) those adverse impacts are sufficiently significant to be out of proportion to the project’s regional or national benefits that the panel has considered under section 81(4), even after taking into account—

- (i) any conditions that the panel may set in relation to those adverse impacts; and
- (ii) any conditions or modifications that the applicant may agree to or propose to avoid, remedy, mitigate, offset, or compensate for those adverse impacts.

(4) To avoid doubt, a panel may not form the view that an adverse impact meets the threshold in subsection (3)(b) solely on the basis that the adverse impact is inconsistent with or contrary to a provision of a specified Act or any other document that a panel must take into account or otherwise consider in complying with section 81(2).

(5) In subsections (3) and (4), adverse impact means any matter considered by the panel in complying with section 81(2) that weighs against granting the approval.

¹³⁹ *Greenpeace v Hiringa Energy* at [173], approving para [272] of High Court decision

¹⁴⁰ At [173], approving para [274] of High Court decision

¹⁴¹ At [207]

232. Consistently with the approach adopted by other panels, this Panel understands s 85(3) to require assessments:
- a. of the extent of the project's regional or national benefits;
 - b. of the significance of adverse impacts; and
 - c. whether the adverse impacts are 'sufficiently significant' to be out of proportion to the project's regional or national benefits.
233. Section 85(3) gives the panel the discretion to decline an approval where there are one or more adverse impacts that weigh against granting the approval, and the adverse impacts are sufficiently significant to be out of proportion to the project's regional or national benefits. An 'adverse impact' means any matter considered by the panel in complying with section 81(2) that weighs against granting the approval.¹⁴² This is a factual proportionality assessment for the panel.
234. The panel must take into account conditions it may set, and conditions or modifications the applicant may agree to (for example, in response to the panel's draft decision) when undertaking the proportionality assessment. Section 85(4) provides that a panel "may not form the view that an adverse impact meets the threshold in subsection (3)(b) solely on the basis that the adverse impact is inconsistent with or contrary to a provision of a specified Act or any other document that a panel must take into account or otherwise consider in complying with section 81(2)."
235. The parties' submissions and the Panel's findings on how to assess benefits and dis-benefits, including for the purpose of s 85(3), is addressed above at paragraphs 85-95. The Panel also sought assistance on other aspects of the interpretation and application of s 85(3)-(5).
236. The Panel also asked how inconsistency with a provision of the EEZ Act, or with a document that the panel must take into account or consider in complying with s 81(2), should be factored into the panel's s 85(3) assessment.
237. There was agreement that inconsistency with a provision of the EEZ Act or with a document that the panel must take into account or consider in complying with s 81(2) is an "adverse impact" that must be considered under s 85(3) FTAA. There was disagreement as to how inconsistency with a single provision or document should be factored into the s 85(3) assessment; in other words, how s 85(4) applies. Section 85(4) states that a panel may not form the view that an adverse impact meets the threshold in subs (3)(b) solely on the basis that the adverse impact is inconsistent with or contrary to a provision of a specified Act or any other document that a panel must take into account or otherwise consider in complying with s 81(2).

¹⁴² Section 85(5) FTAA.

238. The applicant submitted that:

Subsection (4) does not preclude inconsistency with a relevant provision from being a consideration under s 85(3)(b), alongside other considerations. However, if—in the absence of the inconsistency—the adverse impact would be considered “in proportion” to the project’s benefits, and consideration of the inconsistency amplifies the significance of the impact so that it would be considered “out of proportion” to those benefits, that exceeds the limits of the statutory bar in s 85(4).

An attempt to introduce to the s 85(3) tests the type of consideration of inconsistencies that s 85(4) forbids is only legitimate to the extent that this does not alter the outcome. If accounting for the inconsistency would “tip the balance”—i.e. lead the Panel to conclude that the impact is so significant as to be out of proportion with the benefits—then it is the operation of the inconsistency that is determining the outcome, and this is exactly the situation that s 85(4) seeks to prevent.

239. The Panel understands this to mean that the s 85(4) bar does not only apply where the sole adverse impact is inconsistency with a provision or document, but also applies if there are several adverse impacts which do not breach the proportionality threshold in s 85(3), and the additional inconsistency with a provision or document would tip the adverse impacts over the threshold.

240. EDS submitted that s 85(4) does not preclude substantial weight being applied to the individual instrument wording and influencing the s 85(3) FTAA determination, particularly where the language used is directive, such as the requirement to apply precaution where an assessment is incomplete and there are significant risks to high biodiversity values. EDS submitted that, contrary to the position advanced by the applicant, s 85(4) of the FTAA does not preclude the breach of the instrument’s wording from tipping the s 85(3) proportionality balance.

241. The Panel accepts that no adverse impact may be held to be out of proportion to the benefits of the project if the only basis for reaching that conclusion is that the impact is inconsistent with or contrary to a specified Act or other document the panel is required to take into account. That is not to say that the panel may not have regard to inconsistency with or breach of a relevant legislative provision or document; just that the inconsistency or breach may not be the only reason for holding the adverse impact to be disproportionate. Given the Panel’s findings in section 34.2, it has not been necessary for the Panel to determine how s 85(4) would apply in all scenarios (including the applicant’s ‘tip the balance’ scenario, or the scenario where there is more than one inconsistency with an Act or document).

242. The Panel also invited submissions on what ‘out of proportion’ means in s 85(3) and how it should be applied.

243. South Taranaki District Council submitted that ‘out of proportion’ means that the identified adverse impacts (after mitigation by any consent conditions or modifications) are larger, worse, or more important than the benefits. The assessment is qualitative and involves an element of judgement as to whether the adverse effects are of such significance, as compared to the benefits, that the activity should not proceed. Rather than simply considering whether the benefits outweigh the adverse impacts (which may not be possible in any truly measurable

way), South Taranaki District Council submitted that it may be preferable to assess whether the adverse impacts are large enough or of a sufficiently harmful type that they should properly be avoided, despite the existence of even significant benefits.

244. The applicant submitted that proportionality is not an exact measure. It is not, for instance, the same as a test based on whether factors of one sort 'outweigh' factors of another sort, which connotes a more precise sort of evaluation but rather invokes an assessment that is more relative in nature (as being 'in proportion' does not require two things to be equal or equivalent). The applicant also noted that s 85(3) demonstrates that even a project that will have significant adverse impacts may be approved, if those impacts are proportionate to the project's benefits; in simple terms, if the project's benefits are significant, then a significant adverse impact may not be out of proportion to those benefits.
245. EDS submitted that proportionality requires a comparative case-by-case assessment where impacts that are 'greater than' or 'outweigh' the benefits will be 'out of proportion'; and impacts that, when deducted from the benefits, render the remaining net benefit not significant, will be out of proportion to the benefits.
246. The Panel accepts, as a starting point, that:
- a. projects with significant adverse impacts may be approved if those impacts are proportionate to the project's benefits.
 - b. even where a project's adverse impacts are out of proportion to the project's benefits, the panel has a discretion: it 'may' decline an approval.
247. It is not a like-for-like assessment that compares a particular impact with a particular benefit of the same type. Rather, it requires incommensurable impacts to be considered and compared. As a result, the analysis required under s 85(3) is inherently evaluative. In that context, the Panel found the framing by South Taranaki District Council – that 'out of proportion' means that the identified adverse impacts (after mitigation by any consent conditions or modifications) are larger, worse, or more important than the benefit – to be useful.

4 Treaty settlements and recognised customary rights

248. As set out in section 3 above, Treaty settlement obligations have particular significance under the FTAA. Sections 7 and 82 require the Panel to identify Treaty settlements and their obligations that may be engaged by the project, and to consider whether approval would be consistent with those obligations. The application of those provisions to the Panel's ultimate decision is addressed in section 32 of this decision. Firstly though, we set out below our approach to identifying Treaty settlement obligations potentially relevant to the project.

4.1 Treaty settlements

Settlement Context

249. Treaty settlements represent a negotiated resolution between the Crown and iwi to address historical breaches of Te Tiriti o Waitangi and to reset the relationship between the parties going forward. In the coastal and marine context, the instruments agreed through settlement are intended to provide practical and enduring instruments through which iwi relationships with lands, waters and taonga are recognised, and through which kaitiakitanga and participation in the management and use of natural resources can be exercised within contemporary statutory frameworks.
250. Those instruments establish a package of statutory and relationship instruments designed to embed iwi interests, responsibilities and perspectives into public decision-making processes in a way that gives effect to the purposes for which the settlement was negotiated.
251. Such instruments commonly include statutory acknowledgements, Statements of Association, fisheries and conservation protocols, and iwi planning or kaitiaki documents provided for under settlement legislation. Their legal effect varies, but they are generally directed to enabling iwi to exercise kaitiakitanga, protect taonga species and places, and influence the sustainable management and future use of resources through recognised processes and tikanga-based tools and in an enduring manner.

Applicant's identification

252. The applicant identified "Treaty settlements closest to the project area" as those entered into by Ngāti Ruanui, Ngāruahine and Ngā Rauru.¹⁴³
253. The applicant stated that its review did not identify provisions in those settlements that specifically relate to or cover activities in the EEZ. TTRL also submitted that the statutory acknowledgement provisions in those settlement Acts relate to decisions under specified Acts but are focused on land-based statutory areas rather than the project area.¹⁴⁴
254. The applicant also stated that, on that basis, s 82 would not apply.¹⁴⁵

¹⁴³ Taranaki VTM Project Fast-track Approvals Application, Trans-Tasman Resources Ltd, December 2024, Section 3.4.9 "Settlement of Historic Claims under the Treaty of Waitangi", Table 3.8 and accompanying text, pp 107–109

¹⁴⁴ Taranaki VTM Project Fast-track Approvals Application, Trans-Tasman Resources Ltd, December 2024, Section 8.3.19 "Sections 82, FTA (Treaty Settlements and related obligations)", p 357, concluding that s 82 FTAA is not engaged because Treaty settlement documents are not relevant to the project area.

¹⁴⁵ Taranaki VTM Project Fast-track Approvals Application, Trans-Tasman Resources Ltd, December 2024, Section 8.3.19 "Sections 82, FTA (Treaty Settlements and related obligations)", p 357, concluding that s 82 FTAA is not engaged because Treaty settlement documents are not relevant to the project area.

Section 18 report identification

255. The report prepared by Ministry for the Environment under s 18 FTAA¹⁴⁶ identified a broader list of Treaty settlements and settlement entities potentially relevant to the application, including:
- a. Te Kāhui o Taranaki Trust, post settlement governance entity (**PSGE**) for Taranaki Iwi Claims Settlement Act 2016 and mandated iwi organisation (**MIO**) for Taranaki Iwi;
 - b. Te Korowai o Ngāruahine Trust, PSGE for Ngāruahine Claims Settlement Act 2016 and MIO for Ngāruahine;
 - c. Te Rūnanga o Ngāti Ruanui Trust, PSGE for Ngāti Ruanui Claims Settlement Act 2003 and MIO for Ngāti Ruanui;
 - d. Te Kaahui o Rauru Trust, PSGE for Ngāa Rauru Claims Settlement Act 2005 and MIO for Ngā Rauru Kītahi;
 - e. Ngā Tāngata Tiaki o Whanganui, PSGE for Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 and MIO for Whanganui Iwi/Te Atihaunui a Pāpārangi;
 - f. Ngā Wairiki-Ngāti Apa Charitable Trust, PSGE for Ngāti Apa (North Island) Claims Settlement Act 2010 and MIO for Ngā Wairiki Ngāti Apa;
 - g. Te Ohu Kaimoana Trustee Limited (**Te Ohu Kaimoana**), under the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 (**1992 Settlement Act**), Māori Fisheries Act 2004 (**MFA**);
 - h. Te Rūnanga o Ngāti Tama, MIO for Ngāti Tama (Taranaki);
 - i. Te Rūnanga o Ngāti Mutunga, MIO for Ngāti Mutunga (Taranaki);
 - j. Te Kotahitanga o Te Ātiawa Trust, MIO for Te Ātiawa (Taranaki); and
 - k. Maru (Taranaki) Fisheries Trust, MIO for Ngāti Maru (Taranaki).
256. The s 18 report identified these entities on the basis that their settlement instruments, fisheries arrangements, or statutory functions may intersect with the project area, the effects footprint, or associated fisheries management frameworks.

¹⁴⁶ Treaty settlements and other obligations (Section 18) report, Ministry for the Environment dated 16 June 2025.

The Panel's approach - Minute 3 invitation to comment

257. The Panel's consideration of this application has engaged iwi and hapū beyond the primary coastal commenters identified by the applicant. Minute 3¹⁴⁷ issued by the Panel (invitation to comment) reproduced substantially the same list of iwi authorities and Treaty settlement entities as appears in the s 18 report (including Te Ohu Kaimoana and the listed PSGE's and MIO's).
258. This included Ngāti Mutunga, Te Kāhui o Ngāti Maru, and Whanganui iwi (including Ngā Tangata Tiaki o Whanganui and Te Ātihaunui a Pāpārangi). The process has also engaged Ngāruahine hapū, including Ōkahu Inuāwai me ētehi atu hapū, Kānihi Umutahi me ētehi atu hapū, Ngāti Manuhiakakai, Araukūkū, and Ngāti Hāua.
259. All of these groups have sought to participate in the Panel's consideration. In addition, representatives associated with wider regional settlement frameworks and with statutory authority, including Te Awa Tupua (Whanganui River) and Te Kāhui Tupua/Taranaki Maunga collective settlement contexts, have sought and been allowed to participate.
260. The settlement instruments and effect pathways associated with these entities are identified and described below. The Panel's findings as to whether, and how, particular settlement obligations are engaged by the project are addressed later in this decision.

Minister for Māori Development and Minister for Māori Crown Relations comments

261. The Minister for Māori Development and for Māori Crown Relations commented in response to the Panel's invitation to comment.¹⁴⁸ In those comments, Minister Potaka recommended that the Panel have regard to (among other things):
- a. comments from Treaty settlement groups identified in the s 18 report and Minute 3;
 - b. impacts on customary food gathering practices under the Fisheries (Kaimoana Customary Fishing) Regulations 1998 (**Kaimoana Regulations**);
 - c. impacts on quota allocation and management under the MFA; and
 - d. the statutory acknowledgements of the Treaty settlement Acts listed at paragraph 255 above.

¹⁴⁷ Minute 3 of the Expert Panel: Invitation to Comment – Taranaki VTM Project (FTAA-2504-1048), Expert Panel chaired by Hon Kit Toogood KC, 8 September 2025, at [1]–[8] and Appendices 1–2.

¹⁴⁸ Hon Tama Potaka, Minister for Māori Development and Minister for Māori Crown Relations, Comment to Expert Panel in response to invitation to comment on the Taranaki VTM Project under the Fast-track Approvals Act 2024, p. 1.

262. The Panel acknowledges the Minister's recommendation and has therefore included these matters in its assessment of Treaty settlement obligations, existing interests, and effects.

4.2 How Treaty settlement obligations may be engaged

Treaty settlement obligations

263. Treaty settlement obligations in settlement Acts and deeds may be substantive (protecting settlement redress and the values it was intended to secure), procedural (participation, consultation, or relationship mechanisms), or a mixture of both. They may be implemented through a range of statutory and deed-based instruments, including statutory acknowledgements, protocols, relationship agreements, rights of first refusal, participation arrangements, and bespoke redress tailored to particular resources or locations.
264. Treaty settlements are intended to operate in a practical and enduring way. They are not limited to compliance with individual clauses but include an obligation on the Crown to ensure that settlement redress is not undermined in practice.¹⁴⁹
265. Te Tōpuni Ngārahu submitted that Treaty settlements by their very nature do not only encompass the specific instruments that may be provided by way of settlement redress, but:
- a. are founded upon the Crown's express intention to fulfil (and, where previously breached, correct) its obligations under Te Tiriti o Waitangi;
 - b. must necessarily be considered and upheld with reference to the principles of the Treaty;
 - c. acknowledge and recognise the intrinsic and holistic relationship between iwi and the natural environment (including coast and sea); and
 - d. both innately, and in many cases expressly (including in respect of Te Ruruku Pūtakerongo), incorporate the cultural values and tikanga rights, interests and responsibilities (including kaitiakitanga) of iwi.¹⁵⁰

National fisheries and aquaculture settlements

266. The 1992 Deed of Settlement restored Māori property rights to fisheries resources, including 10% of all quotas in the Quota Management System (**QMS**) at the date of the Deed, and provided funding for iwi to purchase a 50% stake in Sealord Group Limited. Iwi were also guaranteed 20% of the quota for all new species introduced into the QMS as a part of that Settlement. Additionally, the iwi-owned commercial

¹⁴⁹ *Te Ohu Kaimoana Trustee Ltd v Attorney-General* [2025] NZHC 657 at [194].

¹⁵⁰ Legal Submissions on behalf of Te Tōpuni Ngārahu, J P Ferguson, dated 19 November 2025, at [1].

fishing enterprise Aotearoa Fisheries Limited (now trading as Moana New Zealand) was established.¹⁵¹

267. The QMS has 10 Fisheries Management Areas (**FMA**) which are then divided into separate Quota Management Areas (**QMA**) for different fish stocks, depending on the known biological distribution of these stocks. The use of QMAs for fisheries management allows for finer controls on stocks, such as allocating catch limits across fishing sectors. QMAs were also utilised when allocating settlement quota.¹⁵²
268. Settlement quota is allocated among iwi according to whether a fish stock is considered to be a deepwater stock or an inshore stock. The number of iwi with a stake in a particular fish stock depends on the size of the QMA and whether the stock is classified as deepwater or inshore. The way settlement quota is allocated means that a diverse range of iwi have interests in particular fisheries in the area.¹⁵³
269. The STB sits within FMA 8. Te Ohu Kaimoana have calculated that there are 95 fish stocks with associated settlement quota within this FMA. FMA 8 not only contains its own stocks but also contributes to catches from other fisheries management areas due to their biological and administrative nature. Of the 95 fish stocks which occur or overlap within FMA 8, 57 individual iwi entities each hold settlement interests in them. Therefore, all MIOs have overlapping fisheries interest within FMA 8 in one way or another.¹⁵⁴
270. The Maori Commercial Aquaculture Claims Settlement Act 2004 (**MCACS Act**) establishes a separate settlement entitlement to new aquaculture space (or equivalent value) to be delivered regionally.
271. These national settlements provide a baseline framework that sit over, and interact with, iwi-specific coastal settlements and customary fisheries frameworks.

Customary fisheries management arrangements

272. In addition to the commercial fisheries settlement framework, the Māori fisheries settlement provided for the recognition of customary fishing practices through the making of regulations under the Fisheries Act 1996.
273. Customary fishing within the project region is managed through a combination of:
- a. the Kaimoana Regulations; and

¹⁵¹ Response to the Taranaki VTM Project – Fast Track Approvals Application, Te Mātārae (Chief Executive), Te Ohu Kaimoana Trustee Ltd, September 2025 at [48]-[49]

¹⁵² Response to the Taranaki VTM Project – Fast Track Approvals Application, Te Mātārae (Chief Executive), Te Ohu Kaimoana Trustee Ltd, September 2025 at [50].

¹⁵³ Response to the Taranaki VTM Project – Fast Track Approvals Application, Te Mātārae (Chief Executive), Te Ohu Kaimoana Trustee Ltd, September 2025 at [51]-[53]

¹⁵⁴ Response to the Taranaki VTM Project – Fast Track Approvals Application, Te Mātārae (Chief Executive), Te Ohu Kaimoana Trustee Ltd, September 2025 at [54].

- b. the Fisheries (Amateur Fishing) Regulations 2013 (**Amateur Regulations**).¹⁵⁵
274. Three rohe moana have been gazetted under the Kaimoana Regulations in the vicinity of the application area:
- a. Nga Rauru and Te Atihaunui a Paparangi rohe moana pursuant to the Fisheries (Kaimoana Customary Fishing) Notice (No. 6) 2009 (No. F500);
 - b. Te Atihaunui a Paparangi rohe moana pursuant to the Fisheries (Kaimoana Customary Fishing) Notice (No. 7) 2013 (Notice No. MPI 197). This area overlaps the area established in 2009; and
 - c. Te Tai Hauāuru — Te Rūnanga o Ngā Wairiki rohe moana pursuant to Fisheries (Notification of Tāngata Kaitiaki/Tiaki for Area/Rohe Moana of Te Tai Hauāuru— Te Rūnanga o Ngā Wairiki) (Notice No. MPI 1155).¹⁵⁶
275. These arrangements were identified as forming part of the practical exercise of customary fishing interests that are relevant to the Panel's assessment of existing interests and potential effects.¹⁵⁷
276. The extent to which customary fishing arrangements intersect with Treaty settlement obligations, and whether those obligations may be engaged in this case, is addressed later in this decision.

4.3 Potentially engaged Treaty settlements obligations

277. Based on the matters and recommendations set out above, The Treaty settlement obligations relevant to the Panel's decision have been determined to fall into the following categories:
- a. national fisheries settlement instruments and the holding and exercise of settlement quota and annual catch entitlements (**ACE**);
 - b. iwi fisheries protocols and related instruments, that provide participation pathways in fisheries management and decision-making;
 - c. shellfish right of first refusal (**RFR**), coastal tendering, and aquaculture-space delivery instruments, where marine space availability is relevant;
 - d. conservation and other Crown-function protocols, where the functions they attach to may be affected by the project; and

¹⁵⁵ Hon Shane Jones (Minister for Oceans and Fisheries), MIN25-1067 (letter to the Taranaki VTM Expert Panel responding to s 67 further information request), 17 December 2025, p 3

¹⁵⁶ Hon Shane Jones (Minister for Oceans and Fisheries), MIN25-1067 (letter to the Taranaki VTM Expert Panel responding to s 67 further information request), 17 December 2025, p 2-3.

¹⁵⁷ Customary fishing undertaken under the Amateur Regulations is not treated in this decision as part of the Māori Fisheries Settlement framework for the purposes of s 7 of the FTAA. It is, however, an existing interest that the Panel must consider under the EEZ Act.

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- e. tikanga based mechanisms, within settlements and protocols, including recognition of rāhui, taonga species, and ongoing engagement pathways.

278. Treaty settlements that the Panel considers are potentially relevant to this decision are identified in Table 3. It records:

- a. the iwi/settlement beneficiaries;
- b. the relevant settlement Act or deed;
- c. the settlement entity; and
- d. the Treaty settlement instruments raised as being potentially relevant.

Iwi / settlement beneficiaries	Relevant settlement Act / deed	Settlement entity	Instruments raised as potentially relevant
Ngāti Ruanui	Ngāti Ruanui Claims Settlement Act 2003	Te Rūnanga o Ngāti Ruanui	Statutory acknowledgements; deed of recognition; fisheries protocol; conservation protocol and associated Crown relationship instruments provided for in the settlement.
Ngāruahine	Ngāruahine Settlement Act 2016	Te Kāhui o Ngāruahine	Statutory acknowledgements; deed of recognition; conservation protocol; fisheries protocol and Ngāruahine Kaitiaki Plan.
Ngā Rauru Kītahi	Ngā Rauru Kītahi Claims Settlement Act 2005	Te Kāhui o Rauru	Statutory acknowledgements; Paepae Rangatira Accord; fisheries protocol; conservation protocol and Shellfish RFR and aquaculture-space/tendering instruments.
Ngāti Mutunga	Ngāti Mutunga Claims Settlement Act 2006	Te Rūnanga o Ngāti Mutunga	Statutory acknowledgements; fisheries protocol and associated participation instruments; Shellfish RFR and aquaculture-space/tendering instruments.
Ngāti Maru	Ngāti Maru (Taranaki) Claims Settlement Act 2022	Ngāti Maru settlement entity (as raised on the record)	Statutory acknowledgements; fisheries and primary industries protocol and associated participation instruments.
Whanganui Iwi	Whanganui Iwi land claim (deed signed	Takapau Whariki	Statutory acknowledgements; Relationship Agreement with Department of Conservation;

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	2025, awaiting enactment)		Relationship Agreement with Horizons Regional Council and Letter of Recognition with Chief Executive of MPI.
Taranaki Iwi	Taranaki Iwi Claims Settlement Act 2016	Te Kāhui o Taranaki Trust	Coastal Marine Area statutory acknowledgement and conservation protocols and associated instruments.
Whanganui (Awa Tupua settlement beneficiaries)	Te Awa Tupua (Whanganui River Claims Settlement) Act 2017	Ngā Tāngata Tiaki o Whanganui	Statutory acknowledgment, Te Heke Ngahuru (statutory strategy) and Te Pou Tupua / Te Kōpuka / Te Ripo (participation and voice)
Te Kāhui Tupua (Taranaki Maunga collective settlement beneficiaries)	Te Ture Whakaturua mō Te Kāhui Tupua 2025 / Taranaki Maunga Collective Redress Act 2025 (as raised on the record)	Te Tōpuni Kōkōurangi Te Tōpuni Ngārahu	Te Ruruku Pūtakerongo Collective Redress Deed including statutory recognition of Te Kāhui Tupua as a living and indivisible whole.
National Fisheries Settlement (all Iwi)	Treaty of Waitangi (Fisheries Claims) Settlement Act 1992 / Māori Fisheries Act 2004	Te Ohu Kaimoana / relevant iwi/Mandated iwi organisations (MIO)	National fisheries settlement architecture.
National Aquaculture Settlement (all iwi)	Māori Commercial Aquaculture Claims Settlement Act 2004	Te Ohu Kaimoana / relevant Iwi aquaculture organisations (IAO)	National aquaculture settlement architecture.

Table 3: Treaty settlements and instruments potentially relevant to the decision

279. To clarify, the identification of a settlement and its instruments in Table 3 does not imply a finding that its obligations are engaged or that inconsistencies arise. It reflects that the settlement was raised in the information before us and that its instruments were considered by the Panel.

280. Ngā Wairiki-Ngāti Apa Charitable Trust and Te Kotahitanga o Te Atiawa Trust were invited to comment but did not do so¹⁵⁸. Where no submissions or evidence were

¹⁵⁸ Minute 3 of the Expert Panel: Invitation to Comment – Taranaki VTM Project (FTAA-2504-1048), dated 8 September 2025, at [1]–[8] and Appendices 1–2.

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received in relation to a particular settlement, the Panel's assessment is necessarily confined to the settlement instruments themselves and to evidence on the record.

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PART III BENEFITS

5 Benefits of the project

281. Regional or national benefits are material in relation to the purpose of the FTAA and the decision-making criteria under it, particularly s 85(3). In addition, national economic benefits are material in relation the decision-making criteria under s 59(2)(f) of the EEZ Act.
282. Unless specified, all dollar values stated below are in New Zealand dollars.

5.1 The application

283. Project benefits are discussed at a high level in TTRL's Impact Assessment. With respect to economic benefits, the applicant relied on more detailed economic impact assessment by NZIER and Siecap's Pre-Feasibility Report (**PFS**), 2025.¹⁵⁹ A review of these documents indicates that NZIER are likely to have adopted all inputs to their economic modelling from figures contained in the PFS, although we are not certain on this. This includes reliance on estimated capital expenditure (**Capex**) and operational expenditure (**Opex**) by the applicant in New Zealand and direct employment by activity type.
284. Royalty and corporate tax contributions have also been calculated in Siecap's Discounted Cashflow Model (**DCM**) and are adopted by NZIER. The PFS does however include some results from the NZIER report, so we cannot be certain that NZIER have not advised Siecap on long-run average commodity prices and average 2024 exchange rates (for example), or vice versa. It is fair to say that there is consistency on most core expenditure assumptions across the application.

Pre-Feasibility Study 2025 and NZIER Assessment

285. The commercial aspects of the Project set out in the PFS are based on "existing resource estimates, broker consensus, mid-point iron ore pricing and market conditions". Updates on the previous PFS are stated by TTRL as being widespread and reflect the latest information available on markets, commodity prices, exchange rates, procurement costs, operating costs, inflation adjustments and contingencies. All of which is factored into the DCM.
286. Capex costs occurring in New Zealand are estimated at a total value of \$55 M. This is only 5% of TTRL's total estimated Capex costs, with the major costs (particularly the construction of the IMV and processing equipment) directed offshore (i.e., imported). NZIER describe the Project's one-off Capex in New Zealand as covering costs associated with project management, consultancy, consenting and obtaining permits, and the setup of the TTRL Charitable Trust, environmental initiatives, shipbuilding of the marine research and monitoring vessel and equipment

¹⁵⁹ Taranaki VTM Project Pre-Feasibility Study Offshore Iron Sands Project, Siecap dated 25 March 2025.

(elsewhere indicated as the geotechnical support vessel), a vanadium recovery pilot plant and a training and helicopter logistics facility in Hāwera. TTRL confirmed that no other capital allowance has been made for any onshore facilities that may be required at Port Taranaki in New Plymouth as they have assumed these will be covered by contracted service providers (which we have assumed to also include the Port company itself).

287. The NZIER report assesses economic impacts and contributions of the project for three study areas: local, regional and national:
- a. the local study area consists of South Taranaki and Whanganui districts.
 - b. the regional study area is made up of the local area plus Stratford and New Plymouth districts. Put another way, the regional area includes the three districts of Taranaki Region plus adjoining Whanganui District.
 - c. the national area (total New Zealand) is inclusive of the regional area.
288. In its consideration of the purpose of the Act as described in s 3, the Panel notes that the FTAA does not define 'regional' in relation to the assessment of benefits and that nothing in the Act suggests that the region is limited to the area of a regional council constituted under the Local Government Act 2002. We are content to adopt the more general approach taken in the NZIER report, meaning that we assess the regional benefits of the project as applying to the combined Taranaki Region and Whanganui District.¹⁶⁰
289. Table 4 below replicates and expands Table 6 in the NZIER report, showing where Capex is assumed to occur in New Zealand. An estimated 18% or \$9.9 M is estimated to occur in the local area, 36% or \$19.9 M is estimated in the rest of the region (but namely New Plymouth District) bringing the region total to 54% (\$29.8 M). A further 46% occurs in the rest of New Zealand (\$25.3 M). This includes \$10.9 M spent on central government services. TTRL provided a breakdown of these costs, which covered a mix of offshore mineral permits and licenses, as well as Worksafe NZ, Maritime Safety, Customs, Ministry for Primary Industries / Biosecurity, EPA, and Maritime NZ certification and compliance costs – all necessary to establish, approve and operate the project according to TTRL.
290. TTRL confirmed that Capex will be spread over 2-3 years. Adopting the 2-year period used in the DCM, the annual average Capex accruing to New Zealand from the project is \$27.5 M (although this may not be split evenly over years 1 and 2). Relative to indicative annual Opex of \$238 M per annum (discussed below), a comparatively small amount of direct expenditure will occur in the economy in those first 2 (or 3 years) if the project is approved.

¹⁶⁰ See, similarly, the decision of the expert panel on the Waihi North project at [845].

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Industry (\$ Million)	Local*	Rest of Region	Region**	Rest of New Zealand	New Zealand
Advertising, market research and management services	\$ 0.1	\$ 3.6	\$ 3.7	\$ 11.8	\$ 15.6
Air and space transport	\$ -	\$ 0.2	\$ 0.2	\$ 0.9	\$ 1.1
travel agency and tour arrangement services	\$ -	\$ 0.1	\$ 0.1	\$ -	\$ 0.1
exploration and other mining support services	\$ -	\$ 1.2	\$ 1.2	\$ -	\$ 1.2
Construction services	\$ -	\$ 1.8	\$ 1.8	\$ 1.8	\$ 3.5
Central Government	\$ -	\$ -	\$ -	\$ 10.9	\$ 10.9
Scientific, architectural and engineering services	\$ 3.5	\$ -	\$ 3.5	\$ -	\$ 3.5
Adult, community and other education	\$ 6.2	\$ -	\$ 6.2	\$ -	\$ 6.2
Fabricated metal product manufacturing	\$ -	\$ 9.3	\$ 9.3	\$ -	\$ 9.3
Transport equipment manufacturing	\$ -	\$ 3.8	\$ 3.8	\$ -	\$ 3.8
Total	\$ 9.9	\$ 19.9	\$ 29.8	\$ 25.3	\$ 55.0

Source: NZIER Report

* Local means South Taranaki District and Whanganui District. ** Region includes Local and New Plymouth District and Stratford District (aka Taranaki Region plus Whanganui District)

Table 4 – Breakdown of reported Capex by location (set-up or pre-commencement stage)

291. Opex in each study area was based on TTRL's operations budget and their understanding of where that expenditure was likely to be incurred. The PFS illustrates how Opex is allocated each year according to the following breakdown (Figure 4). This breakdown excludes the freight costs of transporting the VTM concentrate from New Zealand to an overseas port. That component of Opex is expected to be spent offshore. Total Opex (excluding international freight) equates to \$230 M per annum (based on at US\$:NZ\$ exchange rate of \$0.58 adopted for the purpose of the application). Labour (wages and salaries paid directly by TTRL) make up 23% of the annual total (\$53 M/annum). Fuel (provided by the contracted bunkering service) is the greatest single cost at around 30% of the annual total, followed by leasing costs of the FSO vessel (26%). Together, these three Opex components account for 79% of annual costs, leaving 21% of annual Opex directed at other industries that would provide goods and services to TTRL. These annual Opex costs are assumed by TTRL to remain the same over the 20 year mining period.

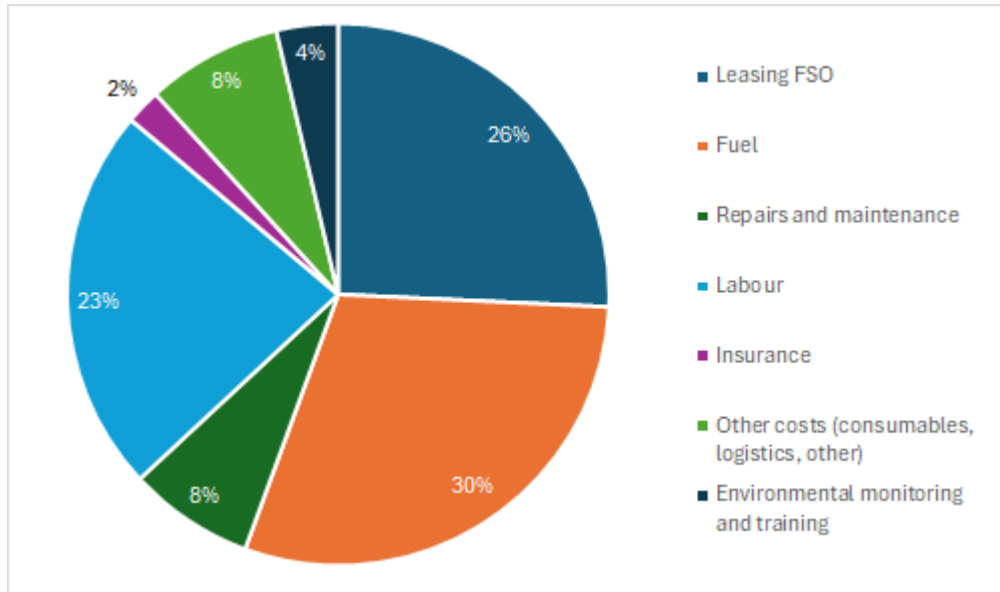


Figure 4 – Annual Opex costs by type, excluding international freight costs (Source: derived from the PFS, Table 26)

292. NZIER states that 72% of TTRL's annual Opex occurs in New Zealand. We have inferred that this is the share excluding offshore freight costs. Of the non-freight Opex costs, they estimate this as \$238 M per annum spent in New Zealand. While this is slightly higher than the non-freight Opex in the PFS, it is broadly similar and so, in the absence of further explanation, we have assumed it is linked to the PFS value and not based on other TTRL inputs that are not documented.
293. The PFS suggested that the FSO leasing costs would be to an offshore company. Given that this accounted for around 26% of total Opex (excluding freight), the Panel queried whether this should be included in New Zealand operational spend. TTRL provided further information stating that while the owner of the FSO vessel would be an offshore company, it was more likely than not that they would establish a New Zealand based company. On that basis, that component of Opex would also occur within New Zealand. We assume (but are not certain) that this is the approach taken by NZIER and that it is included in their Opex breakdown.
294. NZIER allocate the \$238 M of annual Opex across a range of industries, to match the industries used in their economic model. With the exception of insurance, the names of these industries differ from (and are more detailed) than shown in Figure 4 above. Basic material wholesaling, for example, captures the fuel bunkering service. NZIER stated that labour costs are not an input to their model. However, it forms a significant part of TTRL's annual costs of production. Consistent with their approach to direct employment (discussed below) NZIER have allocated the labour costs (or the equivalent gross output needed to support the assumed direct employment using regional productivities) according to the industries that most closely match the employment activities taking place in each location – thus reflecting an increase in the output of those industries as a result of TTRL's demands.

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295. Table 5 replicates and expands Table 7 in the NZIER report, showing where Opex is assumed to occur in New Zealand each year (consistently over a 20 year period). An estimated 18% or \$43.9 M is estimated to occur in the local area, 80% or \$190.1 M is estimated to occur in the rest of the region (but namely New Plymouth District), bringing the region total to 98% (\$234.0 M). A further 2% occurs in the rest of New Zealand (\$3.7 M, limited to insurance costs).

Industry (\$ Million)	Local*	Rest of Region	Region**	Rest of New Zealand	New Zealand
Exploration and other mining support services	\$ 27.9	\$ 71.7	\$ 99.6	\$ -	\$ 99.6
Basic Material Wholesaling	\$ -	\$ 52.4	\$ 52.4	\$ -	\$ 52.4
Fabricated metal product manufacturing	\$ 8.0	\$ 8.1	\$ 16.1	\$ -	\$ 16.1
Other transport	\$ 0.8	\$ 23.0	\$ 23.8	\$ -	\$ 23.8
Scientific, architectural and engineering services	\$ 4.1	\$ 9.4	\$ 13.5	\$ -	\$ 13.5
Health and General Insurance	\$ -	\$ 0.9	\$ 0.9	\$ 3.7	\$ 4.6
Legal and accounting services	\$ 3.1	\$ 12.3	\$ 15.4	\$ -	\$ 15.4
Advertising, market research and management services	\$ -	\$ 12.3	\$ 12.3	\$ -	\$ 12.3
Total	\$ 43.9	\$ 190.1	\$ 234.0	\$ 3.7	\$ 237.7

Source: NZIER Report

* Local means South Taranaki District and Whanganui District. ** Region includes Local and New Plymouth District and Stratford District (aka Taranaki Region plus Whanganui District)

Table 5 – NZIER breakdown of New Zealand based Opex by location (operational/extraction stage)

296. Employment required for each of the project vessels is set out in the PFS. The IMV, FSO, anchor handling vessel and geotechnical support vessel are stated as having 2 shifts (working on a 2-3 week roster), totalling 212 crew members. Table 6 sets out the grade of crew personnel expected to be required to meet the various roles. This shows that 70% of crew are indicated as needing 10+ years' experience, with 8% requiring between 5 and 10 years' experience and 23% requiring between 2-5 years of experience. These low skilled / less experienced roles include deck hands, crane drivers, cooks, kitchen hands, trade assistants, junior engineers and geotechnical support crew.

Grade of Vessel Personnel (Count)	Per Shift	Total for 2 x shifts	Share of Total
15+ years, Marine Certification	5	10	5%
10+ years, Marine Certification	9	18	8%
10+ years, Technical Degree/Diploma, Marine Certification	10	20	9%
10+ years, Trade/Tech Qualification, Marine Certification	50	100	47%
5+ years, Trade/Qual, Marine Certification	8	16	8%
2+ years, Certification	24	48	23%
Total Personnel	106	212	100%

Source: Siecap PFS 2025, Appendix 19.5. Note, total vessel employment is 7% lower than applied by NZIER (227)

Table 6 – PFS breakdown of vessel crew experience requirements

297. Siecap/TTRL provided further information on the feasibility of hiring the estimated 173 crew for the IMV and FSO vessels in the period before mining operations are expected to begin. They stated that “experienced personnel are available in the regional and international labour market” and many of the industrial and technical positions will require only basic safety certification combined with company-specific or equipment-specific training, “which can typically be completed within 4-10 weeks”.¹⁶¹
298. NZIER report slightly more crew on those same four vessels (227 in total). In addition, direct employment by TTRL is stated to include 6 full time equivalent (**FTE**) staff associated with the contracted bunkering (fuel supply) service, 35 FTEs associated with general and admin roles, and 35 FTEs located in the proposed head office. This is total direct employment of 303 FTEs. TTRL has confirmed that these are the employment figures that the Panel should rely on, with the duration of most of these jobs broadly matching the proposed mining period of 20 years. However, head office jobs were indicated as being established in the pre-commencement stage if consent is granted.
299. NZIER has allocated TTRL’s direct employment to industries used in their economic model, and location, as per their approach to Opex above. That is, with the exception of the contracted fuel bunkering jobs (attributed to the Basic material wholesaling industry), some employees indicated as being TTRL staff are attributed to industries which most closely align with the nature of the employment activity. Table 7 below replicates and expands Table 5 of the NZIER report. It shows, for example, the 35 staff in the head office located in the rest of region (New Plymouth) along with the majority of the legal and accounting (admin) staff. NZIER state that “all direct employment by TTRL will be in the Taranaki/ Whanganui region”.¹⁶² As such, Table 7 shows that 77 FTE jobs are estimated to be provided in the local area (25%) and 226 FTE jobs are estimated to be provided in the rest of the region (75%).

¹⁶¹ TTRL response to Minute 20, question 13.

¹⁶² NZIER, 2025, page 4.

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Industry	Local*	Rest of Region	Region**	Rest of New Zealand	New Zealand
Exploration and other mining support services	52	121	173	-	173
Other transport	14	36	50	-	50
Basic material wholesaling	-	6	6	-	6
Scientific, architectural and engineering services	4	-	4	-	4
Legal and accounting services	7	28	35	-	35
Advertising, market research and management services	-	35	35	-	35
Total TTR Direct Operational Employment (FTEs)	77	226	303	-	303

Source: NZIER Report

* Local means South Taranaki District and Whanganui District. ** Region includes Local and New Plymouth District and Stratford District (aka Taranaki Region plus Whanganui District)

Table 7 – NZIER allocation of TTRL direct/contracted employment by industry and location

300. NZIER provides an economic impact analysis of the project, relying on the input assumptions set out above. They state that a regional Input-Output (**I-O**) multiplier approach was adopted as it provides the ability to determine the economic benefit in terms of gross domestic product (**GDP**) and employment at regional and local levels. They set out the known limitations of I-O models and maintain that the approach is fit for the intended purpose, that is, to show how direct expenditure flows through the economy.
301. NZIER's total direct, indirect and induced economic impacts of the project's Capex and ongoing (but fixed period) Opex are summarised below (consolidating a range of tables provided in the NZIER report). Table 8 shows the GDP contribution attributable to the Capex by location. This shows a total GDP contribution of \$62.2 M, with 43% of that accruing to the region and 57% accruing to the rest of New Zealand. NZIER have modelled Capex as if it occurs in a single year. When averaged over 2 years for the pre-commencement stage, the GDP impact from Capex is approximately \$13 M per annum in the region and approximately \$31 M per annum for New Zealand.

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GDP (\$ M)	Local*	Rest of Region	Region**	Rest of New Zealand	New Zealand
Direct	\$ 5.6	\$ 7.7	\$ 13.3	\$ 12.6	\$ 25.8
Indirect	\$ 1.7	\$ 5.3	\$ 7.1	\$ 12.7	\$ 19.7
Induced	\$ 2.1	\$ 4.2	\$ 6.3	\$ 10.4	\$ 16.7
Total	\$ 9.4	\$ 17.2	\$ 26.6	\$ 35.6	\$ 62.2

Source: NZIER Report

* Local means South Taranaki District and Whanganui District. ** Region includes Local and New Plymouth District and Stratford District (aka Taranaki Region plus Whanganui District)

Table 8 – Capex direct, indirect and induced GDP contributions by location (combined total over 2-3 years) (pre-commencement stage)

302. Table 9 shows the total direct, indirect and induced employment impact of TTRL's proposed Capex. This shows a total employment contribution of 469, with 46% of that accruing to the region and 54% accruing to the rest of New Zealand. When averaged over 2 years for the pre-commencement stage, the employment impact from Capex is equivalent to around 105 people employed for 2 years in the region and around 230 people employed for 2 years in New Zealand. It is noted that NZIER described the total employment impacts as 'new jobs' for the Capex (and Opex), although later revised their position on that (discussed further below).

Employment (Headcount)	Local*	Rest of Region	Region**	Rest of New Zealand	New Zealand
Direct	56	68	123	98	221
Indirect	16	31	47	89	136
Induced	14	27	40	61	102
Total	86	125	211	248	459

Source: NZIER Report

* Local means South Taranaki District and Whanganui District. ** Region includes Local and New Plymouth District and Stratford District (aka Taranaki Region plus Whanganui District)

Table 9 – Capex direct, indirect and induced employment contributions by location (combined total over 2-3 years) (pre-commencement stage)

303. Table 10 shows the total direct, indirect and induced GDP contribution attributable to the annual Opex by TTRL by location. This shows a total annual GDP contribution of \$265.2 M, with 84% of that accruing to the region and 16% accruing to the rest of New Zealand. TTRL expects this lift in GDP to last for the 20 years of mining.

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GDP (\$ M)	Local*	Rest of Region	Region**	Rest of New Zealand	New Zealand
Direct	\$ 18.6	\$ 83.3	\$ 101.9	\$ 1.6	\$ 103.5
Indirect	\$ 10.2	\$ 59.1	\$ 69.3	\$ 26.8	\$ 96.1
Induced	\$ 8.3	\$ 42.3	\$ 50.6	\$ 15.0	\$ 65.7
Total	\$ 37.1	\$ 184.7	\$ 221.8	\$ 43.5	\$ 265.2

Source: NZIER Report

* Local means South Taranaki District and Whanganui District. ** Region includes Local and New Plymouth District and Stratford District (aka Taranaki Region plus Whanganui District)

Table 10 – Opex direct, indirect and induced GDP contributions by location (operational/extraction stage)

304. Table 11 shows the direct, indirect and induced employment impact of TTRL's proposed annual Opex. This shows a direct employment impact of 359 nationally, of which 303 are directly employed or contracted by TTRL and therefore a further 56 jobs are created from TTRL's direct expenditure with other businesses supplying goods or services to the project. When indirect and induced employment impacts are added, the total annual employment contribution is modelled at 1,365 across New Zealand, with 82% of that accruing to the region and 18% accruing to the rest of New Zealand. In all locations, indirect and induced employment accounts for the majority of modelled employment impacts.

Employment (Headcount)	Local*	Rest of Region	Region**	Rest of New Zealand	New Zealand
Direct	56	68	123	98	221
Indirect	16	31	47	89	136
Induced	14	27	40	61	102
Total	86	125	211	248	459

Source: NZIER Report

* Local means South Taranaki District and Whanganui District. ** Region includes Local and New Plymouth District and Stratford District (aka Taranaki Region plus Whanganui District)

Table 11 – Opex direct, indirect and induced employment contributions by location (operational/extraction stage)

305. NZIER responded to comments requiring discounting of cumulative operational GDP impacts to present values. They applied an 8% discount rate as recommended by the Treasury for commercial projects. When applied over 20 years of mining operation, the present value of the total GDP contribution from Opex in the local area is \$364 M, in the total region it is \$2.18 Bn and \$2.60 Bn for the total country.
306. Royalties to the Crown are assessed by NZIER separately to the economic impacts arising from expenditure by TTRL in New Zealand. These are however reliant on

assumptions applied in the PFS. Revenue is based on a combination of the recent (2024) average exchange rate (US\$0.58 for every NZ\$1.00) and assumed long-term average prices for iron ore (US\$90 per metric tonne)¹⁶³ and vanadium pentoxide (US\$5.45/pound). This equates, in current prices, to potential export earnings of NZ\$659 M per annum for iron ore, and NZ\$196 M per annum for vanadium pentoxide.

307. This is a total export revenue of \$854 M per annum assumed by TTRL to remain constant for the 20 years of extraction. This is on the assumption that the same volume of concentrate is extracted each year and that TTRL can secure off-take agreements for the sale of the ore (including the vanadium co-product). TTRL consider that there is market demand and processing capability offshore that means that their revenue estimates are realistic.
308. No revenue from the titanium co-product is included in the DCM but is signalled by TTRL as being a future source of potential revenue subject to further offshore processing. *If* revenue can be secured, royalties on titanium dioxide will also need to be paid to the New Zealand government.
309. Based on TTRL's DCM, royalties from the iron ore and vanadium pentoxide are estimated to equal \$36-39 M per annum over the first 8 years, increasing to \$54 M per annum in royalties for the remainder of the extraction period. However, this is stated as potentially ranging from \$10 M to \$128 M annually depending on the iron ore price. NZIER calculate the present value of modelled royalty payments over the 20 operational years at \$443 M for New Zealand.
310. Using TTRL's DCM, after royalties are paid, corporate tax paid by TTRL is estimated at \$91 M increasing to \$136 M per year. The increase relates to finance repayment costs in the initial operational period which reduce taxable income. It is assumed that the corporate tax estimates are also for the 20 year extraction period and like royalties are additional to GDP impacts. The present value of modelled contributions from corporate tax over the 20 year operational period is reported as \$1.117 Bn.
311. Further information provided by TTRL/Siecap confirmed that potential adjustments to taxable income that may be available to TTRL (e.g. credits or offsets that reduce tax liability) have not been included in the DCM, with such refinements to tax criteria (and Capex and Opex) only being carried out post approval, as part of the Bankable Feasibility Study (**BFS**). The Panel takes this to mean that, all else being equal, the reported corporate tax contributions may be considered an upper limit if all other assumptions hold true.
312. NZIER acknowledge that royalties and corporate taxes that may be paid by TTRL will be sensitive to commodity prices and exchange rates, and may go up or down, but in any case, TTRL states that these are relatively less important to the overall

¹⁶³ This was the base price and this was further discounted to account for the lower iron content of the VTM concentrate.

economic benefits than the economic contributions (impacts) generated from Opex in New Zealand which is expected to be stable over time.¹⁶⁴

313. As an example of the volatility of assumed input rates, and in response to comments by Whanganui District Council, TTRL calculated that based on changes in the exchange rate, iron ore price and cape-size vessel shipping costs between March 2025 (as modelled in the PFS) and October 2025, annual export, royalty and corporate tax contributions would be around 25-30% higher than modelled. The Panel takes from this that the volatility could just as easily go the other way.
314. NZIER provide some contextual assessment of the export earnings of \$854 M per annum from the sale of the iron ore and vanadium pentoxide. They compare the export earnings of the project against New Zealand's principal exports in the year ending June 2024, stating that they equate to growing those exports by \$1.3% if operating in 2024, and place TTRL's exports 12th by value (if treated discretely). The Panel notes that NZIER's assessment of exports is limited to commodity exports and does not account for service exports and therefore agrees with comments by Dr Ganesh Nana that this assessment is somewhat misleading.¹⁶⁵
315. NZIER concludes that the project will contribute to doubling New Zealand's exports over the next 10 years. NZIER states that increasing exports is a benefit as it will help industry diversification which supports economic development and resilience to external shocks. It also considers that growth in mineral exports will help attract investment in infrastructure and technologies for the mining and other related industries.
316. Overall, NZIER equates the project's estimated GDP and employment impacts, export earnings, and royalty and corporate tax contributions as economic benefits to New Zealand.¹⁶⁶
317. In reference to the limitations of I-O modelling, NZIER acknowledges that the GDP and employment impacts do not account for input constraints, price changes and effects in other sectors that offset the project's positive impacts on the economy. While several commenters considered that NZIER should contemplate the effect of these limitations on their results and the Panel also asked for further comment on this, NZIER have not offered any alternative results or scenarios specifically addressing those limitations.
318. The scope of the NZIER report also excluded any consideration of economic costs or disbenefits of the project (although these were provided later in response to comments and are discussed further below). As such, the economic benefits quantified by NZIER are considered gross impacts (or in NZIER's view, gross benefits) for the region and New Zealand.

¹⁶⁴ Application dated 15 April 2025, page 125.

¹⁶⁵ Evidence of Dr G. Nana for Te Kaahui o Rauru, Te Rūnanga o Ngāti Ruanui and Te Korowai o Ngāruahine dated October 2025 at [32(d)].

¹⁶⁶ NZIER Attachment 2 Report, page 20.

Summary of Economic Benefits

319. TTRL draws the following overall conclusions on the economic benefits of the project. These conclusions are not limited to the NZIER report as some economic benefits are separately qualified in the Application document. The Panel considers that there is considerable overlap in some of the following statements:
- a. It will generate significant economic growth, foster regional employment, and position New Zealand as a significant western world producer and exporter of critical minerals essential for the transition to clean energy technologies and other critical sectors.¹⁶⁷
 - b. It represents a transformative opportunity for New Zealand's economy.¹⁶⁸
 - c. The project's success will establish a precedent for leveraging New Zealand's natural resources and minerals sustainably to drive economic growth and global competitiveness. TTRL consider the project will make a major contribution to the government's stated aim to double the mining sector's export value by 2035 and be a catalyst for economic progress in New Zealand (referring to the Minerals Strategy for New Zealand to 2040).
 - d. It will deliver strong economic benefits to the Taranaki region and nationally as set out by NZIER. Specifically, the project will provide both national and regional benefits by significantly increasing New Zealand's and the region's GDP and employments numbers.¹⁶⁹
 - e. It will also actively support regional and national workforce development;
 - f. If approved, TTRL will establish a Charitable Trust that will deliver an indexed \$50,000 per year for community and cultural grants in South Taranaki District (administered by the South Taranaki District Council). TTRL also mention (but do not detail) other grants, scholarships and research contributions over the 30-year project period.¹⁷⁰ They later note that scholarships are anticipated to be something covered by the funding provided to the Charitable Trust and are not a separate benefit.¹⁷¹
 - g. It will deliver "much-needed infrastructure investment in Taranaki and Whanganui".¹⁷²
 - h. It will make a contribution to NZ's economic well-being, foreign exchange credits and balance of payments.¹⁷³

¹⁶⁷ Application dated 15 April 2025, page ii.

¹⁶⁸ Application dated 15 April 2025, page i.

¹⁶⁹ Application dated 15 April 2025, page xiii.

¹⁷⁰ Application dated 15 April 2025, page iv.

¹⁷¹ TTRL Response to Comment by Local and Administering Authorities, re South Taranaki District Council, comment 7.

¹⁷² Application dated 15 April 2025, page xv.

¹⁷³ Application dated 15 April 2025, page xv.

Other Project Benefits

320. The applicant also states that the project indirectly delivers climate-related benefits. They state that it will “provide environmental advantages that extend beyond the immediate extraction operations” by indirectly supporting “global efforts to reduce greenhouse gas emissions”. TTRL elaborates that:
- a. by “producing only 62 kg CO₂ per tonne of concentrate, TTRL’s operations have less than half the carbon emissions compared to traditional land-based mining (average 120 to 250 kg CO₂/tonne) which is dominated by process driven landside activities”;¹⁷⁴
 - b. the project supports the green-steel industry because magnetite ore requires less energy to reduce in a direct reduced iron setup, especially when paired with hydrogen as the reducing agent. This is stated as “slashing carbon emissions” compared to steel production using traditional hematite-based processes;¹⁷⁵ and
 - c. by providing a source of vanadium, the project supports the transition to clean energy.

Applicant’s conclusions on project benefits

321. Based on the stated benefits of the project, TTRL considers that it meets the overarching purpose of the FTAA by providing significant regional and national benefits. It states that it achieves this by significantly increasing New Zealand’s and the region’s GDP and employment numbers.¹⁷⁶

5.2 Comments received, applicant’s response to comments and JWS and findings

322. The Panel has had regard to comments received under s 53 on project benefits and disbenefits, along with responses to those comments by NZIER and Siecap for TTRL.
323. To further our understanding of economic issues, the Panel directed a facilitated conference of economic experts. This was attended by:
- a. Ms Leung and Ms Huang from NZIER for TTRL;
 - b. Dr Fairgray (for Taranaki Regional Council);
 - c. Professor Banks (for Forest and Bird); and

¹⁷⁴ Application dated 15 April 2025, page vii.

¹⁷⁵ Application dated 15 April 2025, page ii.

¹⁷⁶ Application dated 15 April 2025, page xiii.

- d. Professor Fleming and Mr Buckwell (for KASM and Greenpeace).
324. Dr Nana (for Te Kaahui o Rauru, Te Rūnanga o Ngāti Ruanui and Te Korowai o Ngāruahine) was unable to attend the economic expert conference and provided a brief supplementary statement focussing on one matter that he felt was most material.
325. Comments directly supporting the project based on TTRL's stated benefits are limited. Several commenters acknowledged the potential for gross economic benefits, but raised concerns about the scale, certainty, location and significance of those benefits.
326. The Minister for Economic Growth simply summarised the economic benefits reported by TTRL without further comment. The Minister for Resources and Regional Development considered that the project (as described) is likely to support the export growth objective and resilience outcome of New Zealand's Minerals Strategy 2040 and that the gross regional economic benefits may be significant "in terms of their contribution to regional and national GDP, job creation and export revenue". The Ministers for Infrastructure and Transport expressed broad support for the project based on its ability to deliver positive outcomes for New Zealand that align with the government's priorities for economic development.
327. Market Economics provided a peer review report for the Taranaki Regional Council and agreed with some aspects of the economic assessment by NZIER. These included support for the I-O methodology used, agreement with the total gross economic impacts (as reasonable and plausible if the project operates successfully and without mishap), and agreement that operational GDP impacts represent a significant economic impact based on the proposed direct expenditure. However, Market Economics' support did not go as far as to agree that the significant gross economic impacts are the same as gross economic benefits (although stated that they would be 'substantial') or that net economic benefits had been determined by NZIER.
328. Some comments contested the project's stated economic benefits and we set out those issues and our findings briefly below.

Is the project's feasibility a relevant consideration?

329. Several commenters shed doubt on the financial capability of TTRL (and its parent company) to successfully deliver the project. Such concerns included whether TTRL could secure the necessary funding for the estimated \$1 Bn of capital investment required or whether higher costs and lower revenue would hinder the commercial viability of the project as a whole.¹⁷⁷ The question of feasibility was addressed in the legal issues hearing. Based on the legal submissions received, the Panel does not

¹⁷⁷ See for example, Mr Colegrave (of Insight Economics), who provided economic evidence for Taranaki Offshore Partnership, Sanofex report(s) authored by Dr Loftas and included with South Taranaki District Council's comments and Professor Fleming and Mr Buckwell for KASM and Greenpeace.

consider it necessary to determine the feasibility of the project as a whole.¹⁷⁸ If the project is not feasible it will not have benefits, but equally it will not have adverse impacts, and accordingly the proportionality test in s 85(3) could not be met.¹⁷⁹

330. We generally accept the applicant's position that approvals permit an activity rather than requiring the holder of an approval to undertake the activity, and that whether the applicant undertakes the activity is a commercial decision that is not relevant to the Panel's decision. It is noted that TTRL's decision on commercial viability will be informed by the BFS that will be completed in the pre-commencement stage.¹⁸⁰ However, the Panel accepts the submissions of counsel for South Taranaki District Council and Taranaki Regional Council that the likelihood of any particular benefits and impacts occurring (and any practical barriers to those) are relevant to assessing the application. We discuss this further with regard to contention over the project's projected revenue (which has implications for stated corporate tax and royalty benefits).

Would approval of the project create transformative and catalyst benefits for the New Zealand economy?

331. While these are claimed benefits and conclusions of the application, this question was discussed in the economics expert conferencing. NZIER considered that approval of the project will attract skilled workers and investment to the region and expose the New Zealand market to international technology. Professor Banks (for Forest and Bird) considered the offshore nature of the operation would create little scope for technology transfer. Several of the economists said that the scale of the employment and market activity would not be of a level that would be transformative at the national level. But there was agreement that if approving New Zealand's first offshore seabed mining project also led to a substantial shift in the direction of seabed management, that this may be considered transformative, although there were mixed views as to whether this would be transformative in a positive or negative way.
332. The Panel considers that any policy shift in seabed management (if approval was granted) is uncertain/speculative and agrees that employment and economic activity of the project would not be of sufficient scale to be transformative for the national economy. The Panel therefore does not place any particular weight on claimed transformative or catalyst economic benefits.

Would computable general equilibrium (CGE) modelling be more accurate for national impacts?

333. Some commenters considered that CGE modelling should have been used instead of I-O modelling to understand national impacts (with some also considering it

¹⁷⁸ Oxford English Dictionary meaning: Capability of being done; practicability.

¹⁷⁹ We caveat this as limited to whether the mining activity begins or does not begin, as distinct from beginning and then becoming uneconomic and ceasing. As Mr Buckwell and Professor Fleming (for KASM and Greenpeace) state: "in resource sectors, such as sea-bed mining, social costs will be incurred. If these costs are incurred and the business fails, society is left with the cost and no apparent benefit".

¹⁸⁰ The BFS is indicated to be completed in 9-12 months after (and if) TTRL receive Fast Track approval.

preferable for regional impact modelling).¹⁸¹ NZIER acknowledge the merits of CGE but they consider the more resource intensive process of setting up and running a CGE model goes beyond what is needed to understand the economic implications of the project. It maintains that I-O modelling is fit for purpose.

334. The Panel agrees that CGE is not necessary to understand this project's economic impacts and is satisfied that I-O modelling is appropriate so long as limitations are clearly acknowledged and discussed.

Should indirect and induced economic impacts be included?

335. The Parliamentary Commissioner for the Environment considered that only direct economic impacts from the I-O modelling carried out by NZIER should be included. Mr Fraser Colegrave for Taranaki Offshore Partnership considered that only direct and indirect impacts should be included.
336. It was agreed at the economics conference that direct, indirect and induced economic impacts should be included in regional and national modelling. Several economists qualified that while they should all be included, they should not be overstated. The Panel agrees.

Should a total economic valuation (TEV) approach be taken to understand economic benefits and costs?

337. Dr Nana and Professor Flemming and Mr Buckwell and to some extent the Parliamentary Commissioner for the Environment advocate for the use of the TEV to understand the project's net economic benefits.¹⁸² They note that the TEV explicitly recognises distinctions in value from using and not using a resource. The Panel acknowledges that the TEV framework is well suited to understanding the various values held for the iron sand and seabed resource and the area impacted by this project, including the wider national values held for the seabed and STB marine environment.
338. The Panel does not consider it needs to determine whether TEV should have been applied by TTRL, but notes that, in any case, the legislative framework of the EEZ Act and FFTA combined enables the Panel to consider the full range of values, including the cultural values, of the STB natural environment. We have endeavoured to reflect that throughout this decision.

Are modelled GDP, employment impacts, corporate tax contributions and royalty payments additive or double counting benefits?

339. Dr Nana raised strong concerns that the corporate tax and royalty contributions should not be treated as additional benefits of the project, over and above the GDP

¹⁸¹ For example, F. Colegrave (for Taranaki Offshore Partnership) and the Parliamentary Commissioner for the Environment.

¹⁸² See for example, Evidence of Dr G. Nana for Te Kaahui o Rauru, Te Rūnanga o Ngāti Ruanui and Te Korowai o Ngāruahine dated October 2025 at [61].

and employment impacts of TTRL's future spending.¹⁸³ He claimed significant risk of double counting economic benefits. This issue was included in the expert conferencing. NZIER stated, and the other experts attending agreed, that there was no double counting and that each element measures a different thing. However, as they are measured using different approaches, they cannot be added together.

340. On the evidence before us and based on our understanding that NZIER have not put TTRL's gross output (revenue) through the IO model, only their costs of production, we agree with NZIER that their modelling approach does not double count the impacts and contributions they have reported. However, we are not inclined to agree with NZIER that the value of export earnings per se is a separate benefit of the project. Annual Opex, taxes and royalties are all paid from those export earnings and so a large share of the export revenue (and the share that accrues to New Zealand) has already been accounted for.
341. As stated above, the applicant considers that the project's contribution to the government's goal to double the value of New Zealand's minerals exports is a benefit of the project. The Minister for Resources agreed that the project was likely to support the Minerals Strategy export growth objective. We discuss the misalignment of the project with other aspects of the Minerals Strategy later in section 29.1.
342. The Panel considers that 'alignment' of the project with a government economic objective is a positive aspect of the project but is not satisfied that this sufficiently constitutes a wellbeing benefit. Rather, the GDP and employment impacts and royalty and tax contributions modelled by NZIER are a manifestation of what the minerals export growth objective is actually trying to achieve for New Zealand. We consider those benefits to be the appropriate place to focus our deliberations.

South Taranaki Charitable Trust

343. Following the commencement of mining operations, TTRL will establish a Charitable Trust to provide an annual inflation adjusted fund of \$50,000 per year to be administered by the South Taranaki District Council in collaboration with the company. This outcome is set out in proposed Condition 83 of the application. TTRL state that the purpose of the fund is "to assist in the establishment of projects for the benefit of the South Taranaki community, in particular for the social and economic wellbeing of the community".
344. While TTRL include the Charitable Trust as a benefit of the project¹⁸⁴, it would be open to the Panel to account for the effect of condition 83 as a mitigating factor for adverse impacts for the purpose of s 85(3). Given the nature of likely and potential impacts of the project, which are not borne only by residents of South Taranaki District, the Panel has opted to account for the Charitable Trust here, as part of the project's benefits. In their comments, South Taranaki District Council consider that

¹⁸³ Evidence of Dr G. Nana for Te Kaahui o Rauru, Te Rūnanga o Ngāti Ruanui and Te Korowai o Ngāruahine dated October 2025 at [34], and Supplementary Evidence.

¹⁸⁴ Application dated 15 April 2025, page iv.

the Charitable Trust fund should be proportionate to the impacts on the district and therefore higher at \$200,000 per annum (and inflation adjusted).¹⁸⁵ South Taranaki District Council also requests that administration costs (unspecified) for the fund are covered by TTRL (net additional to the \$200,000 annual contribution).

345. The Panel is unclear how South Taranaki District Council reaches a \$200,000 net annual figure. Equally, there is insufficient evidence before the Panel to determine if \$50,000 or a higher figure is more appropriate. On the basis that the Panel considers this fund to contribute to the gross benefits of the project, we do not consider it needs to be proportionate in value to any impacts on the South Taranaki District. We do however treat that gross benefit as being somewhat less than \$50,000 (inflation adjusted) per annum on the basis that annual administration costs for South Taranaki District Council would need to be deducted.
346. Other criticisms of the project's economic benefits warrant more elaborate discussion, some of which were also tested in the legal issues hearing. Each of these is discussed in more detail below, along with our findings.

Employment impacts of pre-commencement (Capex) and operational (Opex) stages

347. At a general level, several commenters consider that the I-O model risks overstating gross employment (and GDP) impacts. This arises not only from the limitations of the model approach, but also from the way in which direct, indirect and induced impacts are interpreted and relied on. These criticisms apply equally to NZIER's modelling of economic impacts arising from proposed Capex, as they do to impacts arising from Opex. Professor Banks (for Forest and Bird) considered that the gross economic impacts arising from TTRL's Capex and Opex were low at the regional level and statistically insignificant at the national level. Several other commenters challenged the significance of the project's gross economic impacts.
348. A key issue raised by commenters that relates to the proposed mining operations is the ability to secure specialist labour, and in turn what this means for displacement of labour from other jobs/sectors, the cost of labour, and the source of labour (geographically) relative to assumptions made by NZIER.
349. JERA Nex BP Limited Parkwind (**JERA**) considers that the NZIER report's labour market assumptions for mining operations are optimistic. It states that the project relies on specialised marine and mining support roles in a region with thin existing capacity, therefore displacement of other activity and wage pressure are likely but are not captured by NZIER.¹⁸⁶ Mr Colegrave (for Taranaki Offshore Partnership) provides data showing no existing workers in the 'Exploration and other mining support' industry in the local area where 52 workers are stated as being employed. Regional employment demand by TTRL in this industry represents a 50% increase

¹⁸⁵ South Taranaki District Council comments, paragraph 20.

¹⁸⁶ Jera Nex BP Limited S53 Comments, page 10.

in baseline employment counts. He describes this as creating complex labour market dynamics.¹⁸⁷

350. Dr Nana states that where there are production supply constraints (such as labour) that this results in a steeper supply curve and lower multipliers (which all else being equal, would result in lower total employment (and GDP) impacts than those modelled, i.e., lower gross impacts).¹⁸⁸ Professor Fleming and Mr Buckwell identify that unemployment in the Taranaki Region is consistently lower than the national average and therefore TTRL's operational employment demands will rely on workers switching from existing jobs.
351. Commenters identify the inconsistency in assumptions of where TTRL's specialist and total labour for mining operations will come from – comparing TTRL's Social Impact Assessment (**SIA**) (which estimates that 55-60% of the 173 offshore vessel shift workers¹⁸⁹ will reside in the region, with the rest elsewhere in New Zealand or overseas)¹⁹⁰ and the NZIER assumption (which assumes 100% of staff based within the region). Commenters point to the likelihood of Drive In-Drive Out (**DIDO**) and Fly In-Fly Out (**FIFO**) workers (as discussed in the SIA) which will reduce the regional and potentially national operational employment (and induced GDP) impacts.
352. Local and administering authority commenters have also sought a condition mandating that the TTRL head office (with indicative 35 FTEs) is located in New Plymouth (or alternatively South Taranaki District) to ensure that that component of the project's employment impact benefits the region.
353. NZIER responded to criticisms that the I-O modelling overstates economic impacts. They acknowledge the limitations of the modelling (which were stated in their report) and conclude it is fit for purpose. They did not however offer any further consideration of how the limitations of the modelling approach might alter their modelling results, including in the context of the local and regional economy.
354. TTRL responded to comments about the head office, stating that a New Plymouth location was its intention but were not prepared to make that a condition of consent. It stated that a location in New Plymouth was subject to future "business decisions and staff availability".¹⁹¹
355. In response to Minute 20, TTRL confirmed that there are no restrictions on where crew (namely for the IMV and FSO) reside in New Zealand and point to previous examples from the oil and gas industry where 54% of offshore crew lived in Taranaki Region. In response to comments, TTRL's stated that it is aiming for at least 80% of total operational staff to be based within, or near, the Taranaki and Whanganui

¹⁸⁷ Evidence of Mr Colegrave for Taranaki Offshore Partnership dated 3 October 2025, at [42].

¹⁸⁸ Evidence of Dr G. Nana for Te Kaahui o Rauru, Te Rūnanga o Ngāti Ruanui and Te Korowai o Ngāruahine dated October 2025 at [31].

¹⁸⁹ Based on NZIER's latest counts.

¹⁹⁰ Social Impact Assessment, 2016, page 39.

¹⁹¹ TTRL Response to Comments Received from Local and Administering Authorities, page 6.

regions.¹⁹² NZIER did not further justify its 100% regional employment assumption for mining operations in light of those comments.

356. When asked how significant the higher paid jobs provided by TTRL would be in the context of the local and regional communities, TTRL considered that at the local level, the uplift in household incomes would be significant. It stated that TTRL's staff would be small relative to overall regional employment and the regional impact on household incomes would be "moderate but meaningful... once indirect and induced economic activity is taken into account".¹⁹³
357. In terms of indirect employment impacts (from suppliers to TTRL) the application points out that "the range of support services required for the project are similar to those used for the oil and gas industry. This means that the infrastructure and services are already in place and the sector is not having to start from scratch".¹⁹⁴ As noted above, NZIER experts revised their position that the direct, indirect and induced employment impacts they modelled would be new jobs, landing instead on a mix of existing and new jobs. NZIER said it was not possible to isolate how many are new jobs. A mix of new and existing jobs seems, to the Panel, more consistent with TTRL's comment about existing industry capacity and expertise for support services.
358. The experts attending the conference considered the reliability of employment impacts in NZIER's report, including the assumption that direct, indirect and induced employment impacts represent new jobs. Dr Fairgray provided a helpful explanation that the I-O model effectively calculates how many labour hours would be required to produce a specific amount of additional output stimulated by TTRL's direct expenditure (based on a static snapshot of the economy). Those labour hours are then converted to persons employed (and usually FTEs). As businesses can meet increased demand through a range of means (including by increasing productivity or longer work hours), additional employment should not automatically be assumed.
359. We set out our findings here. The Panel would have benefited from further contextual assessment by TTRL on employment trends in the local area and region, including the mix of employment by industry and whether employment was increasing or decreasing. This would have assisted in understanding the validity of concerns around labour constraints/labour displacement, and the significance of any net additional employment. In response to Minute 20, TTRL asked the Panel to consider a change since the SIA was prepared, which was the "reduction of higher paid employees in the offshore oil and gas industry". No data was provided with that statement to allow for that consideration.
360. TTRL have not provided sufficient information to quell concerns raised by commenters on the scarcity of specialised labour for the project. While TTRL have set out a process for managing resourcing risks within its planned timeframes,¹⁹⁵ in

¹⁹² TTRL response to Administering and Local Authorities.

¹⁹³ TTRL response to minute 20, question 14.

¹⁹⁴ Impact Assessment, page 127.

¹⁹⁵ Response to Minute 20, question 13.

the absence of other information, the SIA assumptions for regional, non-regional and overseas specialist crew sources appear, despite the age of that data, to be the most evidence-based picture of where IMV/FSO crew may reside.

361. While very limited detail is provided on the Hāwera Training and Helicopter Logistics Facility, the Panel accepts medium and long-term potential for that training facility to help build local and regional capability and capacity. However, it remains difficult to reconcile how this training facility will address the many years of expertise that most IMV/FSO roles will require (and as set out in the PFS and in Table 6 above) in the short-term. It therefore seems logical to us that TTRL will need to cast the net much wider than the region to source many of the IMV/FSO crew, with FIFO/DIDO being realistic for those crew not willing to relocate to the region.
362. However, the specialist offshore employees are only a portion of indicated total direct employment by TTRL. In terms of TTRL's aspiration of at least 80% of staff being within or near the region, the Panel has tested the outcome of 55-60% of the IMV/FSO crew being regional (as estimated in the SIA) and all other roles (including head office) also being regional. This equates to 74-77% of total (303) direct TTRL employment being based in the region (225-234 FTEs). We therefore consider that aspirations for "at least 80%" being region-based to be optimistic in the short-term, but moving towards 80% over time may not be out of the question.
363. This still leaves NZIER's assumption that 100% of direct operational employment based in the region as unfounded. This assumption overstates direct and induced employment impacts in the region. It appears to us that some direct operational employment should have been allocated to the rest of New Zealand (or overseas) along with the induced spending (GDP) of those workers.
364. If the head office was not located in the region (New Plymouth), this would further decrease regional direct employment estimated above by 15-16% (down to 190-199 regional FTEs) with further reduction in indirect and induced spending from this business activity/jobs. However, if the alternative is a head office elsewhere in New Zealand, the impacts for New Zealand would be similar (different regional multipliers notwithstanding), even if the regional employment (and GDP) impacts are less. Not making the head office location a condition of consent creates a risk that regional employment (and GDP) impacts could be less than stated in the application. If the Panel were minded to grant the approvals, it would need to be satisfied that the regional economic benefits accruing to the region from a head office in New Plymouth were secured and would seek the applicant's assistance with an appropriate condition.
365. The Panel agrees that employment impacts attributable to Capex by TTRL are likely overstated and that only a portion of direct, indirect and induced employment is likely to represent new jobs locally, regionally or nationally. That portion that is new jobs is unable to be determined. We also cannot rule out warnings that some of the estimated Capex may displace other economic activity (due to supply constraints in the timeframes determined by TTRL) which may drive down the multipliers and gross Capex impacts. While additional employment attributable to Capex is

considered positive for the region and New Zealand, taking into account the scale and short duration of that potential employment increase, we do not consider it to be significant in either context.

366. Equally, we do not consider that all operational employment impacts modelled for the project will be new/additional jobs and consider that new jobs will account for an undetermined portion of direct (non-TTRL jobs), indirect and induced Opex employment impacts in the region and rest of New Zealand. That is, all else being equal, total Opex employment impacts are overstated in the NZIER report.
367. On the matter of whether direct TTRL jobs (or any other jobs estimated by NZIER) are transferring or displacing jobs elsewhere, we agree that this is likely to occur for some jobs/roles. However, we conclude that the project still creates new job opportunities in the region that do not exist under the status quo. Labour movements between businesses is a normal part of the labour market. The fact that vacated jobs would then need to be filled does not diminish the potential benefits of TTRL's direct employment opportunities in our view.¹⁹⁶ We do however accept Dr Nana's view (and others) that such labour constraints mean that the flow-on economic impacts (multipliers) would be lower than relied on by NZIER. Again, this lends itself towards total gross employment impacts of the project's operations being overstated.
368. For the purpose of this decision, the Panel considers that potential operational employment impacts in the region (in terms of new jobs) is likely to fall between 225 FTEs (i.e. those directly supported or contracted by TTRL estimated to be based in the region) and a value less (and potentially considerably less) than the 1,123 head count reported by NZIER once flow-on employment impacts are accounted for.
369. Similarly, at the national level, the Panel considers that potential operational employment impacts in New Zealand (in terms of new jobs) is likely to fall between 303 FTEs (i.e. those directly supported or contracted by TTRL estimated to be New Zealand residents) and a value less (and potentially considerably less) than the 1,365 head count reported by NZIER once flow-on employment impacts are accounted for. The lower and upper end of the range could be further reduced if some specialist roles are taken by overseas FIFO workers.
370. When considering the relativities of these potential employment impacts to total existing employment, and accounting for which of those jobs may be high paid, specialist roles that may or may not have attracted workers from similarly paid jobs, the Panel finds that any lift in average household incomes attributable to the project at the regional level is likely to be positive, but minor, and negligible at the national level.

¹⁹⁶ Taranaki Region's total employment has shown growth year on year (for most years in the past 25 years) which indicates an ability (at least at the total level) to fill jobs in response to growth.

GDP impacts of pre-commencement (Capex) and operational (Opex) stages

371. As discussed above, there were general concerns from a range of commenters that gross GDP (and employment) impacts modelled by NZIER were overstated.¹⁹⁷ We do not repeat that discussion here.
372. Some commenters have indicated that NZIER ought to have verified Capex and Opex expenditure before using it to model economic impacts. As stated previously, the Panel sought to query the relatively large \$10.9 M of Capex assigned by NZIER to the central government sector, particularly on the basis that it accounted for some 20% of the total Capex.
373. TTRL have stated that Whanganui Port will be used as the base for environmental monitoring and the geotechnical support vessel (and ancillary operations). Proposed condition 85 states that prior to mining commencing, TTRL will provide written confirmation that the base at the Whanganui Port has been established (including permanent berthing, secure laydown area, storage area and warehouse, workshop, offices and laboratory). It is not clear what Capex is specifically allocated to achieving this development in NZIER's report (and summarised in Table 3 above) as it may be spread across a number of industries based locally or in the rest of the region. Whanganui Port Limited Partnership state that any economic impacts associated with Capex at the Port by TTRL are unsubstantiated.¹⁹⁸
374. Professor Fleming and Mr Buckwell identify that a third of annual Opex is on imported fuel.¹⁹⁹ The Panel also sought to clarify how NZIER accounted for this leakage of Opex in their I-O Model.²⁰⁰ Specifically, whether the full value of the cost to TTRL should be run through the economic model, or just the wholesale margin (being the portion that flows through the New Zealand economy).
375. In relation to the extent of economic benefits, Dr Nana uses the NZIER findings to show that much of the gross economic impacts of the project will bypass the local community and business activity and instead impact the rest of the region (namely New Plymouth). He also provides some contextual analysis on the concentration of the Māori workforce relative to the total workforce in the local and regional economy. He concludes from that analysis that the Māori economy and business activity is also at risk of being bypassed by the project in the absence of targeted investment.
376. In response to criticisms about validating the Capex and Opex inputs to their model, NZIER reaffirmed that it relies on information provided by TTRL.
377. TTRL provided further information on the Capex costs with central government. A breakdown of those expenses is provided in its response to Minute 30. TTRL confirm at the end of that table that all costs are future costs dependent on the grant

¹⁹⁷ See for example, comments by JERA Nex BP Limited, page 10.

¹⁹⁸ S 53 comments by Whanganui Port Limited Partnership, 2nd October 2025.

¹⁹⁹ Professor Fleming and Mr Buckwell, paragraph 12.

²⁰⁰ Minute 20, question 15.

of marine consents with the exception of \$1.3 M of spend related to offshore mineral permits and licenses which has already been incurred.

378. On the matter of fuel bunkering costs, NZIER stated that “our IO modelling only includes the operational activity involved in fuel bunkering (the six FTEs employed by New Zealand-based third party bunker fuel supplier and the associated expenditure)”. Further, that the modelling approach captures the benefits “only from the level of operational and economic activities within the current structure of the local, regional and national economies”. The response then focussed on fuel prices, reiterating that fuel prices (unit costs) are only factored into the DCM to inform royalty and tax contributions.
379. In terms of our findings on these GDP issues, the Panel accepts that it is common for economists to model Capex and Opex data provided by a client and that this is not a limitation of the NZIER report that this is not somehow validated (particularly when it would require specialist operational knowledge). It is more important that NZIER have fully understood the data that they have been provided so that it is used accurately in their economic model. However, the PFS states that Capex and Opex costs are only accurate to +/- 30%.²⁰¹ NZIER have not acknowledged that key caveat which could result in substantially lower or higher direct expenditure and therefore economic impacts than it has modelled. We do however accept that NZIER has modelled the mid-point of that range.
380. The Panel is aware that all Capex and Opex costs presented in the PFS are only indicative and should be treated as such. This includes TTRL’s assumptions around FSO leasing costs being an expense with a New Zealand based business (which we have presumed is included in NZIER’s modelling). The contracting and tax structure for the lease is not established and this creates some uncertainty around how much of that spend translates into domestic benefit. It is only once the BFS is completed (after approval of marine consents) that more accurate Capex and Opex estimates will be known (adjusted for timing, inflation, supply chain risks, the location of suppliers and any changes in conditions of consent that have cost implications).
381. As a first of its kind economic activity in New Zealand, the project does not have the advantage of drawing on comparable businesses or operations with proven capital and operational costs. The risk of lower actual expenditure (which would have correspondingly lower gross economic impacts) is something that the Panel is mindful of, given the purpose of the FTAA.²⁰²
382. The Panel considers that it does not need to determine if Capex associated with proposed development at Whanganui Port is substantiated or not. Nor can we determine if those capital works (or any other third party capital investments) could be achieved in the 2-3 years before mining is proposed to commence. This uncertainty is similar to the issue of additional consents required to deliver the

²⁰¹ PFS (2025), page 19.

²⁰² Documents attached to the PFS indicate that with further investigation, some cost savings could be achieved for operational cost (although cost increases were also an identified risk).

project, that are outside the scope of the application under the FFAA. On that basis, we accept at face value that Capex will be required at that Port, and *if* spent by TTRL (subject to any approvals or feasibility), will generate flow on economic activity which NZIER have indicatively already accounted for in their model. If TTRL is not able to achieve its planned Port infrastructure in Whanganui, this speaks to the feasibility of the project, which we have addressed above.

383. On the matter of the proposed Capex with central government, we find that at a minimum, the \$1.3 M already spent is a sunk cost not attributable to the approval of the project and should therefore be excluded. A portion of the \$4.3 M attributed to expenses with the EPA appears to relate to this approval process and we consider that it is not best practice to include such costs in economic impact assessments. Rather, it is expenditure that approval will unlock that is key. This can only include the pre-monitoring assessments and certification of management plans portion of that cost item. Therefore, an unknown portion of that \$4.3 M should also be deducted.
384. Overall, the Panel finds that the GDP impacts associated with indicative Capex in the pre-commencement stage are likely to be less than reported by NZIER for reasons stated above. Annually and cumulatively over those 2-3 years, we consider Capex impacts to be positive for the regional and national economy, but not of significance in either context. We therefore agree with Professor Banks' (and others) assessment in that regard.
385. The Panel remains unclear on NZIER's approach to fuel bunkering costs. Given how significant it is in the PFS breakdown of annual operational costs, we would have been more comforted if NZIER had explicitly confirmed that the up-stream Basic material wholesaling GDP multipliers in their model did not capture the import component of the Bunkering services' output sustained by TTRL's operations. We trust NZIER's expertise on such modelling that the imported fuel cost does not make its way into the reported regional and New Zealand economic impacts, but in any case, we have the scale and nature of direct Opex before us, to help inform our views on the potential extent of economic activity stimulated within New Zealand by the project.
386. In that regard, annual Opex is mainly labour, fuel bunkering and FSO lease costs. According to the PFS, that leaves just 21% of annual non-freight Opex, indicatively \$51 M per annum, directly flowing to other business sectors in New Zealand (\$47 M per annum directed to other sectors in the region and just under \$4 M per annum directed to the insurance sector based in the rest of New Zealand). This equates to a modest economic footprint in the region in our view. Dr Nana is also correct in his observations that significant linkages with local area businesses and activity appear lacking.
387. While a number of commenters have stated that gross economic impacts modelled by NZIER are overstated - focussed mainly on the limitations of I-O modelling - evidence on what GDP impacts arising from Capex and Opex should instead be, is lacking (with critiques relating to employment impacts more tangible to understand).

388. We have already accounted for some minor changes in Capex above that would have a reducing effect on direct, indirect and induced Capex related GDP impacts. In the absence of any specifics that the Panel can rely on, we form the view that there is still some uncertainty around Opex related GDP, particularly around FSO leasing costs, and that impacts may be somewhat less than reported by NZIER, with induced GDP impacts potentially a key source of overestimation at the regional level due to the likelihood of a different employment distribution.

Projected revenue, royalties and corporate tax contributions

389. Ms Jill Cooper has provided evidence on feasibility and mining operations on behalf of KASM / Greenpeace. Her focus is on the value and demand of TTRL's exports. Ms Cooper provides brief information on a global oversupply of iron ore expected to last into the medium term,²⁰³ changes to clean energy credits that reduce the likelihood of premium prices being achieved for the resource in the STB, risks to the competitiveness of New Zealand based resources, and changes in the global steel production market which are likely to see reduced demand for virgin ore. Ms Cooper considers that market analysis indicates a "poor outlook for new iron ore projects" such as proposed by TTRL.
390. Ms Cooper notes that there is no flexibility in TTRL's production model to store product and sell it when prices are more favourable. The need to continuously sell the ore as it is extracted means that TTRL will be vulnerable to lowballing (when buyers deliberately offer a lower price, exploiting the seller's urgency or lack of alternatives to offload the product). The Panel sought additional information from TTRL on this operational risk and is satisfied that it has accounted for unexpected shipping delays in its operational model, although Ms Cooper's main point here still remains.
391. Ms Cooper also considers that the returns assumed by TTRL/NZIER from exports of vanadium (estimated at \$196 M per annum out of the total projected revenue of \$854 M) should be excluded. She considers it is speculative that it will be feasible to extract and no evidence has been provided of offtake agreements or committed buyers for vanadium products. Dr Loftus from Sanofex made the same point.²⁰⁴
392. Professor Banks provided evidence on various ways in which TTRL will be able to reduce their tax liability, which we have already noted previously above. The South Taranaki Underwater Club raised the same issues in its comments.²⁰⁵ Mr Banks points to other mining examples (OceanaGold in New Zealand and in Papua New Guinea) to highlight that even when export values each year are high, that tax contributions can vary significantly from year to year (and in some years equal zero). This is attributable to changes in commodity prices, effects of extreme weather, and unforeseen capital expenditure/equipment replacement or repair. He therefore

²⁰³ Professor Fleming and Mr Buckwell (KASM/Greenpeace) support Ms Cooper's comments on the glut in iron reserves globally.

²⁰⁴ Sanofex Report (September 2025), page 18.

²⁰⁵ South Taranaki Underwater Club comments, page 198.

cautions that stable returns to New Zealand from mining resources (such as estimated by NZIER) are not guaranteed.

393. Dr Loftus (for Whanganui District Council), raised concerns about the sale price of the commodities produced by TTRL. He considers that revenues will be much lower than claimed in the PFS/NZIER reports (driven by a range of factors). Dr Loftus considers that the assumed iron ore price of US\$90/tonne is too high (based on an iron grade that exceeds TTRL's product, with insufficient discounting), and that the base price is likely to reach US\$70-80/tonne by 2030. He also considers that freight costs to China have been underestimated in the DCM. He presents alternative DCM's where tax and royalty contributions over the 20 year mining period are substantially lower (not only because he excludes vanadium revenue).
394. Mr Colegrave notes that in the time TTRL will take before extraction begins (several years), that market conditions and prices (including shipping costs that he considers have not been appropriately assessed) could have changed substantially from those relied on by NZIER/TTRL, resulting in a changed (reduced) outlook of export revenue.
395. In response to comments, the applicant states that the PFS has adopted price assumptions that appropriately reflect the characteristics of the TTRL VTM at the point of export and the current market for that particular product. Siecap states that the selection of US\$90/tonne for the long-run baseline 62% Fe grade ore price forecast²⁰⁶ is based on a "balanced assessment of historical price trends, market fluctuations, expert forecasts, and industry dynamics".²⁰⁷
396. In its evidence, NZIER responded to criticisms about using long-run averages for commodity prices, and the absence of accounting for price volatility which overstates project revenues and understates operational costs. NZIER considered the input assumptions were "within the lower range of historic trends and forecasts from credible international sources". It maintains that their input assumptions are reasonable and conservative and therefore tax and royalty contributions are not overstated.
397. Mr Brown for TTRL later stated in response to comments that the iron ore price it had relied on for the DCM had increased to US\$104/tonne in October 2025 and are now forecast to be approximately US\$96/tonne by Q3 2026.²⁰⁸
398. In response to Ms Mills, Mr Thompson for TTRL acknowledges the roll-back of US clean energy credits, but states that there is strong demand in Asia and Europe who also require emissions credentials for steel production.²⁰⁹ He also responded to criticisms that premium prices for vanadium won't be achieved. He agreed that while premiums can be transient, there has been regulatory changes for steel production in China plus an expected upswing in demand for vanadium for redox flow battery

²⁰⁶ Which they then discount by 13.7% to account for the lower iron grade of the STB ore.

²⁰⁷ PFS (2025), page 188.

²⁰⁸ Evidence of Mr M Brown's for TTRL dated 13 October 2025 at [16].

²⁰⁹ Evidence of Mr S Thompson's for TTRL in response to comments received dated 13 October 2025 at [60].

systems represents a structural shift in baseline demand which supports the price assumptions they have adopted.²¹⁰

399. Mr Brown responded to the criticisms of Dr Loftus stating that several of the issues raised “result from incorrect alterations to model inputs and the use of alternative assumptions not aligned with the validated project inputs. These changes have led to misinterpretation of model outputs and a misleading view of project economics”. With regard to concerns raised about iron ore price inputs, he states that any reasonable variation would impact the DCM, but not to the extent suggested by Dr Loftus, and those variations are within the overall tolerances (accuracy) declared in the PFS.
400. TTRL provided further information on what assurances TTRL has that revenue (and therefore royalties) can be achieved from year 1 of mining operations. It referred to binding offtake agreements which are contracts that define prices, ownership and payment obligations. These contracts can span short or long periods of mining. TTRL cited examples of other existing offtake agreements, including for vanadium pentoxide and titanium dioxide. Notwithstanding this further information, the Panel understands that TTRL has not yet pursued or obtained offtake agreements and that this is something that forms part of the BFS (and TTRL’s decision on overall economic viability at that point in time).
401. NZIER provided further modelling on their sensitivity testing on exchange rate, iron ore price and fuel price. Rather than testing the change in one variable at a time (as shown in their report), the Panel asked NZIER to change multiple variables at once to test a best and worst case scenario around their preferred scenario. The Panel accepts NZIER’s comments that the combinations of variables they modelled for the best and worst case do not reflect real market trends and we discount them accordingly.
402. The Panel is cognisant of Ms Cooper’s concerns about future demand for TTRL’s VTM product. We found that the PFS included some of the same information (including in linked articles) that she had raised, although perhaps reached more optimistic conclusions from those. We consider that market demand, which is linked to the ability to secure offtake agreements, falls into the same basket as overall feasibility of the project, and goes beyond what we can decide based on information before us. In terms of whether credits (revenue) for vanadium pentoxide should or should not be included, we err on the side of TTRL that it should be included (although we have tested the DCM results without this revenue stream for our own understanding).
403. We have considered what weight should be given to potential titanium dioxide revenue. TTRL have not included it in its DCM or quantified economic contributions, and on that basis, we have based our evaluation only on the potential VTM ore and vanadium revenue streams.

²¹⁰ Evidence of Mr S Thompson’s for TTRL in response to comments received dated 13 October 2025 at [59].

404. Based on information provided in the PFS, it seems that while current market forecasts for iron ore prices are called “long run” they are not very forward looking. Examples cited in the PFS include forecasts only to 2030. The Panel assumes that this is because of the volatility of the iron ore global market and its sensitivity to so many demand and supply factors. This means that the DCM’s assumption of holding iron ore, vanadium pentoxide, and IFO 380 prices and exchange rates constant for 20 years could be viewed as very risky and highly uncertain.
405. TTRL has, however, been clear that modelled export earnings, royalties and tax contributions are subject to market volatility. The Panel accepts NZIER’s finding that export earnings, royalties and tax contributions are most sensitive to changes in the iron ore price (compared to other variable costs). To assist our evaluation, the Panel has considered the iron ore price ranges contained in page 188 of the PFS where long-term market forecasts range between US\$70/tonne and US\$100/tonne (albeit only out to 2030). We adopt these as an indicative low and high range around TTRL’s preferred US\$90/tonne scenario – holding all other inputs to the DCM constant.
406. Table 12 shows how this influences potential annual royalty and corporate tax contributions (the minimum contribution being early in the operational period where finance and depreciation factors apply, and the maximum being in the later stages of operation where those factors do not apply). These results are still sensitive to other possible variations, including vanadium prices, and it appears from data supplied that iron ore prices could still fluctuate outside of this range from time to time.

US\$ Iron Ore Price/tonne (62% Grade)	Low Range	TTR Scenario	High Range
	\$ 70	\$ 90	\$ 100
Annual Revenue VTM Ore (NZ\$ Million)	\$ 510	\$ 658	\$ 730
Annual Credits V2O5 (NZ\$ Million)	\$ 196	\$ 196	\$ 196
Total Export Earnings (NZ\$ Million)	\$ 706	\$ 854	\$ 926
Annual Royalty Minimum (NZ\$ Million)	\$ 21	\$ 36	\$ 43
Annual Royalty Maximum (NZ\$ Million)	\$ 39	\$ 54	\$ 61
Annual Corporate Tax Minimum (NZ\$ Million)	\$ 55	\$ 91	\$ 110
Annual Corporate Tax Maximum (NZ\$ Million)	\$ 99	\$ 136	\$ 154

Replicated from TTR DCM, V2O5 price held constant, exchange rate \$0.58 held constant, ore price discount 13.7% constant, shipping and direct costs unchanged.

Table 12 – Indicative sensitivity of royalty and tax contributions to iron ore price

407. Notwithstanding the limitations of forecasting prices that may apply 3-23 years (or more) into the future, we determine that annual royalties could vary (using this low and high range) between \$21 M and \$61 M per annum, and tax contributions (before any further tax criteria are applied which could reduce taxable income and tax paid) could vary between \$55 M and \$154 M per annum. We agree with Professor Banks that TTRL’s annual tax contributions are likely to be highly variable and so take a cautious approach to the lower range of potential annual tax contributions (i.e. that this could be much lower).

Whether economic impacts such as GDP and employment, tax contributions and royalty payments can be considered economic benefits

408. JERA point out that “the NZIER report assesses economic impacts, whereas the criterion under the Act refers to economic benefits: in a national economic cost-benefit analysis, the two are not the same, and jobs can be regarded from an economic perspective as a cost, not a benefit. Jobs have an opportunity cost, unless there is substantial and involuntary unemployment in the economy. The true net economic benefits from a project are the sum of consumer and producer surplus (economic value added) created by the project.”²¹¹
409. Professor Fleming and Mr Buckwell state that economic activity cannot be equated with economic benefit, let alone equated with having a causal link to improved societal welfare.²¹² Market Economics (Dr Fairgray) provide a section in its report on the difference between economic impact and benefit. It describes economic benefits as a component of economic impacts, “since not all of that impact equates to actual benefits for people and the economy”.
410. The Parliamentary Commissioner for the Environment states that economic benefits of the project “truly additional to the country” are royalties and a marginal change in labour productivity.
411. As summarised above, NZIER considered the GDP and employment impacts as economic benefits, along with the export revenue, tax and royalty contributions. It did not respond directly to the criticisms raised above.
412. The issue was put to the economic experts in the conferencing but only limited additional information was forthcoming (with the discussion shifting towards the issue of net benefits versus gross benefits). NZIER experts reiterated that all impacts and contributions it modelled were benefits to economic wellbeing as they would mean more funding to do more things in New Zealand, which should increase the standard of living. Dr Fairgray and Professor Fleming stated there was an element of benefit in economic impacts.
413. The experts did provide an example of how expenditure on addressing adverse environmental effects of the project (which would be treated as a positive economic impact in an I-O model) would not enhance economic wellbeing. However, NZIER confirmed that no such expenditure was included in the Opex estimates modelled. This confirms Market Economics’ broader concerns that NZIER only modelled one successful scenario of economic impacts where there are no mishaps or restorative costs faced by TTRL.
414. While increasing Crown revenue through tax and royalty contributions increases the ability of central government to spend, the Panel has taken into account that not all government spending occurs in New Zealand and not all spend in New Zealand enhances social and economic wellbeing. We therefore consider (in terms of where

²¹¹ Comments by JERA Nex BP (Parkwind), page 10.

²¹² Professor Fleming and Mr Buckwell, paragraph 22c.

we have landed on those contributions, discussed above) that a portion of potential royalties or tax contributions generated by the project over the mining period will result in a gross economic benefit to New Zealand. We consider that benefit portion likely to be a substantial share of the total, but nonetheless, not the full value of those annual contributions.

415. We take a similar approach to estimated gross GDP impacts landed on above (which are somewhat lower than modelled by NZIER). We agree with those commenters who considered that gross economic benefits are a component of gross GDP impacts. We err on the side of that component being substantial but less than the full impact.
416. We note that the Panel for Waihi North considered a similar issue on the benefits of employment impacts. We agree with that panel's approach that:²¹³

A well-paid job is beneficial to the person who holds it (and members of that person's family), and in ways that are not only financial. An increase in the number of well-paying jobs strengthens the resources, resilience and social cohesion of the community in which they are located. More generally additional employment is correlated with economic growth. We are therefore of the view that, for the purpose of the analysis required by the FTAA, a substantial number of additional jobs is a benefit.

For clarity, we consider that net additional jobs at the regional and national level generated by the project (which is less than total direct, indirect and induced employment modelled by NZIER as discussed above), can be treated as economic benefits of the project. Where those net additional jobs are relatively higher paid, this enhances that economic benefit.

Opportunity costs of offshore wind energy generation

417. Mr Colegrave (for Taranaki Offshore Partnership) provides evidence on the "potential loss of, impairment, or delay in realising the economic benefits of" offshore wind farming in the STB.²¹⁴ While Mr Colegrave states that it may be theoretically possible that both industries could proceed in separate spatial areas of the STB, for reasons set out by other experts for Taranaki Offshore Partnership, Mr Colegrave considers that there is a direct adverse economic effect of the project, and so the scale of that opportunity cost must be assessed.
418. Mr Colegrave points out that offshore wind farm projects face similar financing, consenting and delivery risks as the project, but has the backing of government and potentially a better social licence to operate.²¹⁵ When comparing a 1 GW offshore wind farm with the project, the offshore wind farm would have a longer project life (including 30 years of operation rather than 20 for TTRL), larger direct and total GDP impacts (undiscounted), more direct employment, a significant positive impact on carbon emissions, provides legacy infrastructure and would be an enabler of

²¹³ Record of Decisions of the Expert Panel under Section 87 of the Fast-track Approvals Act 2024 – Waihi North Project dated 18 December 2025 at [819].

²¹⁴ Evidence of F. Colegrave for Taranaki Offshore Partnership dated 3 October 2025, at [106].

²¹⁵ Presentation by Taranaki Offshore Partnership at the Hāwera conference.

future industries in New Zealand. He concludes that compared with the TTRL project, an offshore wind farm is likely to be a “superior economic outcome overall”.

419. JERA provided information on why it considers that offshore wind farm projects would be unable to proceed in the same, or a proximate, location as the project, which also happens to be the best location for offshore wind generation in New Zealand. Like Taranaki Offshore Partnership, they consider that the foregoing, or loss, of the much more significant regional and national economic benefits that would flow from the construction and long-term operation of offshore wind farm projects and associated infrastructure (e.g. transmission and port upgrades) should be counted as an adverse impact of the project that reduces the stated gross economic benefits. JERA endorses the evidence of Mr Colegrave. We also acknowledge the evidence of the South Taranaki Underwater Club who canvassed the issue of foregone offshore wind farm investment for the region.
420. NZIER stated that it does not consider opportunity costs for future industries (such as offshore wind farms) in their assessment of economic benefits and costs as their counterfactual scenario is the current economy without the project.
421. The issue of whether opportunity costs should be accounted for in the economic assessment was addressed at the economic expert conferencing. Experts for NZIER did not support the inclusion of foregone opportunity for different activities as there are an “infinite number of alternative activities that could establish on the site, each with own costs and benefits”. Professor Fleming did support inclusion of opportunity costs, both “temporal and sectoral”. Professor Banks, with support from several of the experts, considered that there is a temporal component to the opportunity costs attached to the ore itself. He stated that future technology will mean that higher values could be extracted from the resource with less environmental cost (and therefore higher benefits to New Zealand).
422. The Panel put the following question to legal counsel at the legal issues hearing: To what extent, if any, is the potential for offshore wind energy generation in or near the project area relevant, whether as an ‘existing interest’ under s 59(2)(a) or (b) or under s 59(2)(g) EEZ Act, or otherwise? That discussion is set out in section 7.8 and is not repeated here. The Panel’s finding is that it is not required to consider the prospect of future wind farm use of the site as an existing interest or under s 59(2)(f) of the EEZ Act. We therefore disagree that economic opportunity costs for offshore wind farming, such as quantified by Mr Colegrave, need to be deducted from gross economic benefits (if comparable), or alternatively, applied in the proportionality assessment.

Economic costs and disbenefits of the project

423. The inadequacy and lack of robustness of TTRL’s assessment of costs/adverse impacts of the project is a universal issue raised by most commenters (other than those few in support). Potential economic costs form a subset of those concerns and is the focus of this subsection. For clarity, economic costs associated with displacement of economic activity at the industry level arising from TTRL’s Opex and Capex, and in the context of the limitations of I-O modelling, have been

accounted for in previous sub-sections and are not covered here. Rather, this sub-section responds to concerns around potential adverse economic effects on commercial fisheries/fishing²¹⁶ and tourism which are the key commercial activities identified by TTRL and commenters that may be impacted by the proposed mining operations.

424. Dr Fairgray states that the NZIER report is limited to gross economic impacts and is not an assessment of the net (or gross) economic benefits of the project, and he refers to the adverse effects identified in the TTRL application that have not been considered as economic costs. He considers that the NZIER report is incomplete in this regard. He also considers that the economic costs of a potentially significant mishap (however low in probability) should be included in an economic assessment as a potential economic cost.
425. Mr Colegrave states that the economic costs of the project have not been addressed by NZIER or TTRL and net economic benefits remain “unmeasured and unacknowledged”. He notes that while economic costs on other existing interests may be smaller in scale than the project, they “contribute to regional economic resilience and community wellbeing” and need to be appropriately considered.
426. Professor Fleming and Mr Buckwell consider that a further cost considered applicable, but unquantified, is the loss of brand value associated with 100% Pure NZ. They state that 100% Pure NZ positions the country with messages indicating “clean and green, sustainability, environmental awareness and association with the strength of New Zealand’s indigenous Māori culture and their spiritual connection with the land”.
427. Professor Fleming and Mr Buckwell also provide some brief assessment on the direct impacts on commercial fishing as a result of the project. They state that whilst the project will not completely diminish the value of the commercial fishery, losses could still be economically significant.²¹⁷ Talley’s Group Limited,²¹⁸ and Seafood New Zealand consider that the project risks New Zealand’s reputation as a world class manager of fisheries and producer of seafood (in addition to their concerns about the economic impact on commercial fisheries and fishing, also shared by the NZ Rock Lobster Industry Council, Sealord Group Limited, Te Ohu Kaimoana and others).
428. TTRL responded to concerns regarding the economic costs of potential mishaps, referencing the relevant legislation that it is required to comply with, management plans that address these risks, and the proposed condition of consent (107) that requires an insurance policy held by TTRL that that will address any costs of

²¹⁶ While the term ‘displacement’ of fish and fishing effort is used to describe the project’s impact on commercial fisheries/fishing, that use of the term ‘displacement’ is a geographic reference, while displacement effects in the context of I-O modelling is at a more micro, economic resource/labour supply displacement level.

²¹⁷ They draw on comments provided by Talley’s Group Limited and evidence provided in the 2016 application by A P Smith Fishing Consultancy Ltd and A. Piper.

²¹⁸ Evidence of J. Helson for the Fisheries Submitters dated 6 October 2025 at [64].

environmental restoration or damage to assets of existing interests. As such, TTRL infer that there is no residual economic cost that needs to be accounted for.

429. Following the receipt of comments from those invited under s 53 FTAA, NZIER acknowledged the multiple comments concerning the lack of assessment of potential adverse effects of the project. It refers to the TTRL Impact Assessment that provides coverage of adverse effects and the economic assessment carried out by Martin Jenkins for TTRL in 2015 for an earlier application to the EPA where negative impacts on fishing and tourism were accounted for. It states that the older economic report showed that the economic benefits of the project significantly outweighed those economic costs.
430. NZIER then provided some additional analysis on impacts of the project on other industries. It considers displacement effects on commercial fisheries and tourism, noting that the TTRL application qualifies these impacts as minor and limited respectively.
431. The impact on commercial fishing is limited to the local area (South Taranaki and Wanganui districts). NZIER states that it assesses a worst case scenario where “the entire industry exited”. It bases this on the loss of six workers recorded by Statistics NZ in that local area employed in the fishing or aquaculture industry which have an estimated gross output associated with that employment of \$2.93 M per annum. NZIER apply an induced GDP multiplier to show that the loss of six fishery workers equates to a reduction in GDP of \$2.10 M per annum for the region.
432. To estimate the impact on tourism, NZIER adopt a 1% reduction in tourism spend in the local area on the basis that TTRL and Martin Jenkins (in 2015) found a negligible effect on tourism as a result of the project. It estimated this loss of tourism expenditure at \$2.2 M per annum. They treat this local loss as the only tourism loss for the region. The GDP loss associated with this is expected to be lower but is unquantified and they treat the \$2.2 M impact as a conservative upper limit.
433. Combined with its commercial fishing impacts, NZIER conclude a potential decline in economic activity from fishing and tourism impacts of up to \$4.30 M in the region (although limited to the local area). When deducted from regional operational GDP impacts of the project (which the Panel does not accept in full), the net operational impact is \$217 M per annum for the region and \$261 M per annum for New Zealand. These net economic impacts have a cumulative present value of \$2.135 Bn for the region and \$2.562 Bn for New Zealand over the 20 year mining period.²¹⁹ These figures represent NZIER’s revised net economic GDP benefits.
434. The risks or benefits of the project on New Zealand’s reputation was a matter considered in the economic expert conference. All experts agreed that reputational risks or benefits is a relevant economic effect. The experts for NZIER considered that their tourism and fishing impact assessment (summarised above) accounts for reputational risk on these two industries. However, the other economists disagreed that the additional tourism assessment carried out by NZIER, which was limited to

²¹⁹ Applying an 8% discount rate in accordance with Treasury guidance for commercial projects.

the local area, adequately accounted for reputational risk that the project may have on tourism for all regions (i.e. total New Zealand).

435. The Panel has reflected on NZIER's attempt to quantify the project's impacts on commercial fishing interests. We find it overly simplistic and at odds with the evidence that was available for NZIER to consider. It demonstrates little, if any, knowledge of the commercial fishery or commercial fishing effort that takes place in the area potentially affected by the project. It does not account for the broad range of quota holders who fish in FMA 8. Those quota holders are spread throughout New Zealand and are not limited to the local area. NZIER's assessment of commercial fishing impacts does not meet the test of the best available information. Given the significant deficiencies of that assessment, we have disregarded it.
436. With respect to tourism impacts, we note that potential effects of the project on tourism (and recreation), including New Zealand's 'clean green' reputation (for international tourism) had been assessed in TTRL's Recreation and Tourism report by Greenaway & Associates. While we appreciate that NZIER have attempted to quantify those findings (in monetary terms) as sought by several commenters, we find the 1% loss of tourism spending approach in the local area an arbitrary approach that adds little value to TTRL's existing tourism assessment (which followed a more comprehensive, qualitative approach). We are inclined to rely on the Greenaway & Associates' assessment of tourism effects (and other commenters views) over NZIER's quantified assessment. Our findings on that assessment are set out in section 20.4.
437. The Panel is live to the issue of economic costs and disbenefits of the project and the need to deduct comparable economic costs and disbenefits from the quantified (including monetised) gross economic benefits, to reach – where practicable – a net position on quantified economic benefits. However, based on the evidence before us, such a deduction is not practicable. We do not accept NZIER's monetised economic cost assessments for commercial fisheries/fishing and tourism as robust and reliable. Nor do we consider that we can determine, with certainty, the potential economic costs on tourism and commercial fisheries/fishing based on information provided by others (discussed later in this decision) – to the extent of having a quantified monetary or employment value that can be deducted from gross GDP, tax or royalty contributions, or gross new employment.
438. Consequently, the Panel has taken into account potential economic costs and disbenefits (discussed and evaluated in Section 20) as impacts to be weighed against the gross benefits of the project in the proportionality assessment instead.

Climate-related benefits

439. The applicant places weight on the relative benefits of its proposed offshore seabed mining of iron ore compared to traditional land-based iron ore or hard rock iron ore mining around the world in terms of carbon dioxide emissions per tonne of ore. They state a saving of between 58-188 kg of carbon dioxide per tonne of ore concentrate. The PFS estimates that TTRL's emissions of 62 kg carbon dioxide per tonne of

concentrate (described as relating to extraction and recovery) “places TTRL in the bottom quartile of carbon dioxide emitters for iron ore producers globally”.²²⁰

440. No information is provided by TTRL on how their carbon dioxide emissions compare specifically with other seabed mining operations around the world. Nor is it clear that 62 kg carbon dioxide per tonne of concentrate reflects the full emissions profile of TTRL’s operations, including (but not limited to) emissions associated with international freight to offshore markets (and which other mining with higher carbon intensity may or may not face (or to the same degree)). However, in the absence of any evidence to the contrary, we accept the project’s relative carbon intensity against global mining averages as a positive attribute.
441. What weight to give to that is less clear. We are not tasked with comparing this application with an alternative land-based mining proposal. We are therefore asked to consider this benefit at a global scale. At that scale, understanding the marginal emissions benefit of mining up to 50 M tonnes of VTM ore concentrate per annum (with associated shipping) would require knowledge on whether supply of VTM ore concentrate from New Zealand results in a reduction in the global use of iron ores that have a higher carbon intensity. That is, a substitution of resources occurs in favour of those suppliers with a lower emissions profile.
442. The likelihood of this occurring will depend on the steel manufacturers themselves and whether any of their decarbonisation efforts (if applicable) extend beyond their manufacturing process and into their supply chain. This is a complex demand and supply issue that goes well beyond our ability to assess on the information before us.
443. In the absence of any way to predict what share of virgin ore TTRL’s VTM concentrate will make up of total global consumption of virgin iron ore for steel (and other) production over the proposed 20 year mining period, and the carbon intensity mix of global ore consumption, we find that there is far too much uncertainty to make a finding on whether there is an indirect link between the project and reduced global carbon dioxide emissions – at the extraction stage – that may in turn translate into long-term climate benefits to New Zealand. We err on the side of this potentially being a negligible benefit for New Zealand.
444. The other aspect of TTRL’s claimed environmental advantages (benefits) is providing a resource (VTM iron ore) that is used in the manufacturing of products that are supporting global demand for (and transition to) clean energy or are themselves a lower emissions alternative (such as green steel). Vanadium is on New Zealand’s (and other countries) critical minerals list in recognition of that market demand. We consider that this benefit can be contemplated independently of TTRL’s relative extraction carbon intensity benefit discussed above.
445. TTRL is not driving the demand for clean energy or green steel, rather it is responding to the opportunity to compete in the supply of raw resources for those respective industries. We are cognisant that the viability of those industries relies

²²⁰ Pre-feasibility Study, page 12.

on a steady and secure supply of raw resources and there is a potential benefit pathway here for the project that aligns with the resilience outcomes of New Zealand's Minerals Strategy in respect of the vanadium co-product of the ore concentrate. The extent of that benefit still depends on how the project measurably strengthens New Zealand's ability to leverage supply agreements for vanadium (if or when required) and other products made of vanadium in the global market. Any finding on that would be speculative. Based on this uncertainty, we do not consider that this is a benefit that we can reliably attribute to the project.

446. We agree with the applicant that any benefit drawn from its role in that global supply chain is an indirect one. The extent to which this may translate into a benefit for New Zealand (through use of products that have utilised TTRL's exported product or through consequent climate benefits from reduced greenhouse gas emissions) is highly uncertain (and likely unmeasurable). Again, it is entirely contingent on the global demand for TTRL's VTM iron ore and its ability to secure off-take agreements – a (feasibility) matter which we found to go beyond the scope of our consideration.
447. Nonetheless, in needing to make a determination on whether TTRL's claimed benefit of contributing to industries that is itself reducing emissions (in a relative sense) or supporting the transition towards clean energy, we find this indirect benefit (in gross terms) to be positive for New Zealand, but likely minimal.
448. The Panel wished to understand the extent to which a net approach to stated climate benefits (discussed above) should be adopted. In the legal issues hearing, EDS submitted that a net approach to climate effects is required, consistent with the approach it recommended on economic benefits. KASM / Greenpeace agreed in principle but disputed any climate benefits for the project.
449. The applicant said that if the Panel were to receive evidence enabling climate-related benefits and disbenefits to be netted off one against the other, then that approach could be adopted in order to assess whether the project overall creates a climate-related benefit or disbenefit (and, of what magnitude or significance that is). However, it said that achieving a combined assessment of climate-related benefits and disbenefits in that way is not fundamental to the assessment and that it is more important for both sides of the equation to be accounted for (if that is supported evidentially).
450. The Panel has not received evidence that would enable it to adopt a net approach to climate-related benefits. Indeed, the gross climate-related benefits are qualified at a very high level only. Accordingly, it has instead considered any climate-related disbenefits as adverse impacts under s 85(3) FTAA. This has been addressed in section 18.

5.3 Findings

Gross regional and national benefits

451. For the reasons provided above, we see the gross regional benefits of implementation of the Taranaki VTM project as:
- a. further diversification of the regional economy for the duration of the mining operation period;
 - b. contributing to regional workforce development and upskilling through industry specific training and certification provided in Hāwera over the consent period;
 - c. potential pre-commencement (Capex) stage employment impacts (in terms of new jobs) of less (and potentially considerably less) than the 211 head count reported by NZIER and an indicative increase in regional GDP somewhat less than the \$26.6 M reported by NZIER once direct and flow-on impacts are accounted for. These Capex related employment and GDP impacts are not annual impacts but are spread across a stated 2-3 year period;
 - d. potential operational employment impacts (in terms of new jobs) of between 225 FTEs (i.e. those directly supported or contracted by TTRL estimated to be based in the region) and a value less (and potentially considerably less) than the 1,123 head count reported by NZIER and an indicative increase in regional GDP somewhat less than the \$222 M reported by NZIER once direct and flow-on impacts are accounted for. These Opex related employment and GDP impacts are annual with TTRL considering that they can be sustained for the full 20 year mining period proposed;
 - e. positive effects on average household incomes in the region during the operational mining period where new jobs have above average wages and salaries; and
 - f. the establishment of a Charitable Trust with annual funds able to support social and economic wellbeing in the South Taranaki District for the duration of the mining period to the value of \$50,000 per annum (inflation adjusted), less annual administration costs.
452. The Panel does not accept TTRL's claims that the project will deliver "much needed infrastructure investment in Taranaki and Whanganui". There is no evidence before us that the 'need' for this infrastructure goes beyond that of TTRL's operational needs or that there are other industries that have been waiting for such investment. Whether there are other businesses that would benefit from that infrastructure investment at the same time as, or subsequent to, TTRL's mining activity, is uncertain. There is no evidence before us on the potential costs of any upgrades required at Port Taranaki, who bears those costs, and whether those costs displace any other investment (or benefits) in the region.

453. We see the gross national economic benefits of implementation of the Taranaki VTM project (also relevant under s 59(2)(f) of the EEZ Act) as:
- a. further diversification of the national economy for the duration of the mining operation period;
 - b. contributing to national workforce development and upskilling through industry specific training and certification provided in Hāwera over the consent period;
 - c. potential pre-commencement (Capex) stage employment impacts (in terms of new jobs) of less (and potentially considerably less) than the 459 head count reported by NZIER for total New Zealand and an indicative increase in national GDP somewhat less than the \$62.2 M reported by NZIER once direct and flow-on impacts are accounted for. These Capex related employment and GDP impacts in the rest of New Zealand are not annual impacts but are spread across a stated 2-3 year period;
 - d. potential operational employment impacts (in terms of new jobs) of between 303 FTEs (i.e. those directly supported or contracted by TTRL estimated to be New Zealand residents) and a value less (and potentially considerably less) than the 1,365 head count reported by NZIER. The lower and upper end of the range could be further reduced if some specialist roles are taken by overseas FIFO workers. An indicative increase in national GDP somewhat less than the \$265 M reported by NZIER once direct and flow-on impacts are accounted for. These Opex related impacts are annual and will indicatively endure for the 20 year mining period;
 - e. positive effects on average household incomes nationally during the operational mining period where new jobs have above average wages and salaries;
 - f. the establishment of a Charitable Trust with annual funds able to support social and economic wellbeing in the South Taranaki District for the duration of the mining period to the value of \$50,000 per annum (inflation adjusted), less annual administration costs;
 - g. potential annual royalties paid to the Crown indicatively between \$21 M and \$61 M per annum over a 20 year period; and
 - h. potential corporate tax contributions indicatively between \$55 M and \$154 M per annum, but also potentially much less than this lower range in some years once all available tax criteria and offsets are applied and/or if operations face unexpected costs.²²¹

²²¹ Given that most of the assets of the project are sourced from overseas suppliers, the Panel is cognisant that unexpected repairs or replacements of major equipment may not result in further expenditure that benefits New Zealand.

454. In addition to national economic benefits, we find that the project may have positive but likely minimal indirect climate-related benefits for New Zealand.
455. The Panel does not accept TTRL's national benefit claims that the project will be transformative for the New Zealand economy, or that it will be a catalyst for economic progress. We form this view based on both the extent of the national benefits (discussed further below) and the inherent uncertainty around those outcomes.
456. The regional and national benefits of the project as described above are subject to a range of assumptions and uncertainty which the Panel has attempted to account for in our evaluation. There are also gross benefits, as the Panel has not (in the case of the economic benefits) been able to quantify – in a comparable and certain way – the economic costs or disbenefits of the project that would allow for a net economic benefit calculation. These economic costs include, but are not limited to, impacts on commercial fisheries/fishing and tourism impacts. We have addressed these elsewhere in the decision. The same applies to our assessment of changes in carbon flux in the STB which needs to be considered against our finding of the project's minimal climate-related benefits.

Significance and extent of regional benefits

457. Here, and below, we consider the significance and extent of the project's benefits, taking into account our approach to the meaning of "significance" in the purpose of the FTAA discussed earlier in section 3.4.
458. Taranaki Regional Council provided useful information on the current and projected economic context of the region. It describes Taranaki as being in an economic recession, with stronger declines in regional GDP in the year to March 2025 than at the national level. It attributes the strongest declines to the mining sector with supporting industries also contracting. Employment in the year to March 2025 had also declined by a higher percentage than the national level, with a corresponding increase in unemployment, albeit still below the national average.
459. Looking forward, the Regional Council states that "the region is facing serious economic headwinds with the decline of the oil and gas industry" and describe the interdependencies of other industries in the region on that industry that are at risk of significant adverse impacts. In the context of those recent and projected economic declines, the Council considers that the potential of the project to contribute investment and net additional jobs (with associated flow-on economic impacts) "takes on additional significance".²²² The Panel agrees.
460. The Panel considers that the project is likely to deliver significant gross economic benefits to the region. The extent of those regional benefits, which include a sizeable number of new job opportunities in the region, is largely linked to the mining operation period, which is expected to be limited to 20 years. Those regional

²²² s53 Taranaki Regional Council comments, page 11.

benefits are also expected to be largely concentrated in, but not limited to, New Plymouth.

Significance and extent of national benefits

461. NZIER stated in the economic conferencing that its modelled national GDP and employment impacts were “modest in the context of the New Zealand economy”.²²³ The Panel agrees. The extent of gross GDP and employment impacts outside of the Taranaki-Whanganui region stem from a relatively small amount of direct capex in the pre-commencement stage, and direct insurance costs and our assumptions of induced GDP from non-regional workers during the operational stage. Those national impacts are not materially larger than the regional impacts.
462. While the corporate tax and royalty contributions are over and above those GDP and employment impacts, they are likely to vary year to year rather than be a stable return to the Crown. The aggregate gross economic benefits to New Zealand are considered positive, but the Panel does not find them of significance for New Zealand as a whole. The addition of indirect gross climate benefits for New Zealand potentially attributable to the project do not alter that conclusion.

Does the project meet the purpose of the FTAA?

463. The Panel is satisfied that the project is likely to deliver significant regional benefits. This is however, based only on an assessment of gross economic benefits.

²²³ Joint Statement of Expert Witnesses - Economics dated 19 November 2025 at [23].

PART IV DESCRIPTION OF THE ENVIRONMENT

6 Description of the natural environment

464. This section describes the existing natural environment of the project area and its surroundings and establishes the environmental context of the project. It is based on information provided by the applicant and intended as a neutral record of the current environment, separate from the assessment of environmental effects. Some aspects of the description are challenged and discussed in more detail in the effects evaluation.

6.1 Oceanographic setting

465. The project area is located in a high energy coastal shelf environment with frequent large waves, strong winds and naturally elevated suspended sediment levels. Measurements indicate that significant wave heights in excess of four m are common offshore, with larger waves during storms. Water depth in the project area is approximately 25–50 m.
466. Winds are commonly from the north, southeast and west, and the mean wind speed is about 5 m/s. Tidal currents generally run parallel to the coast and are stronger in the relatively shallow waters off Pātea than along more sheltered nearshore stretches. The water column is usually well mixed from surface to seabed, with slightly fresher water near the mouths of major rivers.
467. Background suspended fine sediment concentrations are generally low but increase during large wave events and river floods. Near surface sediment concentrations are usually very low, while near bed concentrations are somewhat higher and reflect resuspension of seabed sands during energetic conditions.

6.2 Benthic environment

468. The proposed project area is situated over the Pātea Shoals or ‘rolling grounds’, a relatively shallow sandy offshore area of the STB. The benthic environment is a predominantly soft-sediment shelf system with scattered rocky outcrops that support more diverse epibenthic assemblages.
469. Within the project area, seabed sediments are described as largely soft sediment systems dominated by infaunal communities typical of high energy offshore setting including infaunal ‘wormfield’ communities. Sediment chemistry information indicates low levels of organic enrichment and metals, with concentrations in seawater suspensions remaining below relevant guideline values where detected.
470. Most nearshore sites described by the applicant consist of rippled sands that support low numbers of small, mobile invertebrates and are regularly disturbed by storms and river inputs.

471. Patchy rocky outcrops (hard rock or mudstone) support more abundant and diverse epibenthic assemblages dominated by bryozoans, macroalgae and sponges. These spatially limited patches act as biodiversity hotspots relative to the extensive surrounding soft-sediment plains.

6.3 Water column characteristics

472. The water column in the STB is a high energy, turbid coastal shelf system with strong currents and naturally variable water clarity. Nutrients are supplied from offshore upwelling, water intrusions through Cook Strait and land derived inputs from regional rivers, and the water column is generally well oxygenated.
473. Inshore, suspended fine sediment concentrations near the seabed can become very high during energetic wave conditions, whereas offshore near 50 m depth, near surface concentrations are usually low with small peaks linked to river inputs. Around the project area and Pātea Shoals, typical maximum suspended fine sediment concentrations are modest near the surface and higher near the seabed during energetic or advective events.
474. The water column environment is characterised by phytoplankton communities whose growth and biomass reflect the interaction of nutrient supply, mixing processes and episodic upwelling events.

6.4 Fish

475. The STB supports a wide range of demersal (bottom dwelling), pelagic (open water) and reef associated fish species that together support commercial, recreational and customary fishing. Species recorded within the project area include common coastal and shelf species such as barracouta, blue cod, kahawai, red gurnard, rig, school shark, snapper, tarakihi and trevally, none of which are listed as endangered or threatened.
476. Modelled demersal fish richness across most offshore STB waters is moderate, with higher richness over Pātea Shoals. Reef fish diversity is modest on inshore reefs and higher on offshore reefs, and the STB overall is estimated to support a moderate subset of the national reef fish fauna. Diadromous species such as lamprey, eels and whitebait use the marine environment for part of their life cycle but are expected to occur only occasionally in the offshore project area.

6.5 Marine mammals

477. The STB and project area are being used by a wide range of marine mammals, with the wider region important for marine mammal diversity and blue whale foraging. The project area is described as having a low likelihood and low abundance of marine mammals and as not being an area of special biological significance for threatened species.

478. Using sightings and incident records, 46 cetacean species are catalogued as occurring in the STB, and a small number of species have been recorded within 10 km of the project area. Māui and/or Hector's dolphins are described as occurring in very low numbers in the region, with the project area at the margins of their southernmost recognised range.

6.6 Seabirds

479. The coastal and offshore environment of the STB supports a large diversity of seabirds that either transit through the region or use it as a foraging area, although there have been no systematic quantitative at sea surveys and available information is limited. Species likely to be present include relatively coastal taxa such as little penguin, shags, gulls and terns, as well as pelagic taxa including albatrosses, shearwaters and petrels.
480. Several threatened and vulnerable seabird species are likely to occur in the STB. The adjoining coastal environment supports a range of shorebirds that mainly use terrestrial and intertidal habitats and are unlikely to occur regularly in offshore waters of the project area.

6.7 Natural character and seascape

481. The coastal environment between Manaia and Whanganui comprises 20 identified seascape character areas, which are grouped according to eroding sea cliffs, dunes/low cliffs, eroding sea cliffs, fossil sea cliffs and dunes/low cliffs. These areas are rated moderate to high in terms of amenity, recreation and scientific/ecological considerations. Natural sediment plumes are a particular feature in all of the identified character types and areas along the coastal environment. The plumes are said to be associated with existing natural features and processes such as river mouths, eroding cliffs and the patterns associated with tides, currents, waves and weather conditions.
482. There are five sites within the STB that have been classified as being outstanding natural features and/or landscapes in the Taranaki Regional Policy Statement. These include the ecologically and culturally valued Whenuakura Estuary located approximately 3.5 km south of Pātea; the North and South Traps; Waverley Beach with its distinctive caverns, ravines, tunnels and blowholes; the ecologically, culturally and historically valued Waitotara Estuary; and the Waiinu Reef that extends several kilometres offshore and contains many well-preserved fossils, abundant marine life and has cultural values for fishing and gathering kaimoana.
483. Aside for these environmental values that have been recognised in the relevant statutory planning instruments prepared in accordance with the RMA, the existing geomorphological processes, habitats and water quality of the STB discussed in the sections above are directly relevant to, and indeed, are factors that determine the level of natural character that is present in the STB.

7 Existing interests

7.1 Identification of existing interests

484. 'Existing interest' is defined in the EEZ Act as:

the interest a person has in—

- (a) any lawfully established existing activity, whether or not authorised by or under any legislation, including rights of access, navigation, and fishing;
- (b) any activity that may be undertaken under the authority of an existing marine consent granted under section 62;
- (c) any activity that may be undertaken under the authority of an existing resource consent granted under the Resource Management Act 1991;
- (d) the settlement of a historical claim under the Treaty of Waitangi Act 1975;
- (e) the settlement of a contemporary claim under the Treaty of Waitangi as provided for in an Act, including the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992;
- (f) a protected customary right or customary marine title recognised under the Marine and Coastal Area (Takutai Moana) Act 2011

485. Schedule 10, cl 4(b) of the FTAA required TTRL to include in its application for marine consents an impact assessment prepared in accordance with s 39 of the EEZ Act. Section 39(1)(d) required that assessment to identify persons whose existing interests are likely to be adversely affected by the proposed activity. The Panel is required to consider effects of the application on existing interests under s 59(2) EEZ Act and cl 6 of the FTAA.

486. This section identifies the existing interests of relevance to the application, with the effects of the project on those existing interests then evaluated in section 20.

7.2 Treaty and tikanga-based interests

487. In practical terms, the definition of existing interests requires the Panel to consider legally recognised rights, settlement obligations and established customary and existing use based interests that may be affected by the project. This section identifies the Treaty and tikanga-based existing interests that are asserted on the record and the manner in which those interests are described as being exercised.

Overview of Treaty and tikanga-based interests

488. As discussed in Part II, Treaty and tikanga-based existing interests include:

- a. Tikanga and relationship interests, including mana moana interests expressed through kaitiakitanga, mauri, wāhi tapu associations, and the practical ability to sustain tikanga-based practices (including mahinga kai and related cultural obligations).²²⁴

²²⁴ *Trans-Tasman Resources Ltd v Taranaki-Whanganui Conservation Board* [2021] NZSC 127 at [8]

- b. Treaty settlement-based interests, established via including statutory acknowledgements, protocols, and co-governance or co-management instruments, where those instruments protect identifiable settlement values or functions that could be practically affected by the project.
 - c. MACA Act interests, to the extent relevant in this decision, including the existence and status of any pending applications and the way those applications are said to intersect with the interests asserted in this proceeding.
 - d. Māori commercial and customary fishing interests, including the practical utility of settlement quota and ACE, customary management and permit systems, and any customary supply mechanisms relied on for tangihanga and other tikanga-based obligations.
489. The applicant's position is that Treaty settlement interests and tikanga-based interests are relevant considerations, but that they do not give rise to absolute constraints on the project and can be appropriately addressed through effects management, monitoring, and engagement mechanisms²²⁵. The applicant accepts that iwi and hapū hold Treaty settlement assets and tikanga-based relationships with the coastal and marine environment, including interests associated with fisheries, kaitiakitanga, and cultural practices²²⁶. However, it contends that those interests must be assessed by reference to the nature, scale, and location of the project, and based on the available evidence.²²⁷
490. In particular, the applicant's evidence and submissions emphasise that Māori customary and cultural practices are predominantly exercised in nearshore, coastal, and estuarine environments, rather than in offshore areas beyond the coastal marine area²²⁸. It maintains that the project area is offshore, that it does not overlap areas where customary fishing is most commonly undertaken, and that any effects on customary or settlement-based interests would therefore be indirect, localised, and temporary²²⁹. The applicant further submits that tikanga-based concerns relating to marine species and ecosystems can, in part, be assessed through marine

²²⁵ Assessment of Environmental Effects for the Trans-Tasman Resources Limited Fast-track Application, Trans-Tasman Resources Limited, May 2024, sections 3.9 (Cultural Values), 4.3 (Commercial Fishing), 4.4 (Aquaculture Interests), and p 224.

²²⁶ Legal Submissions on behalf of Trans-Tasman Resources Limited in Response to Comments Received from Iwi Authorities and Treaty Settlement Entities, May 2025, sections 3 and 4 (Treaty settlement interests, tikanga-based interests, and consultation approach).

²²⁷ Assessment of Environmental Effects for the Trans-Tasman Resources Limited Fast-track Application, Trans-Tasman Resources Limited, May 2024, sections 3.9 (Cultural Values), 4.3 (Commercial Fishing), 4.4 (Aquaculture Interests), and p 224.

²²⁸ Statement of Evidence of Mr Mikaere (Cultural Advisor), on behalf of Trans-Tasman Resources Limited, May 2024, sections addressing customary fishing practices, tikanga relationships with the marine environment, and the distinction between nearshore/coastal and offshore environments.

²²⁹ Assessment of Environmental Effects for the Trans-Tasman Resources Limited Fast-track Application, Trans-Tasman Resources Limited, May 2024, sections 3.9 (Cultural Values), 4.3 (Commercial Fishing), 4.4 (Aquaculture Interests), and p 224. Statement of Evidence of Mr Walden, on behalf of Trans-Tasman Resources Limited, May 2024, sections 6–10 (fisheries effects assessment, spatial extent of the project area, and characterisation of effects as localised and temporary).

science, while acknowledging that some aspects of cultural concern are not amenable to scientific quantification.²³⁰

491. The applicant also relies on its history of engagement with iwi and Māori entities through earlier statutory processes, fisheries forums, and information-sharing mechanisms, and submits that this engagement provides sufficient context for assessing Treaty and tikanga-based interests in the present application.²³¹ It contends that any remaining uncertainty can be managed through proposed conditions, including monitoring, adaptive responses, and post-consent engagement frameworks, rather than requiring further information to be resolved prior to consent being granted.²³²
492. Iwi and hapū commenters repeatedly locate their “existing interests” as being exercised in specific locations and through established practices in:
- a. reefs and associated harvest and access pathways;
 - b. customary fisheries permitting systems and gazetted rohe moana;
 - c. rāhui and proposed mātaimai arrangements;
 - d. settlement-linked assets (including fisheries settlement quota);
 - e. iwi environmental management plans which set expectations for engagement and decision-making roles;²³³ and
 - f. relationships with taonga species, including marine mammals, described as being exercised through kaitiakitanga, whakapapa-based responsibilities, rāhui, and participation in settlement and statutory management frameworks, rather than through physical harvesting alone.²³⁴
493. Iwi and hapū have expressed concern that the applicant’s environmental descriptions and proposed protections have not adequately reflected highly localised relationships (including tauranga waka blocks and associated marine

²³⁰ Statement of Evidence of Mr Mikaere (Cultural Advisor), for TTRL dated May 2024, sections addressing customary fishing practices, tikanga relationships with the marine environment, and the distinction between nearshore/coastal and offshore environments.

²³¹ Assessment of Environmental Effects for the Trans-Tasman Resources Limited Fast-track Application dated May 2024, sections 3.9 (Cultural Values), 4.3 (Commercial Fishing), 4.4 (Aquaculture Interests), and p 224. Statement of Evidence of Mr Pōtiki, on behalf of Trans-Tasman Resources Limited, May 2024, sections addressing consultation history, engagement through previous statutory processes and fisheries forums, and reliance on conditions, monitoring, and adaptive management; and Legal Submissions on behalf of Trans-Tasman Resources Limited, May 2025, section 5 (conditions and management framework).

²³² Statement of Evidence of Mr Pōtiki, for TTRL dated May 2024, sections addressing consultation history, engagement through previous statutory processes and fisheries forums, and reliance on conditions, monitoring, and adaptive management; and *Legal Submissions* on behalf of Trans-Tasman Resources Limited, May 2025, section 5 (conditions and management framework).

²³³ See Joint Statement of Witnesses: Treaty Settlements and Cultural Effects, Joint witnesses (various iwi and hapū representatives), dated 20 November 2025, at 5, 7- 8, 11-13 and 19-21.

²³⁴ Statement of Renee Bradley and Tahinganui Hina on behalf of Te Kāhui o Rauru Trust dated 6 October 2025, at [79–80]. Te Kāhui o Taranaki Response to Minute 12 Request for Information, 14 November 2025, at sections addressing marine mammals and existing interests.

estates), and that this is relevant both to effects and to the sufficiency of information before the Panel.²³⁵

494. Iwi and hapū evidence also challenges the applicant's characterisation of tikanga-based interests as predominantly nearshore, describing responsibilities and relationships extending into the wider rohe moana, including in relation to taonga species and marine ecosystems.²³⁶ The Panel addresses the implications of that evidence for effects and information sufficiency later in this decision.

Marine and Coastal Area (Takutai Moana) Act 2011 applications

495. As discussed, asserted customary rights claimed under the MACA Act may be relevant as evidence of interests capable of constituting existing interests.
496. The applicant's position is that MACA Act applications do not, of themselves, establish legally recognised rights and should not be treated as determinative constraints on the project. The applicant acknowledges that MACA Act applications may indicate asserted customary relationships with the takutai moana but emphasises that such applications remain subject to separate statutory processes and have not been determined. In the applicant's submission, while MACA Act material may provide contextual information, it should be treated with caution and not equated to confirmed customary marine title or protected customary rights when assessing effects or considering the adequacy of proposed conditions.²³⁷
497. The Panel received evidence of multiple applications under the MACA Act relating to the STB and adjacent coastal areas. While differing in scope and geography, the MACA Act applications collectively assert long-standing, tikanga-based relationships with defined stretches of the takutai moana extending seaward from the coastline and, in some cases, to the outer limits of the common marine and coastal area.²³⁸
498. A consistent feature of the MACA Act applications is the articulation of customary relationships grounded in continuous occupation and use since 1840, exercised in accordance with tikanga and without substantial interruption. Those applications describe a range of customary practices and responsibilities, including kaitiakitanga, rāhui, mahinga kai, the use of tauranga waka and tauranga ika, non-commercial aquaculture, and the gathering of marine and coastal resources for cultural,

²³⁵ Response to Minute 12, Te Korowai o Ngāruahine Trust, dated 14 November 2025 at pp 2-3 and 6-7.

²³⁶ Te Kāhui o Taranaki Response to Minute 12 Request for Information, 14 November 2025, sections addressing existing interests, tikanga, and marine environment; Submissions of Counsel for Te Kāhui o Rauru Trust, dated October 2025, sections addressing tikanga-based interests, mana moana, and taonga species extending across the rohe moana.

²³⁷ *Assessment of Environmental Effects for the Trans-Tasman Resources Limited Fast-track Application*, Trans-Tasman Resources Limited, May 2024, section 3.9 and p 224 (discussion of customary interests, MACA Act context, and distinction between asserted and established rights and the evidential nature of that distinction).

²³⁸ *Origination Application for Recognition Order of Customary Marine Title and Protected Customary Rights*, Te Kāhui o Rauru Trust, 28 March 2017, pp 1–3; *Application for Recognition Orders*, Araukuku Hapū, dated 29 March 2017, pp 1–2; *Origination Application*, Te Rūnanga o Ngāti Mutunga, 31 March 2017, pp 1–2.

ceremonial, and subsistence purposes. These practices are tied to specific places, including particular reefs, river mouths, access points, and coastal features, and depend on continued access to those places.²³⁹

499. Several MACA Act applications also seek recognition of protected customary rights alongside customary marine title, emphasising the continued exercise of non-commercial customary fishing and resource use within defined rohe moana. In addition to subsistence and cultural harvesting, the MACA Act applications refer to governance and management functions exercised at hapū or iwi level, including asserted decision-making authority over access, the imposition of rāhui, and stewardship responsibilities directed to sustaining mauri and the integrity of the marine environment.²⁴⁰
500. The Panel treats MACA Act material as relevant to its assessment in three ways.
- a. As evidence of relationship and use, even where rights are not finally determined - The existence of MACA Act applications, and associated evidence of customary practice, can corroborate the existence and location of tikanga-based relationships with the takutai moana and can inform the Panel's understanding of cultural effects and the assessment of potential existing interests.
 - b. As a practical governance context for engagement and conditions design - The record indicates that many customary arrangements and expectations are organised at hapū level, and that lack of engagement at that level has limited the ability to develop shared data or agreed protection mechanisms. This is addressed further in section 20.1.
 - c. As inherently involving some uncertainty - undetermined MACA Act applications are not equivalent to confirmed customary marine title or protected customary rights. Their legal status remains contingent. Some applications have been impacted by reform processes.

Māori fishing existing interests

501. Māori fishing existing interests include (at least) for the purposes of this decision:
- a. Māori commercial fishing interests (both obtained as Treaty settlement quota and otherwise obtained);
 - b. Māori customary fishing interests exercised under customary regulations, and local tikanga frameworks exercised under the Amateur Regulations.

²³⁹ Application for Recognition Orders, Araukuku Hapū, dated 29 March 2017, sections 2–3; Origination Application, Te Rūnanga o Ngāti Mutunga, 31 March 2017, sections 2–6; Taranaki Iwi Application for Recognition of Customary Interests, Te Kāhui o Taranaki, 30 March 2017, sections 2–3.

²⁴⁰ Origination Application for Recognition Order of Customary Marine Title and Protected Customary Rights, Te Kāhui o Rauru Trust, 28 March 2017, sections 1.1–1.2 and 2; *Application for Recognition Orders*, Araukuku Hapū, dated 29 March 2017, sections 2.2–2.8.

Māori commercial fishing

502. Māori commercial fishing interests are held and exercised through quota and ACE within the QMS, including interests obtained through Treaty settlement framework and subsequent commercial acquisition. In the STB and wider FMA 8, these interests are held directly by iwi and through collective arrangements established under the MFA, including quota held on behalf of collective iwi through Te Kāhui o Taranaki.
503. The applicant accepts that Māori commercial fishing interests are existing interests for the purposes of this decision. It accepts that those interests include both ownership of quota and the practical ability to catch fish through commercial fishing operations. The applicant says these interests are held and exercised within the Fisheries Act 1996 and the QMS, which set the rules for how quota and ACE are allocated and used.²⁴¹
504. The applicant also relies on regional fisheries planning instruments and strategies, including the Te Taihauāuru Iwi Forum Fisheries Plan, as providing context for collective Māori participation in fisheries management regionally.²⁴² However, the evidence shows that Ngāti Ruanui did not support or endorse that Plan and did not agree that it reflected, or could replace, their iwi-specific Treaty settlement fisheries rights or kaitiakitanga responsibilities. The Panel therefore treats this Plan as background context only.²⁴³
505. In its evidence, Te Ohu Kaimoana sets out the allocation of quota held by iwi in Taranaki, including the proportions of deepwater, inshore and highly migratory species (**HMS**) quota that are exercised through the QMS and associated settlement arrangements (including quota held through the iwi collective via Te Kahui o Taranaki). All Taranaki iwi received Treaty settlement assets under the MFA. Table 13 (reproduced below) summarises total Taranaki iwi interests across the three quota groups²⁴⁴:

		Total Shares	Percentage
Deepwater	Settlement quota	438,052,259	15.64%
	Iwi owned normal quota	33,135,634	1.18%
	Kahui owned normal quota	657,408,216	23.48%
Total Iwi interest in Deepwater Quota			40.31%
Inshore	Settlement quota	934,191,547	16.39%

²⁴¹ Application dated 15 April 2025, section 5.13 (Commercial fishing, cultural values and related effects), including 5.13.2 (Commercial Fishing Effects).

²⁴² Application dated 15 April 2025 at 5.13.1.3

²⁴³ Walden, Stakeholder Engagement Report, sections on iwi engagement, Te Taihauāuru Fisheries Forum, commissioning and peer review of cultural values assessment. Buddy Mikaere, Cultural Impact Assessment Evidence, introduction and methodology (limited ability to fully assess cumulative effects, need for more information). Tahu Pōtiki, *Cultural Values Assessment and Analysis*, sections 5–7 (description of Ngāti Ruanui coastal use and mahinga kai) and para 2.3(d)–(g).

²⁴⁴ Te Ohu Kaimoana RFI bundle, quota share table for deepwater, inshore and HMS stocks.

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	Iwi owned normal quota	272,675,692	4.78%
	Kahui owned normal quota	547,091,648	9.60%
Total Iwi interest in Inshore Quota			30.77%
HMS	Settlement quota	200,095,156	20.01%
	Iwi owned normal quota	12,286,266	1.23%
	Kahui owned normal quota	127,425,692	12.74%
Total Iwi interest in HMS Quota			33.98%

Table 13: High-level overview of the indicative split of quota holdings by origin for all iwi with interests in FMA 8

506. The species lists provided with the above quota table identify which species are included in each quota category used for the calculation: the deepwater category covers offshore species such as hoki, hake, ling, orange roughy and squid; the inshore category covers coastal finfish and shellfish such as snapper, tarakihi, kahawai, pāua, rock lobster and scallops; and the highly migratory species category covers tuna species, swordfish and certain pelagic sharks. These species form part of the commercial fisheries potentially exposed to project effects considered elsewhere in this decision.
507. Iwi evidence records that their commercial fishing interests are held and exercised in different ways across iwi. Some quota is held directly by iwi entities, while other quota is held through collective arrangements established as part of the fisheries settlement.²⁴⁵ Te Ohu Kaimoana describes these arrangements as reflecting the settlement framework through which iwi participate in commercial fisheries at both an individual and collective level.²⁴⁶
508. Iwi submissions emphasise that commercial fishing settlement assets are an ongoing component of iwi economic activity and rangatiratanga. These assets are described as supporting iwi participation in commercial fisheries over time. Iwi evidence presents settlement quota and ACE as enduring interests that operate across multiple stocks and areas within FMA 8.

Māori customary fisheries interests and management mechanisms

509. The Panel notes Te Ohu Kaimoana's point that the Amateur Regulation and Kaimoana Regulation regimes are not synonymous. The Amateur Regulations may authorise customary harvest in locations (and under arrangements) that are not

²⁴⁵ Te Korowai o Ngāruahine Minute 12 response, section 7 ("Commercial Fisheries and Aquaculture"), describing Te Kīwai Māui o Ngāruahine's quota holdings and ACE leasing arrangements.

²⁴⁶ Te Ohu Kaimoana, Taranaki VTM Request for Information (Minute 12), pp 6–8,

captured by the Kaimoana Regulations. Further, authorised representatives under the Amateur Regulations are not required to report customary harvest to the Crown.

510. A person who is nominated by tangata whenua to authorise and manage customary harvest under the Kaimoana Regulations is known as the Tangata Kaitiaki. When operating in areas that are under the Amateur Regulations, this person nominated by tangata whenua is known as the Authorised Representative. The Taranaki-STB coastal area operates under both of these regulations.²⁴⁷
511. The Panel has received evidence that there are three gazetted customary non-commercial fisheries areas (rohe moana) established under Part 9 of the Fisheries Act 1996 in the vicinity of the project area.²⁴⁸ As a consequence, each iwi with a recognised customary non-commercial fishing interest in these rohe moana, appoints its own Tangata Kaitiaki to exercise statutory authority on behalf of their iwi. Tangata Kaitiaki are responsible for the protection, management and authorisation of customary non-commercial fisheries. As discussed in section 4.1, the Panel Convenor has identified 17 iwi or hapū whose practices are recognised under the Fisheries Act 1996 through regulation or customary management areas within the STB.
512. The applicant acknowledges the cultural importance of Māori customary fishing and accepts that customary fishing interests are existing interests for the purposes of this decision. The applicant's evidence describes customary fishing as predominantly place-based, focused on nearshore coastal and river-mouth environments, and guided by tikanga. Customary fishing is supported through statutory instruments such as customary permits and rāhui.²⁴⁹
513. The applicant's cultural advisors also note that customary fishing practices operate alongside, and in some cases are supported by, commercial fishing activity undertaken under settlement or customary arrangements. The applicant acknowledges, however, that available information on customary harvest is coarse and incomplete, and that this limits the ability to describe customary fishing activity at fine spatial scales.²⁵⁰
514. In assessing fisheries effects, the applicant relies primarily on commercial fisheries datasets and modelling, including the NIWA South Taranaki Bight Commercial Fisheries Report. That report is confined to commercial fishing activity recorded through MPI catch and effort reporting systems and does not purport to describe

²⁴⁷ Response to the Taranaki VTM Project – Fast Track Approvals Application, Te Mātārae (Chief Executive), Te Ohu Kaimoana Trustee Ltd, September 2025 at [26].

²⁴⁸ Hon Shane Jones (Minister for Oceans and Fisheries), MIN25-1067 (letter to the Taranaki VTM Expert Panel responding to s 67 further information request), 17 December 2025, p 2-3.

²⁴⁹ Application dated 15 April 2025, section 5.13 (Commercial fishing, cultural values and related effects), including 5.13.2 (Commercial Fishing Effects). Legal Submissions on behalf of Trans-Tasman Resources Limited in Response to Comments Received, 2025, sections addressing existing interests, customary fishing and Māori commercial interests.

²⁵⁰ Application dated 15 April 2025, section 5.13 (Commercial fishing, cultural values and related effects), including 5.13.2 (Commercial Fishing Effects). Tahu Pōtiki, Cultural Values Assessment and Analysis, August 2016; Statement of Evidence of Buddy Mikaere, 1 December 2025, sections addressing Māori relationships with the South Taranaki Bight and fisheries.

customary non-commercial fishing practices or locations.²⁵¹ The NIWA report records limitations in spatial resolution. Much of the underlying data is recorded at statistical area level and does not provide fine-scale positional information. As a result, the report describes regional patterns of fishing activity rather than specific locations of use, access points, or seasonal practices relevant to customary fishing.

515. The applicant's evidence accepts that there is no comprehensive dataset describing the extent, location, or frequency of customary non-commercial fishing within the STB. Customary harvest information is not systematically captured in national fisheries databases and, where reported, is often voluntary and incomplete. The applicant therefore relies on commercial fisheries data and regional-scale modelling as proxy information when describing potential interactions with customary fishing interests.²⁵²
516. In that context, engagement with iwi and customary fisheries practitioners, including Tangata Kaitiaki, has the potential to provide additional contextual information regarding customary fishing locations, seasonal use patterns, access points, and management practice.
517. The Panel records that such information is not otherwise available through the datasets relied on by the applicant. This background informs the Panel's consideration of the information available to describe Māori customary fishing interests and provides context for the assessment of effects and the role of proposed conditions and post-consent processes addressed later in this decision.
518. Iwi and hapū evidence states that Māori fishing interests are not limited to quota ownership or commercial fishing activity. Iwi describe fishing interests as part of their ongoing relationship with the moana, exercised within defined rohe moana and grounded in whakapapa and long-standing use of particular coastal and marine areas. Ngāti Ruanui and other iwi emphasise that these interests are place-based and are not treated as abstract or transferable rights.²⁵³
519. Evidence from Ngāti Ruanui records that commercial fisheries settlement assets are commonly used to support customary and cultural purposes. Iwi describe these practices as linking commercial fishing activity with customary responsibilities.²⁵⁴ This includes the supply of kaimoana for tangihanga, hui and other tikanga-based obligations, often through pātaka arrangements and other iwi-controlled distribution mechanisms.

²⁵¹ South Taranaki Bight Commercial Fisheries, Dr A. MacDiarmid and S. Ballara, NIWA Client Report No. WL2016-28, May 2016, Executive Summary and sections 1–2 (scope, data sources, and focus on commercial fisheries).

²⁵² Application dated 15 April 2025, sections 7.6 and 8.3.6, acknowledging the absence of comprehensive customary fishing datasets and reliance on coarse or proxy information.

²⁵³ For example, Ngāti Ruanui Deed of Settlement, commercial and cultural redress schedules; Ngāruahine, Ngā Rauru Kītahi, Ngāti Mutunga, Taranaki Iwi, Te Ātiawa and Ngāti Tama deeds and general matters schedules describing long-standing reliance on coastal and offshore fisheries and mahinga kai.

²⁵⁴ Expert-Panel-Response-from-Te-Runanga-o-Ngati-Ruanui (Minute 12) and Ngāti Ruanui engagement and presentation material, describing the continuum from takutai to offshore fisheries and the role of the South Taranaki Bight as a food basket.

520. The purpose of a pātaka is to enable Māori to access and exercise their customary fishing rights under the Settlement. Traditionally a pātaka is a means for Māori to harvest, store, and later distribute kaimoana for significant events. The contemporary use of a pātaka system typically operates under an agreement partnership between a Māori grouping (hapū, marae, iwi etc), a commercial fishing operator and a licensed fish receiver, with approvals required from MPI.²⁵⁵ Pātaka systems enable Tangata Kaitiaki and Authorised Representatives to give effect to customary authorisations using commercial fishing operations where direct harvest is not practicable.
521. Two active pātaka service the customary fishing interests of seven iwi across Te Tai Hauāuru in partnership with a Taranaki commercial fishing operator. These pātaka primarily harvest and distribute a number of customary species such as snapper, tarakihi, kingfish, warehou, rig and crayfish. The availability of customary fish species is determined by Tangata Kaitiaki and the target species of the commercial fishing operator harvesting on behalf of iwi. Depending on the time of year, the location of the vessel, and the species being harvested, the range of species in any pātaka can change.²⁵⁶ The evidence is that these pātaka support approximately 50 tangihanga and hui each year.²⁵⁷
522. Te Ohu Kaimoana emphasises that the true value of pātaka lies not in monetary terms, but in the ability to support manaakitanga and tikanga through customary supply to whanau. Through pātaka, whānau can practice manaakitanga and actively uphold tikanga. As pātaka are used for tangihanga and hui, these practices not only maintain the whakapapa connections within the whānau but also sustain the oranga (wellbeing) of hapū and iwi as a whole. In this way, the value of pātaka is reflected in the collective wellbeing, resilience and continuity of Māori and their relationship with the moana.
523. Iwi evidence also records that customary fishing is actively managed through tangata kaitiaki appointments, customary permits, rāhui and other tikanga-based controls.²⁵⁸ These mechanisms allocate authority and responsibility at hapū or iwi level and reflect local knowledge of species, seasons and fishing grounds. Iwi submissions emphasise that these arrangements are central to the exercise of customary fishing interests and are not regarded as interchangeable with commercial fishing activity alone.²⁵⁹
524. Several iwi submissions emphasise that Māori fishing interests are exercised in specific locations and through established practices, including particular reefs, customary fishing areas, access pathways and sites associated with cultural and

²⁵⁵ Te Ohu Kaimoana Minute 12 RFI response, Te Ohu Kaimoana Trustee Ltd, May 2025 Interface Between Customary Take and Commercial Harvest – Information Paper (at [6]–[8]).

²⁵⁶ Section 53 comments from Te Ohu Kaimoana Trustee Ltd, September 2025 at [44].

²⁵⁷ Ngāti Maru response to Minute 17 (Request for Information – Fish), Sam Tamarapa (Te Kahui Maru Trust, Chair/Pātaka-Whata Kaitiaki), dated 8 November 2025, at [2].

²⁵⁸ Te Korowai o Ngāruahine Minute 12 response, sections on rāhui, temporary closures and mātaimai, describing existing rāhui, proposed s 186A closure and draft mātaimai application.

²⁵⁹ Te Korowai o Ngāruahine Minute 12 response, explanation of pātaka whata operation via IkaNet and relationship with a fish provider; Ngā Rauru RFI response describing affiliation to Pātaka Whata and the Deepwater Pātaka pilot.

economic use.²⁶⁰ Iwi express concern that generalised or regional-scale descriptions of fisheries do not reflect the local and place-specific nature of these interests, or the way fishing activity is organised and managed in practice.²⁶¹

525. The Panel accepts these are operational management mechanisms that allocate responsibility and authority for customary fishing and therefore sit within the Panel's assessment of existing interests and cultural effects.

7.3 Commercial fishing interests

526. Commercial fishing is a lawfully established activity in the STB and it therefore constitutes an "existing interest". Commercial fishing in the STB is undertaken under the Fisheries Act 1996 and the QMS. As outlined above, the STB sits within FMA 8, which is managed through QMAs for individual fish stocks.
527. TTRL states that commercial fishing grounds are well separated from the project area, and that most commercial fishing effort occurs outside the project area, with only a minimal overlap between the project area and inshore trawl fishing grounds. The applicant's position is that the water depths within the project area (approximately 20–50 m) mean that fisheries in the project area is predominately inshore set net and inshore longline. The application describes that the project area has minimal overlap with the trawler fishing industry, which is mainly concentrated seaward of the 50 m contour. NIWA found that over the three fishing years from October 2020 to September 2023 the number of bottom trawls that overlapped with the project area totalled 0, 2 and 6 respectively.²⁶²
528. TTRL acknowledges that the project area overlaps fishing interests for some methods, including inshore set netting, scallop dredging and commercial diving. The commercial fishing interests include fishing operators who use grounds in or near the project area, as well as quota owners.²⁶³
529. Seafood New Zealand explained that the STB supports a productive commercial fishing environment, with bottom trawl, set net, longline, dredge and potting, and identifies key commercial fisheries occurring in and around the STB (including, among others, snapper, tarakihi, trevally, gurnard, rig, school shark, crayfish and pāua).²⁶⁴ Fathom, on behalf of Seafood New Zealand, describes the area inshore of, and partly overlapping the proposed mining site as "the rolling ground" which is

²⁶⁰ Te Kahui Maru Trust pātaka evidence, quantifying fish authorised and landed from Statistical Areas 40 and 41, and numbers of tangihanga and hui supplied between 2010 and 2025.

²⁶¹ Te Ohu Kaimoana comments on the Taranaki VTM Project, paras 44–47, describing the number, scope and operation of pātaka across the South Taranaki Bight and the proposed deepwater pātaka pilot.

²⁶² Application dated 15 April 2025 at section 3.4.4.

²⁶³ Application dated 15 April 2025 at section 3.4.4.

²⁶⁴ Seafood New Zealand comments (Attachment 1), Fathom 2025 Commercial fisheries in the vicinity of TTR's proposed mining site p.3

widely considered a productive and diverse fishing ground, although they note that the seabed topography can limit the ability to trawl.²⁶⁵

530. While the project area is characterised by predominantly soft-sediment substrates, evidence from the fishing industry indicates that seabed topography within and adjacent to the mining area is locally uneven and interspersed with rolling ground, mounds, and areas of foul or rough seabed. It is these features that limit the safe and efficient use of bottom trawl gear in parts (but not all) of the area, with some locations avoided or fished less frequently by trawl operators despite being suitable habitat for target species. As described in the Fathom report, this “rolling ground” supports high biological productivity, including juvenile fish, but includes seabed features exceeding several metres in relief that constrain trawling activity and favour alternative fishing methods such as set netting and potting.²⁶⁶
531. The evidence before the Panel therefore indicates that the main commercial fisheries directly overlapping the project and effects areas are:
- a. set netting for school shark and rig, and
 - b. a mixed inshore bottom trawl fishery for gurnard, snapper, trevally and other species.
532. Adjacent fisheries identified as potentially affected by the project include the coastal rock lobster fishery, the coastal surf clam fishery, and a mid-water trawl fishery targeting species such as jack mackerel operating seaward of the proposed mining area.
533. NIWA analysed commercial fishing events recorded between October 2007 and September 2023.²⁶⁷ That analysis shows that, within the modelled 99th percentile near-bottom sediment plume extent, commercial set netting was the most frequently recorded fishing method over that period. Other fishing methods occurred less consistently and often episodically. The total number and distribution of recorded fishing events over the analysis period are shown in Figure 5.

²⁶⁵ Seafood New Zealand comments (Attachment 1), Fathom 2025 Commercial fisheries in the vicinity of TTR’s proposed mining site p. 14.

²⁶⁶ Fathom Consulting, Commercial Fisheries in the Vicinity of TTR’s Proposed Mining Site (prepared for Seafood New Zealand), September 2025, p 14

²⁶⁷ South Taranaki Bight Fishing 1 October 2007 – 30 September 2023, NIWA, dated March 2024 at page 6.

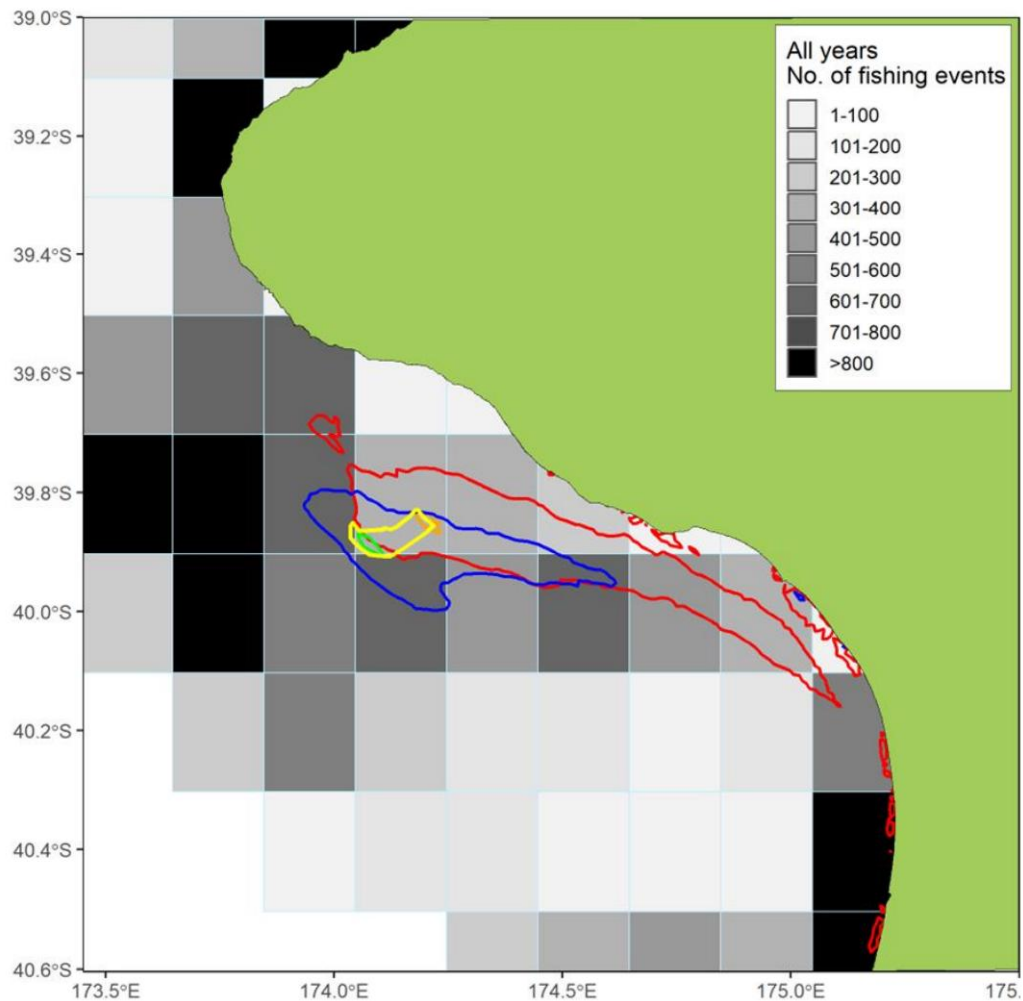


Figure 5: The combined number of fishing events aggregated into 0.2 degree squares for FMA 8 for fishing years 2007–2023.²⁶⁸

Additional legend items:

Yellow: the proposed project area

Orange: Modelled median near bottom suspended sediment plume extent (>2 mg/L) from mining at Location A

Red: Modelled 99th percentile near bottom suspended sediment plume extent (>2 mg/L) from mining at Location A

Green: Modelled median near bottom suspended sediment plume extent (>2 mg/L) from mining at Location B

Blue: Modelled 99th percentile near bottom suspended sediment plume extent (>2 mg/L) from mining at Location B

534. The Panel is aware that commercial fishing patterns within FMA 8 have been influenced by recent regulatory changes. In 2020, new commercial and recreational set netting restrictions were introduced along the west coast, including set-net

²⁶⁸ Source: South Taranaki Bight Fishing 1 October 2007 – 30 September 2023, NIWA, dated March 2024 at page 20.

closures within four nautical miles from Hāwera southwards to Wellington, and extended closures from two to seven nautical miles offshore from Hāwera northwards to the Waiwhakaiho River in north Taranaki. These measures form part of the existing regulatory context within which commercial fishing interests are currently exercised.²⁶⁹ Figure 6 illustrates commercial fishing regulations relevant to the project area.

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²⁶⁹ Seafood New Zealand (via Fathom Consulting Ltd), Commercial fishing interests and value, September 2025, p 9 (Set net restrictions) and p 10 (Figure 8). MPI Appendix-Three (map showing overlapping restrictions, including set netting prohibited / trawling prohibited / Danish seine prohibited / shellfish take prohibited and other overlays).

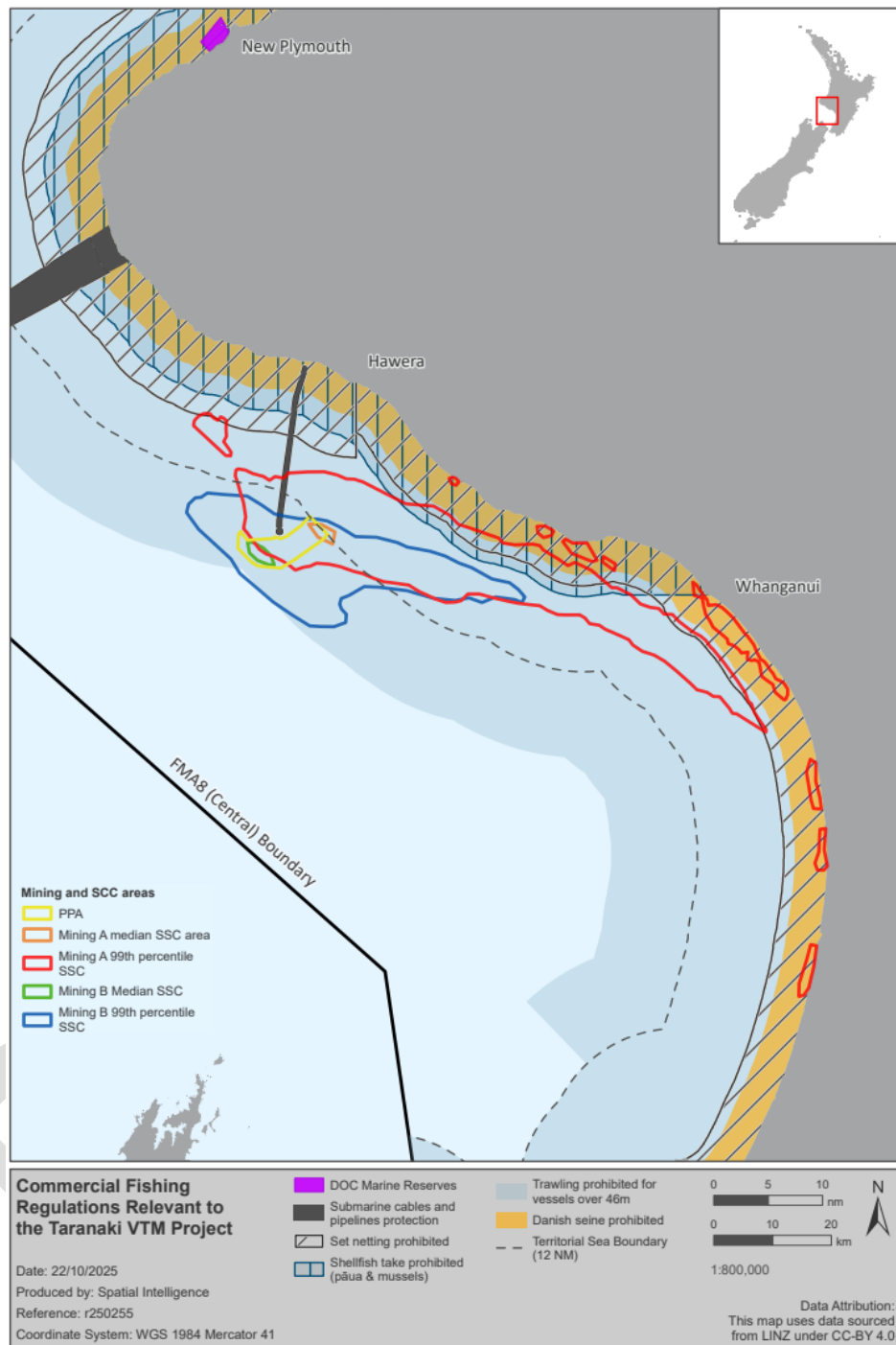


Figure 6: Commercial fishing regulations relevant to the project area (source: Appendix 3 to the Minute 10 response from the Minister for Oceans and Fisheries dated 31 October 2025).

535. Evidence from individual fishing companies and operators provides further context on how commercial fishing is undertaken in practice within the STB. Brooks Seafoods Ltd and associated evidence describe the area as forming part of

established inshore fishing grounds used by owner-operators and locally based vessels targeting a range of species.²⁷⁰

536. Commercial fisher Mr Leon Lawrence, on behalf of Awaroa Fisheries Ltd, describes sustained commercial fishing activity across trawlable areas of the STB over recent years. That evidence records the use of multiple vessels operating from different ports, targeting inshore finfish species, and describes the area as forming an important part of both past and planned future fishing operations.²⁷¹
537. Large quota-owning fishing companies, Talley's Group and Sealord, confirm that the STB sits within an active commercial fishing region where fishing effort is distributed across multiple operators, methods and ports. This evidence emphasises that fishing activity is shaped by a combination of seabed characteristics, regulatory constraints, weather conditions and quota access, rather than being concentrated in a single location or by a single sector participant.²⁷²
538. New Zealand Rock Lobster Industry Council describes the coastal rock lobster fishery as a long-established commercial activity along the west coast, including areas adjacent to the STB. That evidence explains that the rock lobster fishery involves quota owners, vessel operators, processors and export businesses, and supports a wider network of onshore and offshore employment and infrastructure.²⁷³
539. Industry commenters also emphasise that commercial fishing interests in the region are not limited to quota ownership alone. Evidence refers to the role of shore-based infrastructure, licensed fish receivers, processing facilities and transport networks that enable the practical exercise of commercial fishing rights and support fishing activity across multiple ports and landing sites.²⁷⁴
540. Taken together, the industry commenter evidence describes a commercial fishing environment characterised by multiple fishing methods, a mix of small and large operators, and reliance on both localised fishing grounds and wider regional patterns of effort. This material provides context for identifying the nature and scope of existing commercial fishing interests within and around the STB.
541. Finally, the Panel notes that commercial and customary fishing activity in the STB is regulated by MPI/Fisheries New Zealand under the Fisheries Act 1996, with management focused on sustaining stocks at QMA and FMA scales. Evidence from

²⁷⁰ Brooks Seafoods Ltd, Comments on Trans-Tasman Resources Limited Application, Brooks Seafoods Ltd, October 2025, pp. 2–4.

²⁷¹ Statement of Leon Warren Lawrence on behalf of Awaroa Fisheries Ltd, Leon Lawrence, 15 November 2025, pp. 1–2.

²⁷² Talley's Group Ltd, Comments on Trans-Tasman Resources Limited Application, Talley's Group Ltd, October 2025, sections 1–3; Sealord Group Ltd, Comments on Trans-Tasman Resources Limited Application, Sealord, October 2025, sections 2–3.

²⁷³ New Zealand Rock Lobster Industry Council, Comments on Trans-Tasman Resources Limited Application, NZ RLIC, 6 October 2025, paras 1–5.

²⁷⁴ Seafood New Zealand, Comments on Trans-Tasman Resources Limited Application, October 2025, sections 5–6; discussing Egmont Seafoods as a key licensed fish receiver on the west coast of the North Island between Wellington and Auckland, receiving fish from its own vessels and other commercial vessels and supplying ACE arrangements to multiple vessels NZ Rock Lobster Industry Council, Comments, 6 October 2025, paras 1–2.

the Minister for Oceans and Fisheries and MPI/Fisheries New Zealand confirms that, from a regulatory perspective, fishing activity in the STB is understood to be spatially heterogeneous, with effort, value, and dependence often concentrated on particular grounds, habitats, and seasonal patterns of use rather than evenly distributed across the wider area.

542. The Minister further notes that while aggregated fisheries data provides a reliable basis for stock management, it does not fully capture how fishing activity is undertaken at the scale of discrete grounds, reef systems, or customary fishing areas. In particular, Ministry for Primary Industries/Fisheries New Zealand advises that customary fishing activity (discussed above in section 7.2) is not comprehensively or consistently recorded in available datasets, and that fishing undertaken pursuant to customary authorisations or within rohe moana may not be reflected in reported catch or effort data. The absence of recorded activity should therefore not be treated as evidence that fishing activity does not occur in a particular location.
543. The Panel has taken this regulatory perspective into account when identifying commercial (and customary) fishing as existing interests, and when assessing evidence that relies on aggregated datasets or stock-scale framing to describe patterns of fishing activity within and adjacent to the project and effects areas.

7.4 Aquaculture interests

544. The application states that there are no aquaculture activities undertaken within the project area, or anywhere within the STB. If adverse weather conditions are present within the project area, there is the potential that some of TTRL's project related vessels may seek shelter in Admiralty Bay in the Marlborough Sounds. Commercial longline mussel farms are in operation in Admiralty Bay.²⁷⁵
545. Comments from Te Ohu Kaimoana confirmed that Admiralty Bay supports active commercial aquaculture operations and identified six iwi with fisheries coastline interest in that area: Ngāti Koata, Ngāti Kuia; Ngāti Rārua; Ngāti Toa Rangatira; Rangitāne o Wairau and Te Ātiawa o Te Waka-a-Māui and noted that Ngāti Rārua own and operate a mussel farm within Admiralty Bay.²⁷⁶
546. Te Ohu Kaimoana also raised concern that the applicant's engagement in relation to aquaculture interests was unduly narrow. While Ngāti Koata holds aquaculture interests in Admiralty Bay, Te Ohu Kaimoana emphasised that it is not the only iwi with fisheries and aquaculture settlement interests in that area. Te Ohu Kaimoana noted that Admiralty Bay is subject to overlapping iwi interests and that engagement

²⁷⁵ Application dated 15 April 2025 at section 3.4.5.

²⁷⁶ Response to the Taranaki VTM Project – Fast Track Approvals Application, Te Ohu Kaimoana Trustee Limited, September 2025, at [44]–[47], identifying iwi aquaculture interests in Admiralty Bay and Ngāti Rārua's mussel farm.

limited to a single iwi does not adequately reflect the collective nature of aquaculture settlement interests protected under the MCASC Act.²⁷⁷

547. Ngāti Mutunga emphasised that aquaculture interests arise not only from existing aquaculture operations, but also from Treaty settlement instruments, particularly the MCASC Act. Ngāti Mutunga identified settlement rights relating to aquaculture space, shellfish quota, and associated commercial opportunities, and explained that those interests depend on the protection of water quality, marine ecology, and biosecurity conditions necessary to sustain aquaculture productivity.²⁷⁸
548. Ngāti Mutunga raised concerns that project-related vessel activity, including anchoring, sheltering, and ballast water discharge, could create risks for aquaculture operations in Admiralty Bay. These risks included the introduction of marine pests or disease, disturbance of marine habitats, and adverse effects on water quality. Ngāti Mutunga considered that such effects could undermine both existing aquaculture operations and the value of aquaculture settlement assets.²⁷⁹
549. In the Joint Statement of Witnesses: Treaty Settlements and Cultural Effects (**Treaty JWS**)²⁸⁰, iwi witnesses and Te Ohu Kaimoana stated that aquaculture settlement interests include future aquaculture opportunities and settlement value, not only currently operating farms. They emphasised that the MCACS Act was intended to protect iwi interests in aquaculture space and value over time, and that activities which degrade marine environments or increase biosecurity risk can diminish those settlement interests even where aquaculture is located outside the immediate consent area.²⁸¹
550. The Panel accepts that no aquaculture activities occur within the project area itself. However, based on the evidence, the Panel considers that aquaculture settlement interests are nonetheless relevant existing interests for the purposes of this decision. Those interests arise through Treaty settlement rights, existing aquaculture operations in Admiralty Bay, and the potential for indirect effects associated with project-related vessel movements and marine disturbance.

7.5 Recreation and tourism interests

551. Rob Greenaway & Associates undertook a Recreation and Tourism Assessment of Effects in 2013 for TTRL which was then updated in 2015. The study area for the

²⁷⁷ Response to the Taranaki VTM Project – Fast Track Approvals Application, Te Ohu Kaimoana Trustee Limited, September 2025, at [44]–[45], addressing the need for engagement with multiple iwi holding aquaculture settlement interests in Admiralty Bay.

²⁷⁸ Response of Te Rūnanga o Ngāti Mutunga to Request for Further Information (Minute 11), Te Rūnanga o Ngāti Mutunga, November 2025, at pp 2–4, addressing aquaculture settlement rights, biosecurity risks, and potential effects of project-related vessel activity.

²⁷⁹ Response of Te Rūnanga o Ngāti Mutunga to Request for Further Information (Minute 11), Te Rūnanga o Ngāti Mutunga, November 2025, at pp 2–4, addressing aquaculture settlement rights, biosecurity risks, and potential effects of project-related vessel activity.

²⁸⁰ Joint Statement of Witnesses: Treaty Settlements and Cultural Effects (20 November 2025).

²⁸¹ Joint Statement of Witnesses: Treaty Settlements and Cultural Effects, filed 20 November 2025, at pp 12–15, addressing aquaculture settlement interests under the Māori Commercial Aquaculture Claims Settlement Act 2004 and potential indirect effects on settlement value.

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report stretches from north of Hāwera through to Whanganui and includes an area up to 25 nautical miles from the coast. The report identified the recreational and tourism activity as follows:

- a. swimming at the main beach settings, including Ohawe, Waihi, Tangahoe, Pātea, Waverley, Waiinu, Ototoka, Kai Iwi and Castlecliff;
- b. surfcasting at Ohawe and Waihi Beach, at the mouths of the Tangahoe and Manawapou Rivers, Waipipi, Waverley, Wainui, Kai Iwi and Castlecliff;
- c. shellfish gathering at reef areas from Ohawe to the Manawapou River mouth, south of Pātea, Whenuakura, Waitotara, Waiinu, Kai Iwi and Castlecliff. Predominantly mussels but also paua, kina and other molluscs and shellfish. The prime regional shellfish gathering areas, especially paua, are generally agreed to be located north of Ohawe;
- d. beach walking at Ohawe and Waihi Beach (including the tidal coastal walkway along the beach between these two points), Pātea, Whenuakura, Waipipi, Waiinu, Kai Iwi and Castlecliff, but also extending along many parts of the coast at low tide;
- e. diving, predominantly for crayfish, at Ohawe, Graham Bank, the North and South Traps and on rocky seams off Waitotara and Waverley, and at many dispersed sites along the coast where rocky features are on the sea floor. The main site for scenic diving is the North and South Traps. Other sites are predominantly targeted for harvesting;
- f. picnicking and general beach activities at all coastal access areas, with foci at Ohawe, Waihi Beach, Pātea, Waipipi, Waiinu, Ototoka, Kai Iwi and Castlecliff;
- g. camping at Ohawe, Pātea, Waipipi, Waiinu, Kai Iwi and Castlecliff Beach. Some informal camping may occur on private land along the coast, such as at the Tangahoe and Manawapou River mouths, Waverley Beach and Whenuakura. Although this activity occurs above MHWS, it is associated with recreational beach use for a variety of purposes;
- h. surfing at Ohawe and Waihi Beach, Pātea, Waipipi, Waiinu, Kai Iwi and Castlecliff; and
- i. fishing and boating in the marine area, predominantly south towards Pātea but throughout the study area. Local boat launching is available at Ohawe, Pātea, Waipipi, Waiinu, Kai Iwi and Whanganui, but all are limited by sea conditions.

552. Regionally important coastal marine recreation activity is largely based at the main public access points being Ohawe Beach, Waihi Beach, the mouths of the Tangahoe and Manawapou Rivers, Pātea, Waipipi, Waiinu, Kai Iwi and Castlecliff. The North and South Traps are key recreational diving sites, as confirmed by the South

Taranaki Underwater Club. The level of shellfish gathering along the coast is unclear but is a locally important activity. Tourism activity in the study area is associated with six beach camp sites and three fishing charter operations – two operating from Pātea and one from Whanganui. The overall picture of recreation and tourism is that no activities are being undertaken close to the project area, aside from fishing and crayfishing which the report contends occurs mostly within 20 km of the coastline.

553. Based on data collected by other agencies such as the aerial surveys undertaken by Ministry for Fisheries in 2005-2006 and more fully in 2006-2007, a study by Department of Conservation in 2006, and various Taranaki Regional Council processes, the applicant considers that the project area is a very low use recreation setting which may be used only rarely for fishing. Sites of interest to the project are described as the inshore recreation setting (surfing, swimming, walking, surfcasting and shellfish gathering), the near-coast diving sites, particularly the North and South Traps and the marine fishing opportunity within 20 km of the coast.²⁸²
554. Although the Panel supports the extent of the research undertaken by Rob Greenaway & Associates, the Panel notes the age of the data relied upon to support the application. For example, the most recent data sourced for this assessment is dated 2013 with other data sources dated 2004 and 2006. While the report was updated in 2015, no additional data was gathered. While the Panel appreciates that this likely represents an historic snapshot of recreation and tourism use (albeit one that seems accurate and robustly developed), it has no way of knowing whether this data still represents an accurate picture of the use of the STB for recreation and tourism.
555. In addition, the Panel notes the absence of an assessment of the Taranaki Regional Council Coastal Plan (4 September 2023). This document identifies many values that can contribute to recreation and tourism, but the only value of direct relevance is the numerous national, regional and locally important surf breaks that occur along the length of the Taranaki coastline.
556. TTRL's NIWA report on fishing observed that recreational fishing in the STB catches a wide range of species, but four species (blue cod, snapper, red gurnard and kahawai) comprise over 80% of the catch. The recreational fishery rarely catches species commonly targeted by commercial fishing such as rig and school shark. Recreational fishing catch increased markedly down the coast from Otakeho to Whanganui, which accounted for over half the reported recreational catch from the six adjacent reporting areas (Otakeho, Hāwera, Pātea, Waverley, Whanganui and Ratana).
557. In terms of fishing methods, bait fishing (77%) and long lines (9%) were the main methods of recreational catch. This NIWA report acknowledged however that the data represents only a fraction of all recreational fishing activities and was recorded

²⁸² Recreation and Tourism Assessment of Effects, Rob Greenaway & Associates, 24 November 2015, section 5.

at a coarse spatial resolution relative to the proposed project area. It is useful for providing an indication of the main methods used and species caught in the area.²⁸³

7.6 Oil and gas interests

558. Beach Energy Limited and its joint venture partners (**Kupe JV**) hold Petroleum Mining Licence 38146 and own the assets at the Kupe natural gas field. Kupe's petroleum mining licence allows it to extract from the Kupe natural gas field. Genesis Energy has a 46% interest and Echelon Resources Limited (formerly New Zealand Oil and Gas) has a 4% interest in the Kupe Assets and the Kupe JV. Beach Energy is the operator of the Kupe Assets.²⁸⁴
559. The production facility comprises an unmanned offshore wellhead platform, a 31 km pipeline to shore, and an onshore production station. The unmanned platform, pipeline and umbilicals are located approximately 1.2 km north of the TTRL project area boundary, and approximately two thirds of the project area is located within the mining licence area held by the Kupe JV (Figure 7). A sealed and covered wellhead is located within the project area. Kupe JV is therefore considered by the applicant as having an existing interest.²⁸⁵

²⁸³ South Taranaki Bight Fishing 1 October 2007 – 30 September 2023, NIWA, dated March 2024 at section 3.1.

²⁸⁴ Comment by Beach Energy Resources NZ (Kupe), 3 October 2025.

²⁸⁵ Application dated 15 April 2025, section 3.4.6

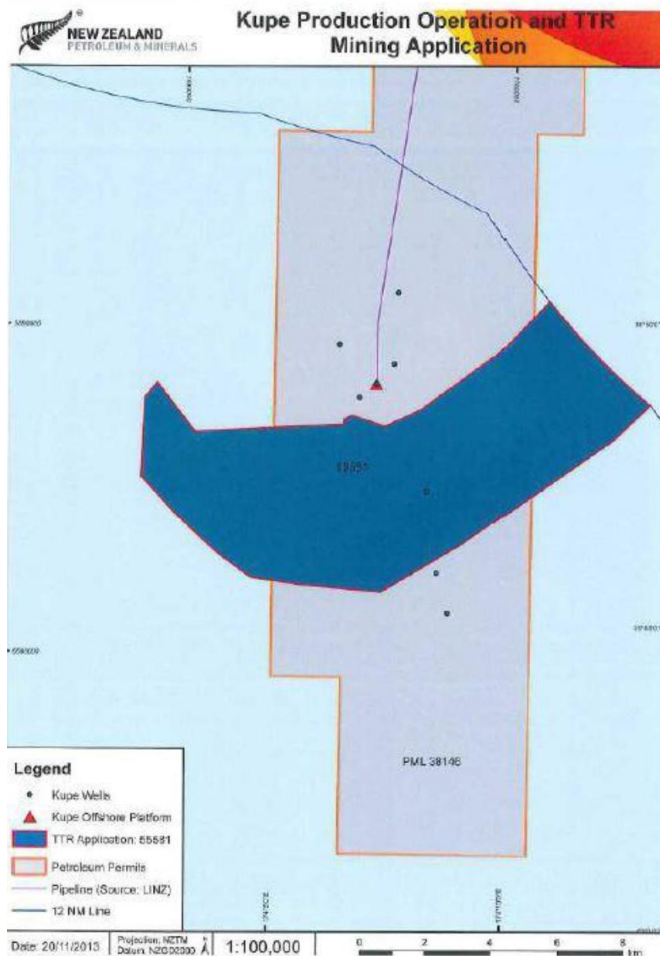


Figure 7: Map showing the location of Kupe production operation, mining licence area and TTRL's proposed mining area

7.7 Navigation / marine traffic interests

560. Section 3.4.3 of the application addresses existing maritime and navigation interests. It provides a summary of the technical report prepared by Marico Marino NZ Limited, 2015 (Marico Report).²⁸⁶
561. This report shows that the STB includes a number of clearly demarcated commercial shipping routes and therefore a large amount of large vessel traffic including dry cargo ships, liquid tankers, and cruise/passenger ships moving through the STB. These shipping routes include vessels using ports along the STB coastline, including Taranaki Port, as well as en route to other domestic ports such as Wellington, Picton, Nelson and international ports. Tugs and pilot vessels assisting large vessels with approaches to ports will also be operating in the vicinity of those ports.

²⁸⁶ South Taranaki Bight Marine Traffic Study, Marico Marine NZ Ltd. dated July 2013 and updated November 2015.

562. Other marine traffic in the STB includes fishing and recreational vessels, coastguard vessels, research vessels, naval vessels, and vessels servicing oil and gas infrastructure. Some vessel traffic is seasonal while other vessel traffic is year round.
563. The Marico Report provided an assessment of vessel traffic by type (excluding small recreational vessels that do not have navigation transponders or Automatic Identification Systems (**AIS**)) using data from the 12 months ending March 2013. That vessel traffic is illustrated in Figure 8.²⁸⁷

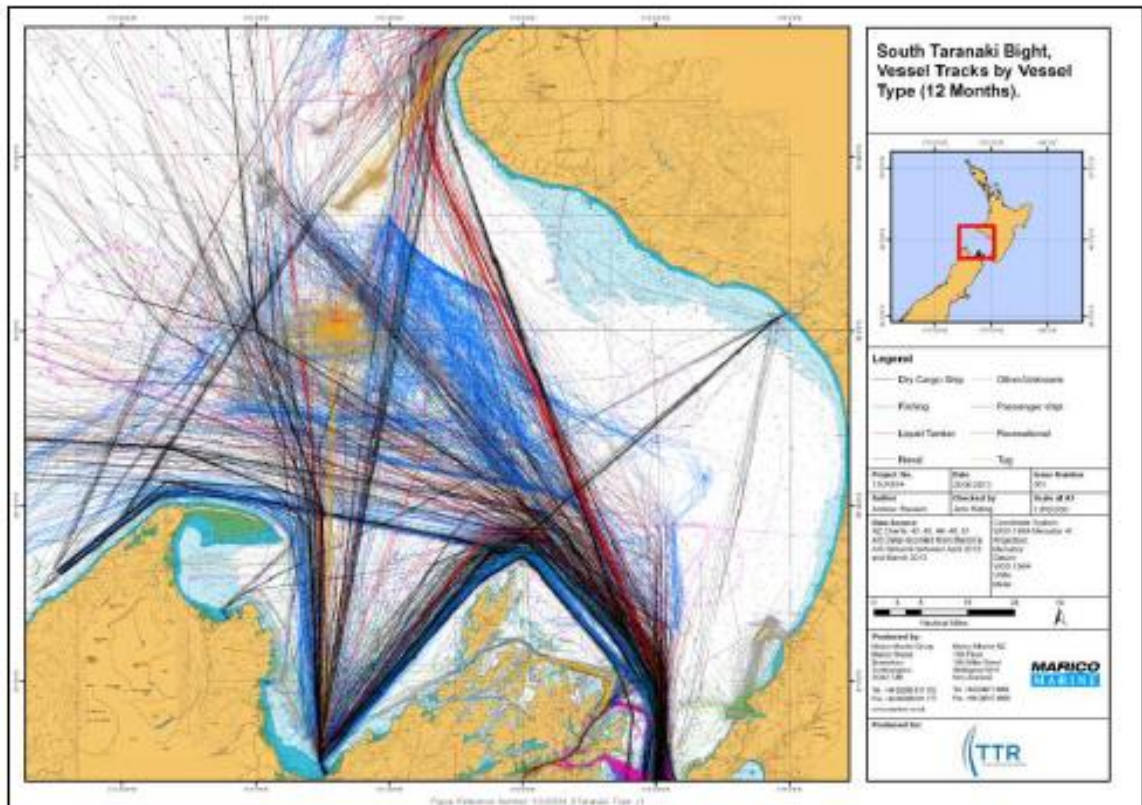


Figure 8: South Taranaki Bight vessel traffic based on AIS data, February 2012-March 2013 (Source: Marico Report, 2015).

564. A total of 926 unique vessel movements were recorded – dominated by dry cargo ships (40.5% of vessels identified), followed by tankers (9.4%). ‘Other’ vessels made up nearly a third of vessels identified. As above, the dataset does not capture the subset of small-vessel activity most likely to contribute to variable, weather-window use of the area.
565. TTRL conclude from the Marico report that a “minimal amount of marine traffic travelled through, or near the project area”. Further, that the project area is not located on or near any “regular shipping routes”. The applicant considered this survey typical of annual marine traffic volumes that will be expected during the

²⁸⁷ Copied from Figure 9 of the Marico Report (2015).

extraction period. The age of the data relied on by the applicant to describe existing marine traffic interests is discussed further in section 20.6.

566. The Marico report describes oil and gas infrastructure off the coast of Taranaki (not all of which is within the STB) as relevant for existing navigation interests. All oil and gas infrastructure is well charted, has navigational lighting and navigation transmitters. To help manage navigation risk for marine traffic and existing oil and gas infrastructure, there are also registered 500m exclusion zones around all the wellheads, pipelines and umbilicals that are clearly marked on marine charts.
567. The Marico Report also identifies a Precautionary Area overlay that captures all of the Taranaki offshore oil and gas infrastructure and part of the STB as relevant to navigation interests.²⁸⁸ The project area falls within this Precautionary Area (Figure 9).

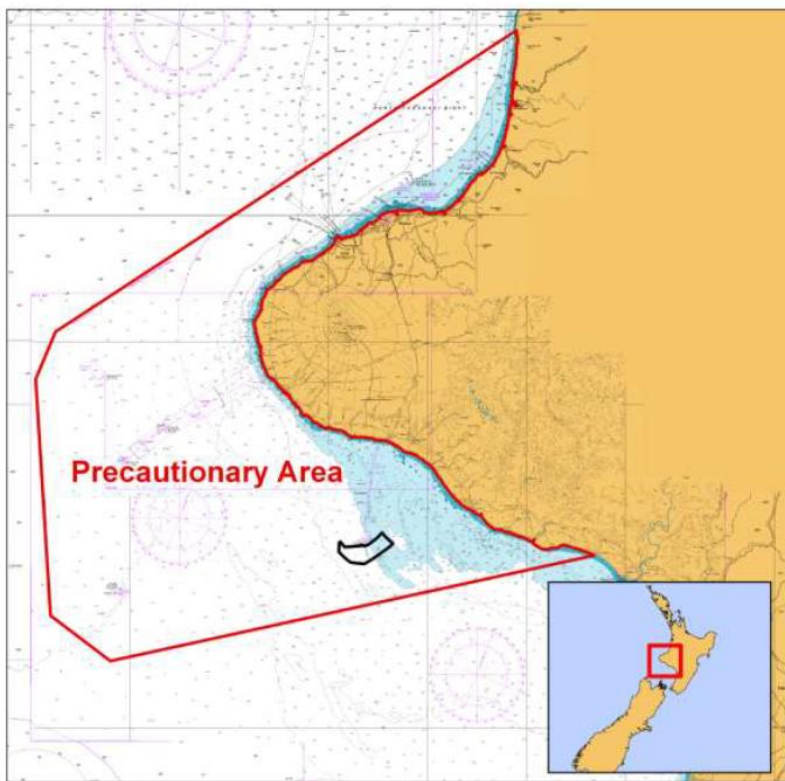


Figure 9– Precautionary area identified in navigational charts for the coast of Taranaki (Source: Figure 4, Marico Report)

568. The purpose of the Precautionary Area is:
- All ships should navigate with particular caution in order to reduce the risk of a maritime casualty and resulting marine pollution in the precautionary area.
569. In summary, there are diverse marine traffic interests in or near the project area and some relatively unique protections in place to help manage navigation risk

²⁸⁸ The Panel understands that there is only one other Precautionary Area in the marine environment in New Zealand and that is south of the Mahia Peninsula (with precaution relating to rocket launching).

associated with existing oil and gas infrastructure (not limited to the existing interests of the Kupe JV).

7.8 Offshore windfarm interests

570. The comments from Taranaki Offshore Partnership consider that it has a lawfully established existing activity in the project area, being its feasibility investigations for its offshore wind farm project. The area of Taranaki Offshore Partnership's feasibility investigations overlaps with the project area. The comments consider that TTRL has failed to identify Taranaki Offshore Partnership's existing interest in its application and has not considered the effects that the project will have on Taranaki Offshore Partnership's existing interest.²⁸⁹
571. South Taranaki District Council submitted that to the extent that offshore wind energy-related activities are lawfully established existing activities, they would fit within the definition in the EEZ Act of "existing interests", and that the potential for offshore wind energy generation in or near the project area can be taken into account via s 59(2)(g) of the EEZ Act (the efficient use and development of natural resources).
572. The applicant submitted that at present, any interest in the potential for offshore wind energy generation in or near the project area does not constitute an "existing interest" for the purposes of s 59(2)(a) or (b).
573. The Panel agrees with the applicant and considers that an interest in undertaking an activity in future cannot constitute an existing interest. On the material before it, the Panel consider that the wind-related interests raised are not existing interests within the meaning of s 59(2)(a) or (b).

²⁸⁹ Legal submissions on behalf of Taranaki Offshore Partnership dated 6 October 2025 at [77]

PART V EVALUATION OF EFFECTS

8 Sediment distribution

574. The Panel considers that understanding how mining-derived sediment is likely to be transported and deposited is a necessary foundation for our later findings on effects of the project on the benthic environment, the water column, and other receptors. This section addresses the sediment distribution evidence, identifies the material limits in that evidence, and records the consequences of those limits for the later effects assessment.

8.1 The application

Sediment modelling approach

575. The applicant used a three-dimensional nested hydrodynamic–sediment transport model with embedded suspended sediment and bed interaction modules to simulate background sediments and mining-derived fine sediment distribution.
576. Sediment was modelled as being discharged from two sources (hydro-cyclone²⁹⁰ and de-ored discharge), which were modelled separately. The de-ored discharge (also referred to as the patch source) consists mainly of coarse, fast sinking sediments and a small fraction of fine sediment. The hydro-cyclone discharge (also referred to as the suspended source) consists of fine, slow sinking sediments.
577. Because the suspended sediments are expected to travel the furthest and have the greatest potential to affect the surrounding environment, modelling performed by NIWA relates primarily to the movement of suspended sediments.²⁹¹
578. Model set-up, parametrisation, and calibration are described in a range of reports, statements of evidence, and Joint Witness Statements²⁹², including:
- the ocean model (Regional Ocean Modelling System) used a set of nested domains; an outer Cook Strait domain with a 2 km resolution and an inner STB/Pātea Shoals domain with a 1 km resolution;²⁹³
 - the ocean circulation model was driven by tides, winds, waves and river inputs;

²⁹⁰ The hydro-cyclone is a generic liquid / solid separator unit located on the IMV used to remove a specified fraction of the water contained within the slurry. The removed water is reintroduced to the slurry to help the slurry flow (TTRL Impact Assessment, page 29).

²⁹¹ Evidence of H. MacDonald for TTRL dated 19 May 2023.

²⁹² Evidence of H. MacDonald for TTRL dated 19 May 2023; Sediment Plume Modelling, M. Hadfield & H. Macdonald dated 2015; Joint Statement of Expert Witnesses - Sediment Distribution Modelling dated 2025; South Taranaki Bight Iron Sand Extraction Sediment Plume Modelling Phase 3 Studies, M. Hadfield dated 2013.

²⁹³ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated 2015.

- c. eleven rivers were included and the model was based on their mean flow rate and sediment input rate. No other sources of sediment were included to simulate background sediments;²⁹⁴
 - d. mining-derived sediment was simulated as a suspended sediment source and as re-deposited 'patch' sources on the seabed;
 - e. two sediment source locations were considered in the modelling; one at the inner edge of the project area ('Location A') and one at the outer deepest edge ('Location B');²⁹⁵
 - f. the model simulation had a duration of 1,000 days, with the sediment source operating for the final 800 days. Model result statistics were generally based on the last 730 days of the simulation.²⁹⁶ Model outputs are based on 12-hour averages;
 - g. the distribution of sediment was modelled by tracking size-classes with specified settling and resuspension properties through the model. Mining-derived sediment properties were determined from laboratory tests and model calibration;²⁹⁷
 - h. hydrodynamic model results were compared to data collected during three periods between September 2011 and July 2012;
 - i. background sediment model results were compared to measurements of suspended sediment from optical and acoustic backscatter sensors and remote sensed total suspended sediment data;²⁹⁸ and
 - j. re-deposition of suspended sediments was modelled and reported for five and 365-day deposition rates.
579. Model simulations presented with the application were derived from modelling studies described in 2015 and 2017 reports (from here on described as the 2015 and 2017 modelling, respectively). The 2015 modelling reflects improvements made to previous modelling of the sediment plume, specifically in relation to flocculation (which had not been included previously), sediment settling, and sediment resuspension.²⁹⁹ The 2017 modelling adopted different source term parameters derived during 2017 expert conferencing on sediment plume modelling³⁰⁰ to define a worst case scenario.³⁰¹ It assumes varying fines content in the material to be mined. It also takes into account increased sediment release during mound building and an increase in sediment release during periods of high waves. The downtime for the mining operations has also been increased from 20% to 29% in the 2017

²⁹⁴ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated 2015.

²⁹⁵ Application dated 15 April 2025, page 134.

²⁹⁶ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated 2015

²⁹⁷ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated 2015

²⁹⁸ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated 2015.

²⁹⁹ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated 2015.

³⁰⁰ Joint Statement of Experts in the Field of Sediment Plume Modelling – Setting Worst Case Parameters dated 2017.

³⁰¹ South Taranaki Bight Sediment Plume Modelling Worst Case Scenario, H. MacDonald & M. Hadfield dated 2017.

worst case scenario modelling following new information on operational restrictions from TTRL.³⁰²

580. Macdonald and Hadfield (2017) describe that the results from the worst case scenario modelling did not show a large difference from the original model runs.³⁰³ The Panel accepts that evidence and therefore considered results from both modelling studies in its evaluation.

Model results

581. Sediment modelling results are presented as statistical percentile maps (median or 50th percentile, and 99th percentile) of suspended sediment concentration (**SSC**) (near-surface and near-bottom) and sediment deposition maps. The 99th percentile reflects the suspended sediment concentration that is exceeded 1% of the time.
582. The sediment plume from mining at both locations A and B is predicted to predominantly travel in an east-southeast direction from the project area. While the mining activity will take place within the EEZ, the sediment plume is predicted to be present primarily within the coastal marine area (**CMA**).
583. The SSC is greatest within a few kilometres of the mining site and reaches 8.25 mg/L near the surface and 45 mg/L near the seafloor for the 99th percentiles. These values are higher than the surface background value and comparable to near-bottom background values.
584. The magnitude of the plume reduces rapidly with distance from the mining location. Macdonald and Hadfield (2017) describe:³⁰⁴

The mining-derived SSC (panel b) shows an extensive surface water plume with the 99th percentile between 20 and 5 mg/L up to 40 km southeast of the source. Values at the coast southward from Patea to Whanganui are between 1 and 2 mg/L (light green), but as with the median these are well below the natural 99th percentile values next to the coast. In this worst-case scenario, the magnitude of the plume has increased near the mining release site for the 99th percentile (from approx. 2 mg/L to 20 mg/L). Away from the mining region the differences are small but perceptible with the 1–2 mg/L region increasing slightly.

...

The median, near-bottom mining-derived SSC (Figure 3-18b) shows a similar pattern to the corresponding near-surface plot (Figure 3-16b) but with concentrations generally higher by a factor of two.

...

³⁰² South Taranaki Bight Sediment Plume Modelling Worst Case Scenario, H. MacDonald & M. Hadfield dated 2017.

³⁰³ South Taranaki Bight Sediment Plume Modelling Worst Case Scenario, H. MacDonald & M. Hadfield dated 2017.

³⁰⁴ South Taranaki Bight Sediment Plume Modelling Worst Case Scenario, H. MacDonald & M. Hadfield dated 2017, page 28-29.

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Comparing background plus mining-derived SSC (panel c) and the background sediment (panel a) the only perceptible difference is within 2–3 km of the source...

585. The 99th percentile background SSC ranges from 2–5 mg/L offshore to >500 mg/L along the coast, with peaks above 1,000 mg/L at the Whanganui River and along the coast near Hāwera. For the mining-derived SSC the plume resembles the surface 99th percentile plume but with generally higher concentrations. There is an extensive area between 1 and 2 mg/L reaching the coast from Pātea. There is very little difference between the background-only and background plus mining-derived maps.
586. Overall, Macdonald and Hadfield (2017) conclude that the concentrations beyond the immediate project area are very small and generally indistinguishable from background levels. Suspended sediment concentrations for Location B were considerably lower than those at Location A.
587. The application presents the following net differences between surface water ‘background’ and ‘extraction plus background’ at locations 2 kms, 8 kms and 20 kms from the iron sand extraction location within the project area:
- a. an increase at the 2 km location in median suspended sediment concentrations from 0.4 to 1.5 mg/L and an increase at the 99th percentile from 5.5 to 6.8 mg/L;
 - b. an increase at the 8 km location in median suspended sediment concentrations from 0.5 to 1.3 mg/L and an increase at the 99th percentile from 6.9 to 7.1 mg/L; and
 - c. an increase at the 20 km location in median suspended sediment concentrations from 0.9 to 1.4 mg/L and an increase at the 99th percentile from 10.5 to 10.8 mg/L.
588. The Panel notes that the application does not include a reference to the source of these model results, nor does it describe the location of mining or the direction from that location the SSCs were extracted from.
589. Less common sediment dispersal patterns are illustrated in case studies reflecting snapshots of predicted sediment plumes generated by mining at locations A and B under varying wind and wave conditions³⁰⁵ and an animation of the 2015 modelling results. The case study results are described in³⁰⁶ as showing “a rather mobile plume that clearly responds to wind-driven fluctuations in the currents”. Each case study also includes vertical suspended sediment transects, which mostly show a well-mixed plume through the water column.³⁰⁷
590. Mining-derived deposition footprints for the suspended source at both A and B are extensive but thin. Over most of the footprint, maximum 5 day and 365 day deposition levels are 0.01–0.05 mm rising to around 1–2 mm only within roughly 1–

³⁰⁵ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated 2015.

³⁰⁶ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated 2015.

³⁰⁷ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated 2015.

3 km of the source in the worst case simulations. Beyond this area sediment deposition levels are described as indistinguishable from natural deposition.³⁰⁸

591. Overall, sediment distribution modelling results are described in the application as follows:³⁰⁹

Increases to the suspended sediment concentrations around the project area and the SMD have been extensively modelled by NIWA using a wide range of input parameters to best understand the actual and potential sedimentation effects associated with the project.

Based on the modelled outputs it is concluded that suspended sediment concentrations from the project will be moderate, near to the project area. Closer to the coast the effect of project derived sediment will be insignificant as project derived sediment levels are not discernible relative to the naturally occurring background levels in the high energy coastal environment.

592. The Panel records the applicant's characterisation set out above. The Panel's evaluation of the adequacy and reliability of the modelling outputs, including the implications of model uncertainty for effects assessment and conditions, is addressed in the following sections.

Model uncertainties

593. Model uncertainties are described by Dr Macdonald in her evidence dated 19 May 2023. She notes that the modelling approach couples a circulation model (to simulate currents) with a sediment transport model, and each component introduces its own errors and uncertainties.³¹⁰

594. The accuracy of the circulation model was assessed by comparing model results to Acoustic Doppler Current Profiler measurements made over three deployments at five sites (1-2 deployments per site). The model tends to under-predict variability in currents at the two sites closest to the shore, which may cause the model to under-predict the rate at which river plumes are moved along the coast.³¹¹ Dr Macdonald concludes that these figures "show that the circulation model only has small errors. This comparison shows that the model is accurate enough to produce a reliable estimate of the movement of sediments as carried by the currents".³¹² The Panel records that evidence.

595. For background sediments, comparisons of model outputs with measured and remotely sensed data show under- and over-estimation by up to about a factor of two in some inshore areas, which is described by Dr Macdonald as small relative to the large natural variability and not changing the conclusion that background concentrations dominate near the coast.

³⁰⁸ South Taranaki Bight Sediment Plume Modelling Worst Case Scenario, H. MacDonald & M. Hadfield dated 2017.

³⁰⁹ Application dated 15 April 2025, page 142.

³¹⁰ Evidence of H. MacDonald for TTRL dated 19 May 202 at [17].

³¹¹ South Taranaki Bight Iron Sand Extraction Sediment Plume Modelling Phase 3 Studies, M. Hadfield dated 2013.

³¹² Evidence of H. MacDonald for TTRL dated 19 May 2023 at [18].

596. The model increasingly under-estimates the background sediment concentrations with increasing distance offshore. Dr Macdonald notes that this is probably due to the lack of sediments entering the model domain through the offshore boundaries and that this error has the effect of making the mining plume appear to have a greater impact compared to background sediments.

597. Dr Macdonald notes that:³¹³

It is harder to assess the model's representation of the mining plume as observations are not possible unless mining proceeds. A large uncertainty in the sediment model come from the input parameters. To understand the effect of uncertainties of input parameters on the model results, a "worst case scenario" was performed. Five uncertain parameters such as the percentage of ultra fine materials released into the water column were set to a value within their error range but chosen to deliberately enhance the plume.

and³¹⁴

The new source terms intermittently increase the amounts of fine sediments released into the water column at the mining site. The results from the worst-case scenario did not show a large difference from the original model runs.

598. Overall, Dr Macdonald concludes that:³¹⁵

the sediment plume model used in the initial assessment is of good quality and fit for the purpose it was used for. We consider it provides a reliable basis for others to assess the effects of the sediment plume on the environment.

599. The Panel records that conclusion as part of the evidence on model performance and uncertainty.

Conditions

600. The proposed controls rely principally on:

- a. development and operation of an Operational Sediment Plume Model (**OSPM**), intended to be an operational forecasting tool, distinct from the hindcast model used for the assessment (Condition 52);
- b. compliance with specified SSC limits (Schedule 2); and
- c. transect monitoring including SSC (Condition 54).

601. The applicant describes that the OSPM will provide an effective mechanism to assist in:³¹⁶

- a. the development of the environmental response methodologies that are applied with respect to SSC (derived from a suspended solids – turbidity

³¹³ Evidence of H. MacDonald for TTRL dated 19 May 2023 at [23-24].

³¹⁴ Evidence of H. MacDonald for TTRL dated 19 May 2023 at [25].

³¹⁵ Evidence of H. MacDonald for TTRL dated 19 May 2023 at [29].

³¹⁶ 2-11 App K SOE Planning.pdf (response to comments)

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relationship developed during the Pre-commencement Environmental Monitoring Plan (**PCEMP**));

- b. predicting background and extraction derived SSC to inform the on-going management of the project's extraction activities;
 - c. distinguishing operationally derived contributions to SSC from naturally occurring background processes; and
 - d. forecasting, as accurately as possible, sediment plume dynamics including but not limited to intensity, frequency distribution and geographic spread.
602. The OSPM will be developed within 6 months of the commencement of consent and maintained (calibrated and validated) and independently peer reviewed over the duration of consent; every six months for the first three years of mining operations, thereafter every 24 months.
603. The proposed conditions also include SSC limits at specified locations and pre-commencement and ongoing monitoring of a range of water quality parameters along transects emanating from approximately 1 km outside the boundary of the mining area, including SSC. This data will also be used for calibration and validation of the OSPM.

8.2 Comments received, applicant's response to comments, RFI, JWS

604. The following parties commented on the sediment modelling:
- a. KASM and Greenpeace (evidence of Dougal Greer, Prof John Luick, and Dr Tara Anderson);
 - b. Various councils, including Taranaki Regional Council (including the technical assessment by Pattle Delamore Partners), Horizons Regional Council, including the technical assessment by Pattle Delamore Partners), Whanganui District Council;
 - c. Climate Justice Taranaki Incorporated;
 - d. South Taranaki Underwater Club;
 - e. Talley's Group Limited (evidence of Dr Joris Jorissen);
 - f. NZ Rock Lobster Industry Council Ltd;
 - g. Te Kāhui o Taranaki;
 - h. Te Korowai o Ngāruahine Trust;
 - i. Te Runanga o Ngati Ruanui; and
 - j. Whanganui Manawatu Sea Fishing Club and Pātea and Districts Boating Club.
605. Comments received can be summarised as follows:

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- a. Across parties, there was broad agreement that although the modelling framework and tools themselves are standard, the implementation of the sediment distribution modelling for the project has shortcomings in parameterisation, calibration and post-processing, worst case scenario definition, spatial and temporal coverage, and integration of new reef and habitat information.
 - b. Several commenters contended that these issues may bias the results toward underestimating suspended sediment concentrations, plume extent and deposition, particularly under high-energy wave conditions and over long time scales.
 - c. Commenters also raised concern about the focus of the model simulations and associated effects assessments on instantaneous comparisons to current background SSC. They noted that background SSC in the model includes substantial anthropogenic contributions from land use (via riverine sediment), so comparing mining plumes only to existing background conditions could mask cumulative effects and therefore understate the incremental impact of mining relative to natural baselines.
 - d. Commenters also raised concerns about an inadequate assessment of chronic and cumulative impacts. They stressed that the mining plume will be semi-continuous over 20 years rather than episodic like storms and floods, so chronic impacts and reduced recovery opportunities should be explicitly considered.
 - e. Commenters estimated that brine discharges into or near the pit might be significant and noted that this has not been modelled. Dense brine might accumulate in the pit and eventually overflow along the seabed, possibly interacting with suspended sediment and depositional patterns.
 - f. As a consequence, commenters considered that the current sediment distribution modelling could not yet provide a reliable or sufficiently precautionary basis for assessing effects on sensitive benthic and pelagic habitats, compliance with regional water quality objectives, and the cumulative environmental consequences of a 20 year seabed mining operation in the STB.
606. The applicant's responses on sediment distribution modelling are primarily set out in the statement of evidence of Dr Charine Collins⁸ and in the Environmental Groups response table where sediment issues intersect with ecology and conditions.
607. Overall, Dr Collins concludes that the sediment plume modelling, like all models, has uncertainties and errors. The sediment plume model(s) developed for the project followed many of the CSIRO recommendations on dredge plume modelling even though these recommendations were not available when the models were developed. She considers that despite some shortcomings, the sediment plume model is of good quality and fit for the purpose.
608. The Panel considered that further information from the applicant was required to obtain sediment plume and deposition model information, including uncertainties, in formats that are more accessible to experts from other disciplines who were directed

to conduct expert conferencing and rely on the model outputs. The applicant provided information in a memorandum of Counsel dated 9 November 2025 and a response prepared by Dr Collins dated 17 November 2015. The information provided included a statement of evidence by Mr Daniel Gover dated 15 December 2016.

609. To ensure the Panel had an accurate understanding of any outstanding agreements and disagreements among experts, expert conferencing on the topic of sediment distribution modelling was directed.
610. The conference was attended by the following experts:
- a. Dr Mike Dearnaley on behalf of TTRL;
 - b. Dr Charine Collins on behalf of TTRL;
 - c. Dr Gregory Matthew Barbara on behalf of Seafood NZ; and
 - d. Dr John Luick on behalf of KASM and Greenpeace.
611. Dougal Greer on behalf of KASM and Greenpeace was unable to attend conferencing; however he circulated a written statement to the other experts prior to the conferencing.
612. Experts remain divided on the adequacy of the existing sediment plume and deposition modelling but also identified some agreements.
613. On one side, the applicant's modellers (Drs Dearnaley and Collins) consider the hydrodynamic and sediment distribution models to have used the best (and in many cases only) available data, applied best practice at the time of modelling, and produced conservative farfield predictions that are adequate for assessing environmental effects beyond about 3 km from the mining area. They acknowledge uncertainties such as limited river sediment data, two year simulation length, and coarse nearfield resolution, but do not consider that updating or re-running the models would materially alter farfield conclusions.
614. On the other side, Drs Barbara, Luick and Greer accept the general modelling tools but identify a suite of deficiencies that they say likely cause systematic underestimation of plume extent, magnitude and variability. They include wave parameterisation in the nearfield, sparse and partial sediment sampling, under-calibration against observed suspended sediment (especially storm peaks), 12-hour output averaging, short run length without interannual variability or climate change scenarios, simplified representation of pits and mounds, lack of explicit flocculation and turbulence treatment, and omission of desalination brine discharge. In their view, the current modelling is not fit for purpose as the primary basis for environmental effects assessment, particularly in the nearfield and for sensitive habitats such as reefs.
615. Despite these disagreements, all experts agree that:

- a. any model has inherent uncertainties that must be recognised and managed;
 - b. the existing farfield model is broadly suitable for giving a regional picture of plume behaviour at distances greater than about 3 km but lacks sufficient resolution and process detail for nearfield effects; and
 - c. a higher resolution OSPM, developed and iteratively validated using pre-commencement and early operation monitoring data, is both feasible and appropriate, provided it properly resolves pits, mounds and mining lanes, uses carefully selected forcing and boundary data, and is supported by dedicated nearfield plume surveillance.
616. The Joint Witness Statement also discusses how consent conditions could manage the identified uncertainties. The applicant's experts rely on conditions that cap extraction and fines content, delay mining close to shore, and require additional mapping and monitoring, whereas the other experts seek stronger and more specific requirements, including model re-runs or upgrades, explicit ecological trigger levels, more intensive early years monitoring and reporting, inclusion of worst case scenarios, and integration of brine discharge and resuspension processes into the modelling and management framework.

8.3 Findings

617. The elevations in suspended sediment arising from the proposed mining activity are central to the project because they are a principal pathway by which potential effects extend beyond the mining footprint and into the wider STB. Those potential effects include changes to water quality and light climate, and sedimentation on the seabed, which may in turn affect marine species (including taonga species) and their habitats, and existing interests including customary fisheries and mahinga kai, and recreational and commercial activities. The applicant likewise describes the production and dispersion of a sediment plume during the extraction of iron sands from the seabed as "one of the key features of the project".³¹⁷
618. In making the findings in this section, the Panel applies the assessment framework in cl 6 of Sch 10 of the FTAA, which requires the Panel to take into account (giving greatest weight to the purpose of the FTAA) the relevant decision-making criteria in s 59 of the EEZ Act and the information principles in s 61 of the EEZ Act.
619. The experts who assisted us generally agree that the hydrodynamic and sediment transport modelling framework (and linked optical modelling addressed in section 11) use tools that are standard. However, there is material disagreement between the applicant's experts and other parties' experts as to parameterisation, calibration, outputs, and the extent to which the modelling is sufficiently reliable and precautionary for effects assessment. The Panel has considered and weighed the competing evidence and has made findings on the adequacy, limitations, and appropriate use of the modelling for the purposes of the statutory assessment.

³¹⁷ Application dated 15 April 2025, page 130.

620. Not every critique advanced by parties is material to the Panel's statutory task. We also note that the extent to which specific matters are relevant and the relative importance of different matters may differ depending on the context in which they are used within the overall effects assessment of the project. As such, the first step in deriving our findings is identifying sediment modelling-related matters that were identified as material by experts assessing or commenting on ecological, recreational, cultural, and commercial impacts of the project.
621. The Panel therefore identifies below the modelling matters that experts across disciplines relied on (or said they required) to assess effects on the environment and existing interests under s 59 EEZ Act, and to apply the information principles in s 61 EEZ Act where information is uncertain or inadequate. Across disciplines, therefore, the following were identified as the key sediment-modelling inputs required for effects assessment:
- a. spatial footprint and pathways of the plume, to assess overlap with sensitive habitats and areas of use or value (including customary, recreational, and commercial fishing grounds, marine mammal habitat, seabird foraging areas, and recreation areas);
 - b. SSC within the plume, including surface, mid-water and near-bed concentrations, including localised estimates for patchy habitats (including benthic reefs), to enable comparison to relevant assessment thresholds;
 - c. simulation of realistic worst case scenarios;
 - d. rates and patterns of fine-sediment deposition on the seabed, particularly in areas supporting sensitive benthic species or habitats;
 - e. estimates of long-term changes in suspended sediment and sediment deposition regime relative to natural variability over the duration of mining and recovery after cessation of mining;
 - f. clear articulation of key assumptions, limitations, and uncertainty, including how those uncertainties affect use of the outputs in other assessments; and
 - g. conditions and management measures capable of monitoring actual SSC and deposition against predicted ranges, setting enforceable limits or triggers where appropriate, and requiring responsive action where monitoring indicates outcomes depart materially from the assessed envelope, consistent with a precautionary approach where information is uncertain or inadequate.
622. The Panel presents its findings on sediment modelling under this structure. For each matter we describe and discuss issues raised.

Location of the plume

623. The sediment plume, defined through statistical percentile (median and 99th percentile) maps of predicted surface or bottom water SSC generated from mining at both locations A and B travels predominantly in an east-southeast direction from

the project area. While the mining activity will take place within the EEZ, the sediment plume is predicted to be present primarily within the CMA.³¹⁸

624. The percentile maps, while widely used to illustrate the location of the plume, do not reflect the full extent of the suspended sediment plume. Dr Collins explained that:³¹⁹

The statistical plots should not be confused with a snap-shot of what the plume would look like at any point in time. They represent the statistical likelihood of the plume influencing all locations over the period of the simulations. The entire plume simulation is available as an animation and this is the best way of understanding the spatial and temporal influence of the plume.

625. Less common sediment dispersal patterns are illustrated in case studies reflecting snapshots of predicted sediment plumes generated by mining at locations A and B under varying wind and wave conditions and an animation of the 2015 surface water modelling results.³²⁰ Hadfield and Macdonald (2015) describe these results as showing “a rather mobile plume that clearly responds to wind-driven fluctuations in the currents”.³²¹
626. While the applicant’s experts acknowledge the dynamic and variable nature of the suspended sediment plume, they have not systematically compiled, described or visualised the dynamics illustrated in the animations and case studies. We also note that the applicant mostly relies on the median and 99th percentile maps for illustrating the plume and assessing effects.
627. The animation and case studies provide some information about the variability of the surface water plume; however, these model outputs are not available for bottom waters, leading to increased uncertainty around the sediment plume dynamics and extent in bottom waters.
628. Hadfield and Macdonald (2015) describe that for most of the six case studies; the sediment plume is well mixed throughout the water column. We note that the case studies reflect snapshots in time and do not provide a systemic characterisation of the full range of predicted SSC extent and directionality across the simulation period.
629. Pattle Delamore Partners (for Taranaki Regional Council) raise concerns that the percentile plots mask the extent of the plume and that this particularly affects the area around the mining site where the plume may pool at times and extend into areas west or south of the mining site.³²² We agree that the percentile maps mask the plume extent into less common directions that may still receive high concentration pulses. While we acknowledge that the applicant agrees with this, we consider that the information largely relied upon and described by the applicant, the

³¹⁸ South Taranaki Bight Sediment Plume Modelling Worst Case Scenario, H. MacDonald & M. Hadfield dated 2017.

³¹⁹ Response on behalf of TTRL to Request for Information 1 and 2 in Minute 13 dated 13 November 2025, page 6.

³²⁰ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated October 2015.

³²¹ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated October 2015, at section 5.1.1.

³²² Pattle Delamore Partners for Taranaki Regional Council uses this wording

percentile maps, are insufficient on their own to characterise the spatial extent of the plume, particularly for bottom waters.

630. As a consequence, we consider that the model results as presented do not provide an adequate picture of the areas within the STB that are likely to be affected by suspended sediment, especially for bottom waters.
631. The applicant could reasonably have reduced this uncertainty by extracting and presenting additional outputs from the existing simulations to better characterise plume extent in directions and locations not well captured by the percentile maps.

SSC within the plume, including localised predictions for patchy habitats

632. Surface water SSCs are shown throughout the model domain in percentile maps, the plume animation, and for the case studies, and at eight locations of interest (Pātea, North and South Traps, Rolling Grounds, Graham Bank, a point toward Whanganui from Location A (the main direction of the plume), 20 km north of Location A, both ends of The Crack, Project Reef) as time series over the simulation period.³²³
633. Bottom water SSCs are displayed in percentile maps, along transects for the case studies and as time series over the model calibration periods (63-86 days long) at five locations. Mid water SSCs are only shown along transects for the case studies. Accordingly, bottom- and mid-water SSC are characterised at fewer locations and over shorter periods than surface-water SSC, which limits the extent to which localised predictions can be made for patchy habitats and other sensitive near-bed receptors.

12-hour averaging of model results

634. Model results were extracted as 12-hourly averages, which commenters noted smooths tidal and event-scale peaks and may reduce estimated high-percentile SSC. Dr Collins agrees that the 12-hourly averages mask short-term peaks in SSC and that the strong tidal variations are not represented in the 12-hour averages of the model output. She explains that the model output was saved as 12-hourly averages due to storage limitations encountered at the time.
635. Dr Greer (for KASM) commented that:³²⁴

Model output should be stored at least as hourly averages or hourly maxima to provide a reasonable estimation of higher percentile SSC values. Storage of model output at hourly intervals is standard practice for models of this type.

³²³ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated October 2015; South Taranaki Bight Sediment Plume Modelling Worst Case Scenario, H. MacDonald & M. Hadfield dated 2017

³²⁴ Evidence of Dr D. Greer on behalf of KASM and Greenpeace dated 6 October 2025 at [24].

636. All experts agree that the 12-hourly averages masked tidal and event scale peaks and reduce high percentile estimates. The extent of this has not been assessed, resulting in unquantified uncertainty as to peak SSC and upper-percentile values.
637. The most recent sediment modelling was carried out in 2017. We accept Dr Collins' explanation that 12-hourly outputs reflected constraints at the time of the 2017 modelling. However, the applicant has not provided evidence that higher-frequency output could not practicably have been produced, retained, and presented for the purposes of this application. We therefore accept Dr Collins' explanation that model results were the best available information in 2017; however, we do not regard them to represent best available information at the time of this application.

Frequency and duration of SSC elevations

638. The modelling reports do not describe the frequency or duration of SSC pulses or elevations. The Panel requested additional information from the applicant on the temporal nature of predicted sediment distributions (Minute 13). In the applicant's response (authored by Dr Collins and reviewed by Drs Dearnaley and MacDiarmid), Dr Collins refers to figures in Hadfield and Macdonald (2015) and Macdonald and Hadfield (2017) that displayed model results (and observations, where available) over the simulation period, selected time periods, or points in time at different locations of interest to illustrate the distribution of and changes in SSC over time.
639. She describes that these figures show that the SSCs at different locations are highly variable, and this variability will be determined by a number of processes at both local (e.g. winds, waves and tides) and regional scales (e.g. large-scale currents, sediment input from rivers). While it would be theoretically possible to count the number of surface water SSC spikes exceeding the median, 95th and 99th percentile SSC at the locations of interest in Figures 3-6 to 3-15 of Macdonald and Hadfield (2017), this is not a practicable nor scientifically robust approach and, if the applicant considered it were, is a task that should have been performed by the applicant and the results provided in the response.
640. Of the figures referred to by Dr Collins as showing frequency information, the only ones showing bottom water SSC are comparisons of modelled near-bottom sand concentrations with acoustic backscatter data from instrument sites 6, 7, 8, and 10 covering 217 days of model simulation over three periods (Hadfield and Macdonald, 2015; Figure 4-10 to 4.13). We do not consider these figures to be useful for obtaining information on frequency or duration of SSC elevations because they are not representative of the model simulation period, reflect the 2015 modelling, and do not display percentiles.
641. We find that the failure of the applicant to provide quantitative information about the frequency and duration of SSC elevations is an important gap as these characteristics are material to assessing effects on sensitive receptors, including the extent to which SSC exposures are episodic or chronic.

Underprediction of storm-driven peaks

642. Dr Greer (for KASM) states that comparisons between modelled and measured background SSC show the model sometimes under-predicts bottom water observations by factors of 5–10, particularly during storm driven peaks. He notes that these peaks influence the 99th percentile plots, meaning that these plots may be unreliable.

643. In response to these comments, Dr Collins acknowledged that the model has a tendency to under-estimate near-bottom sand concentrations at sites closer inshore, and tends to over-estimate near-bottom sand concentrations at the more offshore sites. She refers to Hadfield and Macdonald (2015) who conclude the near-bottom SSC comparison to measured near-bottom sand concentrations as follows:³²⁵

Our conclusion from the comparison is that the sediment model does not reproduce the wide range of variation in susceptibility to sand resuspension between different locations on Patea Shoals, and furthermore could not do so without a lot of tuning to local conditions.

644. Dr Collins notes that, while the model near-bottom sand concentrations at some locations might be under-estimated, it still captures the increase in concentrations associated with events and captures the timing of these events correctly. Dr Collins notes that this aspect of the model performance can only be improved through “a lot of tuning to local conditions”, which would require information on local conditions across the entire model domain as tuning to conditions confined to a specific area might lead to improvements in that region but degrade the model elsewhere. In conclusion, she states that:

Taking these matters into account, I do not share Mr Greer's concern about differences between modelled and observed data. In my view, for the reasons stated above, the model remains fit for its purpose.³²⁶

645. Against that evidence, the poor model fit during storm events reduces the Panel's confidence in bottom water background SSC predictions. The Panel agrees with Dr Greer that, in light of the poor model fit, the bottom water 99th percentiles are subject to material uncertainty.

646. The Panel accepts Dr Collins explanation as to the practical challenges of improving fit across the full domain. However, TTRL has not demonstrated that reasonable efforts were made to improve the model fit and the Panel therefore is not satisfied that it is appropriate to rely on the poor model fit, particularly for this critical model output and the scale of the project.

647. Further, the applicant's evidence does not address the implications of the poor model fit for bottom-water SSC during storm events. The applicant relies strongly on comparing the sediment plume to background conditions, including for 99th percentile plots. Without a spatially explicit discussion of how the poor model fit

³²⁵ Sediment Plume Modelling, M. Hadfield & H. Macdonald dated October 2015 at [44].

³²⁶ Evidence of Dr C. Collins for TTRL in Response to Comments Received dated 13 October 2025 at [31].

impacts these comparisons, we have limited confidence in the validity of the applicant's interpretations of the bottom water 99th percentile plumes in the context of background SSC.

648. Finally, we note that Dr Macdonald explained in her evidence dated 19 May 2023 that for background surface sediments, comparisons of model outputs with measured and remotely sensed data show under- and over-estimation by up to about a factor of two in some inshore areas and that the model increasingly under-estimates the background sediment concentrations with increasing distance offshore. Dr Macdonald notes that this is probably due to the lack of sediments entering the model domain through the offshore boundaries and that this error has the effect of making the mining plume appear to have a greater impact compared to background sediments. The different patterns of over- and under-estimated background SSC illustrate further uncertainties in model predictions.
649. The Panel finds that the background bottom-water SSC predictions, and in particular the 99th percentile outputs used to contextualise mining-related SSC elevations, are subject to material uncertainty. The poor model fit during storm-driven peaks materially affects the 99th percentile maps, limiting the weight that can be placed on comparisons between mining plumes and modelled background conditions at that percentile.

Realistic worst case scenario of modelling

650. The 2017 Joint Statement of Experts in the Field of Sediment Plume Modelling – Setting Worst Case Parameters states that:³²⁷

Having considered evidence provided on the sediment plume model, the DMC considered it would be of value for an additional expert conferencing session on this evidence, where the experts are to focus on establishing appropriate worst case scenario parameters to apply to a re-run of the sediment plume model.

651. The Panel considers that the use of a realistic worst case scenario is critical to confidence that the upper bounds of predicted SSC elevations are understood and can be used to inform effects assessment.

652. The 2017 Sediment Plume Modelling – Worst Case Parameter Joint Witness Statement states that:³²⁸

We have endeavoured to define a worst case scenario using the parameters available in the model and combining parameters in a way that could lead to the worst sediment discharge from the integrated mining vessel (IMV). However, we have not defined this worst case scenario based on the potential outcome at a receptor or for a particular marine species (as we have not discussed this with marine ecologists). We have proposed a worst case modelling scenario that allows the worst case release rates to occur at times of

³²⁷ Joint Statement of Experts in the Field of Sediment Plume Modelling – Setting Worst Case Parameters dated 2017 at [4].

³²⁸ Joint Statement of Experts in the Field of Sediment Plume Modelling – Setting Worst Case Parameters dated 2017 at [6].

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different hydrodynamic conditions to give a broad indication of worst case conditions across the footprint of the area that can be affected by the sediment plume.

653. This means that the worst case scenario may not predict worst case conditions for specific sensitive receptors. That may occur, for example, where receptors are located in areas not well reflected in model output presentations (see discussion above on the spatial extent of the plume), where they are sensitive to the durations of SSC elevations (see discussion above on the lack of information on duration of SSC elevations), or where they are most affected by SSC elevations during specific seasons or other periods of heightened sensitivity.
654. For example, during 2025 expert conferencing on primary productivity, all experts for the applicant (Dr MacDiarmid, Dr Pinkerton, and Professor Cahoon) commented that:³²⁹
- this modelling provides a worse-case scenario (but maybe not a worst-case) for primary production.
655. The Panel finds that the worst case scenario is helpful as a general indication of the fate of higher fines released from the mining site; however, we do not consider that it reflects a worst case scenario for the effects of the application. A worst case scenario intended to inform effects on sensitive receptors should be defined with reference to the sensitivity of the receiving environment to adverse effects. It remains uncertain whether the worst case scenario modelling reflects a worst case scenario for sensitive receptors. We will return to this in our evaluation of effects on environmental components impacted by suspended sediment.
656. The Panel notes that the applicant's modelling experts repeatedly state that the model and the model outputs are fit for purpose. As noted by the applicant, the production and dispersion of a sediment plume is a key feature of the project. The plume is an important aspect in a range of diverse assessments of environmental, cultural, recreational, and commercial impacts of the project. We consider that without identifying the specific assessment question the sediment plume (or other model outputs) is intended to inform any statement expressing fitness for purpose carries limited weight.
657. During the 2025 expert conferencing on the topic of sediment distribution modelling Dr Barbara, Dr Greer, and Dr Luick noted that key processes and parameter ranges (e.g., higher fines periods, wave climate, and turbulence) are not adequately included, so the reported scenario does not capture worst case spatial extent and may therefore under-state the upper bound of ecological exposure.
658. Dr Barbara, Dr Luick, and Dr Greer further consider there are serious deficiencies in parameterisation (e.g. wave period in the near field), calibration (under prediction of storm driven peaks), temporal resolution (12-hour outputs), run length (about two years, with no climate change), and representation of sediments (only three samples used for laboratory analysis of sediment characteristics to calculate erosion thresholds and settling rates), pits and mounds, which, in their view, means

³²⁹ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [26]

the model may significantly under-estimate the extent, magnitude and variability of the plume and does not represent a true worst case.

659. In the 2025 expert conference on primary productivity, Dr Barbara notes that:³³⁰

the “worst-case” sediment modelling was never agreed as worst-case (refer to JWSs from 2017, 2024, and 2025 for Sediment Plume Modelling). The parameters used in the 2017 modelling actually represent a “worse-case” model scenario based on modifications of mining procedures rather than oceanographic conditions. This has implications for other models dependent on the outputs for the Sediment Plume Model.

660. We note that Dr Dearnley accepted that it would be possible to adopt alternative assumptions for a more severe worst case modelling scenario but does not see the value in that exercise to inform the farfield impact assessment because, in his view, such an assessment would be unrealistic given the discharge conditions (2025 modelling Joint Witness Statement).

661. The Panel agrees that a worst case scenario needs to be realistic to be useful. However, for the reasons set out above, many of the reasons provided by experts challenging the worst case scenario are valid. As a result, the Panel finds that the worst case scenario does not reliably represent a true worst case spatial extent and the actual extent of the worst case sediment plume remains materially uncertain.

Deposition rates and patterns

662. Macdonald and Hadfield (2017) describe that the mining-derived deposition footprints for the suspended source at both locations A and B are extensive but thin. Over most of the footprint, maximum 5 day and 365 day deposition levels are 0.01–0.05 mm (one tenth of a human hair), rising to around 1–2 mm only within roughly 1–3 km of the source in the worst case simulations. Beyond this area sediment deposition levels are described as indistinguishable from natural deposition.

Spatial extent, depth and location of sediment deposition beyond 3 km of the mining location

663. Pattle Delamore Partners (for Taranaki Regional Council) state that the size and extent of the depositional area is not fully defined, which limits the ability to accurately assess the magnitude of sedimentation effects on the receiving environment. They also note that the evidential support for the applicant’s conclusion that deposition is negligible is weak because even thin sediment layers can have adverse ecological effects.

664. All benthic experts agreed that:³³¹

within and close (<2-3 km) to the active mining area most, if not all, benthic invertebrate species would be either mechanically killed, buried, smothered or overcome by high levels of SSC.

³³⁰ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [26]

³³¹ Joint Statement of Expert Witnesses – Benthic habitats and species dated 17 November 2025 at [40]

665. The Panel relies on the benthic experts' description of deposition effects within 3 km of the mining area. We note that several experts raised concerns about the ability of the model to accurately predict deposition and bottom-water SSC within close proximity of the mining area; however, if effects assessments assume that all benthic habitats and species within 3 km of the mining location will be lost, there is no need to improve the model predictions. The Panel also notes that this does not preclude the need to monitor effects.
666. The Panel agrees with Pattle Delamore Partners that there is a high degree of uncertainty in the predicted sediment deposition beyond 3 km from the mining area.
667. We acknowledge the inherent difficulties in modelling sediment resuspension and distribution, especially in an area with complex hydrodynamics, varying benthic habitats, and the scale of geomorphological change, including changes in seabed elevation and grain size, predicted from the project.
668. The Panel also refers to the applicant's description of the inability of the model to reproduce the wide range of variation in susceptibility to sand resuspension between different locations on Pātea Shoals.³³²
669. We consider it unlikely that the applicant could have provided high confidence model predictions of sediment deposition beyond 3 km of the mining area. However, the Panel considers that it would have been reasonable for the applicant to provide a more informative description of potential deposition impacts beyond 3 km, including ecologically relevant sediment deposition mechanisms, such as the potential for sediment to be trapped in biogenic habitats, and to acknowledge that even low levels of deposition may adversely affect sensitive species.
670. For these reasons, the Panel does not accept the applicant's conclusion that deposition is negligible beyond 3 km of the mining area. We agree that it will likely be small but emphasise that its effects cannot be characterised as negligible without an ecological effects assessment that addresses the sensitivity of the receiving environment.

Long-term changes in suspended sediment and sediment deposition regime

671. The sediment modelling approach is based on a two year simulation and does not include changes in hydrodynamics resulting from climate change over the duration of operations and recovery.

Model calibration

672. Several experts, including Dr Greer, Dr Barbara, and Pattle Delamore Partners (for Taranaki Regional Council), raise concerns about deficiencies in the model calibration including uneven seasonal coverage and differing deployment durations across sites.

³³² Sediment Plume Modelling, M. Hadfield & H. Macdonald dated October 2015 at section 4.3.

673. In response, Dr Collins and Dr Dearnaley note that the model was validated and calibrated using the best available data from a range of sources (e.g. in situ and satellite derived). Both consider that measurements of the nearfield and farfield SSC once the proposed mining has commenced will be crucial for validating and calibrating any additional sediment plume modelling.

674. We understand that hydrodynamic conditions in the STB are complex. For example, Mr McComb states that:³³³

A defining feature of the region is the misalignment of weather forces, with swell waves, wind waves, winds and ocean currents often arriving from different directions.

675. We also note that data collection was done prior to the 2015 modelling. It may be that the data used was the best available data at that time; however, the applicant has not provided evidence that more comprehensive data collection to address seasonal coverage and deployment duration issues was not reasonably practicable for the purposes of this application. We also note that technology has advanced since then in ways that may enable more comprehensive data collection and thus model calibration.

676. Overall, we find that model calibration conducted by the applicant does not reflect good practice, that calibration deficiencies created uncertainties in model prediction that could have been reduced, and that it would have been reasonable for the applicant to collect more data to ensure seasonal coverage and improve model calibration. However, in light of our other findings on the modelling and the complexity associated with the sediment modelling, we are not able to draw a conclusion on what difference improved model calibration would have made to the Panel's overall findings on the certainty and adequacy of the sediment modelling.

Inter annual variability and effects of climate change on hydrodynamics and sediment distribution

677. Dr Greer and Dr Barbara consider that the two year model runs are insufficient to capture inter annual variability (e.g. El Niño vs La Niña conditions) over a 20 year project and that the modelling also fails to consider expected effects of climate change on hydrodynamics and thus sediment distribution.³³⁴ Dr Barbara considers it is best practice to run models for hydrodynamic marine discharges for at least ten years and consider the effects of climate change in long-term modelling, and this is routinely required in other jurisdictions.

678. Experts for the applicant describe that the two year simulation adequately captures the natural variability of currents, waves, and sediment dynamics within the STB between 2008 and 2014 (Hadfield and Macdonald, 2015; Dr Collins in response to comments). Dr Collins also noted that the suspended-sediment model is highly

³³³ Statement of evidence of P McComb (Seabed Morphology) for Taranaki Offshore Partnership dated 3 October 2025 at [43]

³³⁴ Joint statement of expert witnesses - Sediment distribution modelling dated 13 November 2025 at [22].

computationally expensive, and simulations on the order of 10–20 years were not feasible with the resources available at the time.

679. Dr Collins and Dr Dearnaley further state that the purpose of the sediment plume modelling was not to resolve long-term climate variability but rather to adequately capture the natural variability of currents, waves, and sediment dynamics within the STB. In addition, Dr Collins and Dr Dearnaley note that simulating sediment dynamics under climate change requires a different modelling approach to the one used.
680. The Panel considers it plausible that the model predictions may not be representative of those experienced over the proposed consent period. We consider that it would have been reasonable for the applicant to, at least, describe (based on publicly available long-term datasets) the likely direction and scale of changes in hydrodynamics arising from climate change and to describe implications for predicted effects. We discuss this further in our findings on cumulative effects in section 19.

Model assumptions and uncertainties

681. All modelling experts agree that in modelling approaches that couple a circulation model with a sediment transport model, each component introduces its own errors and uncertainties.
682. Similarly, Pattle Delamore Partners (for Taranaki Regional Council) state that:³³⁵
- While modelling is a necessary tool to assist in understanding the likely scale and magnitude of effects, models are inherently uncertain, based on the limitations of the input data, the assumptions and the structure of the model itself. When models are used to inform other models (e.g., the outputs of one model become the inputs of another), the uncertainties are not only carried forward but can also compound, as any bias, error, or simplification in the first model propagates into subsequent models. This can amplify both the magnitude and the complexity of uncertainty. It is therefore important that model assumptions, uncertainty (e.g., sensitivity analysis etc) is transparent when using models for decision-making.
683. Modelling experts have differing views on the adequacy of assumptions and the nature and level of uncertainty associated with the sediment modelling undertaken, which are described comprehensively in the sediment modelling Joint Witness Statement. Pattle Delamore Partners (for Taranaki Regional Council) describe that uncertainties in modelling affect their ability to draw robust conclusions on effects on reefs near the mining area and optical effects. Many other parties raised concerns about uncertainties in modelling; however, we note that some comments were broad in nature and therefore potentially more reflective of a perception of uncertainty.

³³⁵ Comments from Taranaki Regional Council. Page 11.

684. Because, in the view of some commenters, many of these uncertainties remain unresolved, they argue that a precautionary approach is necessary when relying on the plume modelling to assess effects.
685. We find that model results presented by the applicant are uncertain. Uncertainties in modelling are compounded by uncertainties introduced by the selection of model outputs, e.g. the 12-hourly averaging. We consider that some uncertainties could have been alleviated by further modelling and/or extraction of more refined model results from existing model simulations. We also consider that uncertainties could have been better communicated, especially in relation to the specific effects assessments they are intended to inform and that it would have been reasonable for the applicant to do so. We find that this in itself may have reduced model-related uncertainties affecting effects assessments.

8.4 Conditions

Suspended sediment concentration limits and associated monitoring

686. Dr Phil Mitchell and Mr Luke Faithfull describe that the scale and extent of the sediment plume, including how it varies over time, is critical to assessing the consequential effects on the marine environment and have put forward conditions that provide specific SSC limits that must be complied with thus, they are explicit and 'non-negotiable'. They state that:³³⁶

Put simply, compliance with the SSC limits will ensure that sediment plume behaviour matches that assessed by TTR's experts and the mining activities do not result in SSC levels above those experienced naturally at identified sites.

687. The SSC limits specified in Schedule 2 apply to specific locations and the conditions. Dr Mitchell and Mr Faithfull describe that:³³⁷

The reason for selecting these areas is that they represent coverage of the near-field and far-field areas within the modelled sediment domain for the STB, over which the sediment plume effects will be experienced. Therefore, the effects of the sediment plume are controlled both spatially and temporally.

688. Measuring conditions at the ten sites does not confirm plume behaviour or control it temporally because key plume characteristics (e.g. duration of SSC elevations, the dynamic nature of the plume in response to fluctuations in currents) are not represented by measurements at selected sites in the dominant plume direction.
689. Similarly, conditions at the ten sites does not control the sediment plume spatially because these sites do not represent the less frequent SSC elevations that form part of the plume's spatial extent.

³³⁶ Evidence of Dr P. Mitchell and L. Faithfull (Planning) on behalf of TTRL in Response to Comments Received dated 13 October 2025 at [27].

³³⁷ Evidence of Dr P. Mitchell and L. Faithfull (Planning) on behalf of TTRL in Response to Comments Received dated 13 October 2025 at [29].

690. From the information provided with the application, we infer that the sites have also been selected to represent high-exposure locations for sensitive receptors (e.g. near key benthic habitats, inshore ecological values) at different distances and directions from the mining blocks along the dominant plume pathways.
691. Additional sites sensitive to suspended sediment (reefs) have been revealed since the sites included in Schedule 2 were identified. It is possible that additional sites will be identified during pre-commencement monitoring. The SSC limits are not effective in assessing actual effects on those sites.
692. The conditions do not require the OSPM model results to match the results of the model used during the effects assessment. SSC concentration values will be predicted by the OSPM and concentrations as well as relative concentrations among sites may therefore be inconsistent with the predictions at these sites, i.e. from the SSC levels assessed by TTRL's experts.
693. Compliance limits are set as SSC, but conditions allow turbidity to be used as a proxy for SSC when assessing against the SSC limits. While Condition 48(f) requires the proxy relationship between turbidity and SSC at the compliance sites in Schedule 2 to be established as part of pre-commencement monitoring, no performance requirements are stipulated in conditions, and no information has been presented confirming that such a relationship can be established with sufficient rigor. There is therefore uncertainty on whether turbidity measurements will enable robust assessments of compliance with the SSC limits.
694. The applicant has not described on what basis the compliance thresholds (percentiles) in Condition 5 were set and what level of protection they provide. Dr Greer states that:³³⁸
- The application does not include a standalone trigger value methodology report that explains and justifies compliance thresholds. Such a report is standard for an operation of this scale.
695. The applicant has not demonstrated that SSC above the thresholds would cause adverse effects or material harm, and equally, that changes below those thresholds would not. As such, we find that there is uncertainty on whether the percentile limits can protect the sensitive receivers from material harm.
696. We consider that compliance limits require justification and agree with Dr Greer that providing such justification is standard practice for consent applications at the scale of this project.
697. For the reasons outlined above, the Panel finds the applicant has not demonstrated that the SSC limits and associated monitoring under the proposed conditions will provide for a robust assessment of the consequential effects on the marine environment, that the SSC limits will ensure that sediment plume behaviour

³³⁸ Joint Statement of Expert Witnesses – Sediment Distribution Modelling dated 13 November 2025 at Appendix 1 page 19.

matches that assessed by TTRL's experts, or that the mining activities do not result in SSC levels above those experienced naturally at identified sites.

Operational sediment plume model

698. During expert conferencing, all modelling experts considered that the OSPM will:

need to have suitable resolution in the near-field to ensure that the detail of mounds, mining lanes and pits can be included once mining commences;³³⁹

and

need to have carefully considered which products to use for atmospheric forcing and lateral boundary conditions and there will also need to be careful consideration of the model resolution to resolve the interaction between the nearfield and specific locations in the far-field processes.³⁴⁰

699. The conditions do not specify performance objectives for these matters considered necessary by the modelling experts, specify performance criteria for the calibration and validation of the OSPM, or set out a clear process for model development, calibration and verification to ensure that these processes align with modelling best practice and to provide a basis for certification by the EPA.

700. We therefore find there is a high level of uncertainty associated with the likely performance of the OSPM and whether it will be capable of adequately achieving its objectives as stated in Condition 52, i.e.:

- a. predicting background and extraction derived SSC to inform the management of the seabed material extraction activities;
- b. distinguishing operationally derived contributions to SSC from background processes; and
- c. forecasting, as accurately as practicable, sediment plume dynamics including, but not limited to:
 - i. intensity; and
 - ii. geographic spread.

701. The OSPM is intended to be an operational forecasting tool, distinct from the hindcast model used for the assessment. The Panel considers that, properly implemented, it may assist day-to-day management. It does not, however, remove the need for the Panel to be satisfied now, on the evidence, about the scale and character of the plume and deposition against which effects are assessed.

³³⁹ Joint Statement of Expert Witnesses – Sediment Distribution Modelling dated 13 November 2025 at [65].

³⁴⁰ Joint Statement of Expert Witnesses – Sediment Distribution Modelling dated 13 November 2025 at [67].

8.5 Summary of findings on sediment distribution

702. In summary, we find that:

- a. the suspended sediment plume is best described as a mobile plume that responds to wind-driven fluctuations in currents;
- b. the plume is predicted to be mostly well-mixed through the water column (although this statement is based on limited and uncertain information);
- c. the percentile maps do not provide an adequate picture of the areas within the STB that are likely to be affected by suspended sediment. For example:
 - i. tidal and event scale peaks are masked in 99th percentile plots, which means that modelled high-percentile estimates might be higher than shown in percentile maps; and
 - ii. areas west or south of the mining site will likely experience high SSC pulses at times;
- d. bottom-water background 99th percentile maps are uncertain and potentially inadequate for contextualising bottom water SSC elevations from mining;
- e. the worst case scenario does not represent a true worst case spatial extent, and the actual extent of the worst case sediment plume is uncertain;
- f. it is uncertain whether the worst case scenario modelling reflects a worst case scenario for sensitive receptors;
- g. no quantitative information has been provided about the anticipated frequency and duration of SSC elevations;
- h. the plume modelling does not provide location-specific information on predicted SSC at locations of known benthic reefs;
 - i. within 3 km of the mining location, later effects assessments proceed on the basis that benthic communities are exposed to conditions consistent with severe physical disturbance and very high SSC, such that mortality and smothering are expected to be extensive;
 - j. beyond 3 km, the modelled deposition signal is comparatively small, but the evidence does not support treating that result as precise at receptor scale;
- k. model results do not capture inter annual variability and expected effects of climate change on hydrodynamics and thus sediment distribution; and
- l. model results are uncertain with uncertainty created by the modelling approach and the selection of model outputs.

703. We are not satisfied that the conditions as proposed would ensure that the plume and deposition will be no greater than predicted by the assessment modelling. The monitoring regime may provide useful operational data on SSC along the nominated transects and at identified sites. It is not framed to test, in any robust way, whether

the plume's spatial extent, intensity, frequency, or duration is consistent with (or exceeds) the assessment predictions.

704. Overall, the Panel is not satisfied that the proposed conditions provide a sufficiently robust and reliable framework to characterise the project's suspended sediment and sediment deposition footprint. Nor that they can verify, in practice, that suspended sediment or sediment deposition relevant to sensitive receptors will remain within an effects envelope that the Panel can confidently assess. The remaining uncertainty is not one that can be cured by conditions in their current form.

9 Underwater noise generation

705. Understanding the likely underwater noise footprint of the project is a necessary foundation for the Panel's later findings on effects, particularly for marine mammals. This section summarises the noise evidence, identifies the material limits in the modelling and baseline information, and explains what those limits mean for the reliability of the proposed conditions and monitoring as an effects management framework.

9.1 The application

706. The applicant's assessment focuses on noise generated by the crawler and the IMV, modelled without dynamic positioning (**DP**) thruster operation, on the basis that these are the principal continuous noise sources. The modelling therefore does not characterise the total project noise footprint where DP, offloading, and support vessel activity contributes materially to exposure.
707. Source levels for these core sources are derived from empirical measurements made in 1994 and 1995 of De Beers Marine's offshore diamond mining operation, which uses a seabed crawler and support vessels similar in concept to those proposed. Source levels were about 172 dB re 1 μ Pa at 1 m for the crawler and similar for the IMV. This level is described by the applicant as being significantly lower (90% quieter) than the average noise level of about 187 dB re 1 μ Pa for large vessels (i.e., 100-300 m in length) measured in New Zealand and overseas. A combined source-level cap of 177 dB re 1 μ Pa RMS at 1 m was adopted for modelling the sound sources and propagation.
708. The noise propagation modelling approach is described in separate documents, including the 2017 AECOM Report³⁴¹ and 2024 and 2025 advice notes by Tonkin and Taylor.^{342 343} The model assumes that the crawler and IMV are both running continuously to represent a worst case steady-state noise scenario. Sound pressure

³⁴¹ Acoustic modelling letter, Darran Humpheson (AECOM) dated May 2017.

³⁴² TTRL - Weighted underwater sound exposure levels, Darran Humpheson (T+&) dated 23 January 2024.

³⁴³ Trans-Tasman Resources – Acoustic Modelling – 2025, Darran Humpheson (T+&) dated 23 October 2025.

levels and sound exposure levels were calculated at specified distances and depths.

709. The modelling results indicate that, with the combined crawler and IMV constrained to a source level of 177 dB re 1 μ Pa at 1 m, broadband sound pressure levels (**SPL**) at 500 m are about 135 dB re 1 μ Pa, reducing to around 130 dB at 1,000 m, 129 dB at 1,500 m and 128 dB at 2,000 m.⁹ Corresponding sound exposure levels (**SEL**) for exposure periods between 10 seconds and 24-hours were estimated at these distances, with 24-hour SELs at 500 m predicted from 184 dB re 1 μ Pa²·s at 500 m, decreasing with distance to 177 dB re 1 μ Pa²·s at 2,000 m.
710. Noise generated periodically by other sources is assessed in a sensitivity analysis. Assuming the DP thrusters and the FSO run continuously and simultaneously, near-source levels are predicted to increase by about 7–9 dB overall, to 142 dB re 1 μ Pa at 500 m, and to shift the 120 dB contour from about 10 km to about 23 km.⁹
711. The underwater noise assessment includes comparing modelled project noise to ambient underwater sound data recorded approximately 80 km from the mining area and assessing whether the background is able to mask the noise generated by the project.⁹ The 2017 AECOM Report describes that within approximately 25 km from the activity, the mining operation will be above the background sound levels as determined by the L_{eq} noise metric. Based on the L_{95} data, which is representative of the quietest periods of background noise monitoring, the underwater noise generated by the operations will be above background levels within an area of approximately 120 km.⁹ As a comparison, the AECOM report describes that a transiting container vessel, with a source level of 180 dB re 1 μ Pa at 1 m will generate noise above lowest background levels within an area of 160 km.
712. The applicant states that it is not essential to be able to predict the actual underwater noise levels of the operation because the proposed consent conditions set the maximum allowable level of underwater noise from the operation.³⁴⁴ We accept that enforceable maximum source level limits can assist in managing effects; however, they do not remove the need for sufficient information (and an auditable compliance pathway) to assess the likely effects and residual risk.
713. Condition 12 requires that the crawler and IMV be designed and constructed so that, at full production, their total combined underwater noise source level does not exceed 177 dB re 1 μ Pa RMS (linear) at 1 m, effectively embedding the modelling source cap in the consent.
714. Condition 11 requires underwater noise measurements of the combined IMV and crawler under representative full production conditions at 10 m below the surface and at distances of 300, 500, 750 and 1,000 m from the IMV, with the combined noise at 500 m constrained to no more than 130 dB re 1 μ Pa RMS in each of three frequency bands (10–100 Hz, 100–10,000 Hz and above 10 kHz) and 135 dB re 1 μ Pa RMS overall. These measurements must be undertaken in calm sea states

³⁴⁴ Application dated 15 April 2025, page 204.

(Beaufort less than 3) without precipitation or interfering vessel noise, to ensure robust compliance testing.

715. Under the broader Environmental Monitoring and Management Plan (**EEMP**) and Technical Review Group (**TRG**) arrangements described in Section 6 of the application, underwater noise monitoring to verify compliance with the 500 m limits, together with adaptive operational responses if needed, would form part of ongoing consent compliance and environmental performance review over the life of the project.

9.2 Comments received, applicant's response to comments, independent review

716. The following parties commented on underwater noise generation:
- a. Forest and Bird (JASCO peer review and evidence of Dr Deanna Clement);
 - b. South Taranaki Underwater Club;
 - c. Araukuuku hapu;
 - d. Kanihi umutahi me ētehi atu hapū;
 - e. Ngāti Tū hapu;
 - f. Climate Justice Taranaki Incorporated;
 - g. Parliamentary Commissioner for the Environment (Rt Hon Simon Upton);
 - h. Talley's Group Ltd; and
 - i. Whanganui-Manawatu Sea Fishing Club and Pātea and Districts Boating Club.
717. Commenters consistently express concern that baseline ambient sound information is inadequate, that the noise assessment omits important sources and uses outdated or inconsistent criteria, and that the proposed conditions and management plans for underwater noise do not meet international best practice and may not be achievable in operation.
718. The applicant's responses to comments on underwater noise are primarily set out in the statements of evidence of Mr Darran Humpheson⁸ and Dr Mitchell¹².
719. Mr Humpheson provides comprehensive responses to all comments and concludes that, overall, the evidence demonstrates that TTRL's proposed activities are unlikely to result in significant additional acoustic impact on the STB environment, provided that recommended best practices and consent conditions are followed.
720. The Panel considered that an independent review was required to understand whether the application documents provide a sufficient and reliable basis for understanding the nature and magnitude of underwater noise levels and effects generated by the activity. A review was undertaken by Dr Matt Pine. Overall, the review by Dr Pine¹⁴ found that the current underwater noise assessment for the

project is incomplete, deviates from best practice, contains methodological issues, and therefore cannot be relied on to understand the nature and magnitude of underwater noise from the project. As a result, Dr Pine expressed low confidence that proposed noise conditions (particularly Conditions 11 and 12) will accurately control underwater noise levels over the 20 year life of the operation.

721. The applicant provided a response to Dr Pine's review in a supplementary statement of evidence by Mr Humpheson¹⁵. Mr Humpheson maintains that the underwater noise assessment supporting the application is robust, consistent with best practice, and fit for purpose for both setting enforceable limits and informing the marine mammal effects assessment. He remains of the view that, with the proposed limits and monitoring, the activity will not significantly change the wider STB soundscape and that the acoustic environment will be appropriately safeguarded.
722. In reaching our findings below, we considered the comments received, the applicant's response to comments, the findings of the independent review as well as the response from the applicant to the review.

9.3 Findings

723. As noted above, the ecological effects arising in response to underwater noise generated by the project are mostly addressed in section 12. This applies specifically to temporary threshold shift (**TTS**) and permanent threshold shift (**PTS**) standards and application of the consent noise limits in Condition 11.

Source level estimates

724. Dr Pine³⁴⁵ acknowledges that published source level data for the IMV and crawler are unavailable, that it is therefore necessary to make assumptions, and that estimating source levels and spectra from empirical data is common practice in underwater noise modelling.
725. He considers, however, that the source levels assumed for the IMV, crawler, DP thrusters and FSO are underestimated, poorly justified or unreferenced, and therefore unlikely to represent a typical 24/7 offshore mining operation. Specifically, he explains that he was unable to reach the same octave source spectrum for the IMV, crawler, or DP system from the De Beers' 1994 and 1995 data and that this has previously been raised during the 2017 hearing.
726. In response, Mr Humpheson states that the historic De Beers crawler measurements have been consistently applied across the 2014, 2017, 2024 and 2025 assessments. He explains that adjustments were applied to the De Beers source levels to reflect differences in particle size within the uplift pipe and anticipated technological improvements in crawler design.

³⁴⁵ All comments from Dr Pine refer to his peer review

727. Mr Humpheson also noted that the adopted nominal broadband source levels are not design guarantees, and that Conditions 11 and 12 instead establish a combined design target of 177 dB re 1 μ Pa at 1 m that will serve as the project's "noise budget".³⁴⁶ He expresses confidence that this design target is achievable, noting that actual source contributions will be confirmed once detailed vessel specifications are known.
728. The Panel accepts that estimation of noise source levels and spectra from the De Beers data is an appropriate approach for this project. However, there is uncertainty about the actual noise that will be generated by the IMV and crawler once built. Uncertainty arises from the difference in technology between the de Beers measurements (more than 22 years ago) and it is exacerbated by the concerns raised by Dr Pine, which remain unresolved. The maximum combined noise source level for the IMV and crawler of no more than 177 dB re 1 μ Pa RMS linear at 1 m specified in Condition 12 is a key assumption in the underwater noise assessment and a critical feature of the effects management framework. We comment on conditions below.

Consideration of noise sources

729. Dr Pine considers that the underwater noise assessment omits or downplays several relevant project noise sources. He points out that unmodelled sonar systems and other equipment generally emit high and sometimes very high frequency acoustic signals, which may not be as far-reaching as low frequency sounds (that they have modelled) but that can still have impacts on delphinid species, especially Hector's and Māui dolphins. He highlights that the deliberate exclusion of the DP noise from the IMV noise source model (for the reason that in normal conditions the DP system will not operate) is a very important assumption because if it is not true, the source level of the IMV will be 6 dB higher based on the applicant's own source levels in Table 1 of the 2017 AECOM report.
730. Dr Pine notes that:³⁴⁷
- The Modelling Reports deliberately exclude all movements of the support vessels (such as the FSO, CEV and AHV) in all acoustic models, based on them being intermittent. This is not best practice, and I consider it is somewhat unusual to effectively ignore those vessels given the offloading operations are an integral part of the proposed activity.
- The Taranaki VTM Application Document explains that the FSO vessel must travel at least 2km between the CEV and IMV, meaning this potentially noisy offloading activity (potentially as noisy as the IMV based on Table 1 of the 2017 AECOM report) will push the unweighted noise contours further out.
731. Dr Pine concludes that, as a consequence of these omissions, the assessment does not represent a worst case scenario, and notes that modelling realistic worst case

³⁴⁶ Supplementary Evidence of D. Humpheson for TTRL in Response to Dr Matt Pine's Peer Review dated 21 November 2025 at [14].

³⁴⁷ Review of Information on Underwater Generated Noise from the Taranaki VTM Project, Dr M Pine dated 9 November 2025 at [37-38].

scenarios is considered best practice in underwater noise assessments in New Zealand and internationally.

732. Mr Humpheson agrees that using absolute worst case modelling is appropriate for typical underwater projects in New Zealand, such as piling for new wharves or berths. However, he notes that for projects that generate noise continually over many years a realistic operational scenario, supplemented by sensitivity testing to establish the range of effects, provides a more accurate representation of potential impacts than an absolute worst case scenario where all sources operate simultaneously, which may overstate effects.³⁴⁸ He considers that this approach is robust, reliable and consistent with the intent of Condition 11 and NMFS 2024 guidance.
733. We find that an assessment restricted to the IMV and crawler as modelled sources does not represent a realistic worst case for total project noise, given the acknowledged contributions from DP and support-vessel operations.
734. Based on Mr Humpheson's sensitivity analysis, including other sources would increase the predicted sound level at 500 m from 135 dB re 1µPa to around 142 dB dB re 1µPa (2017 AECOM report). Sound levels at 1,000 m would increase to 138 dB, at 1,500 m to 137 dB, and at 2,000 m to 136 dB. Dr Pine explains that 3 dB equates to a doubling of acoustic energy, which is helpful for contextualising the 7 dB increase.
735. The Panel acknowledges the rationale advanced by Mr Humpheson for focusing on realistic long-term operational scenarios and that this is useful information to have to evaluate the impacts of the project. However, it is also important to understand the realistic worst case scenario to enable the full envelope of effects to be described and considered.
736. We accept Dr Pine's position that this approach departs from national and international best practice of explicitly modelling realistic worst case combinations of relevant sources. We consider this to be of particular importance for a novel, large-scale and long-duration offshore operation.
737. The applicant has provided limited information to enable comparison between the scenario modelled by Mr Humpheson and a realistic worst case scenario. We find that the lack of information on how often, and for what duration, the noise levels calculated in the sensitivity analyses may be reached is an important information gap. Considering the proposed 20 year mining operation, this is an important consideration.
738. We find that the limited information on noise sources other than the IMV and crawler creates a significant level of uncertainty about the magnitude of underwater noise generated by the mining operation.

³⁴⁸ Supplementary Evidence of D. Humpheson for TTRL in Response to Dr Matt Pine's Peer Review dated 21 November 2025 at [18].

Control of project noise through Condition 11

739. Dr Pine notes that Condition 11 focuses solely on a broadband limit at 500 m for the combined IMV and crawler and does not include other project vessels, even though the modelling reports presented by the applicant acknowledge that the FSO alone is a significant mobile noise source. He opines that, consequently, Condition 11 would not adequately control effects from the mining operation as a whole.
740. Mr Humpheson confirms that Condition 11, since drafted in 2014, has always been intended to apply only to the combined noise from the IMV and crawler. He explains that the 135 dB re 1 μ Pa broadband limit at 500 m is derived from the 177 dB re 1 μ Pa source-level cap in Condition 12 plus an engineering allowance for the IMV and crawler only, and that including other sources would require revising both the limit values and the measurement geometry, including distance, depth and vessel orientation relative to the IMV. He further states that noise from other vessels was excluded from conditions because of their transient nature, the practical difficulties of efficiently determining compliance when ships may be more than 1 km apart, and the view that these vessels are not the predominant ongoing noise sources.
741. The Panel accepts that Condition 11 was intentionally drafted to constrain only the combined IMV and crawler noise at a fixed measurement geometry (including at 500 m), and that expanding it to incorporate mobile sources would be complex. That design choice does not make Condition 11 ineffective for what it measures. It does, however, mean Condition 11 provides only limited assurance as to the full underwater noise footprint of the mining operation, particularly where the applicant's own sensitivity analysis indicates materially higher sound levels when additional sources operate.
742. The Panel finds that it would have been reasonable of the applicant to more fully consider the consequences of constraining conditions to two sources, and the uncertainties this creates about uncontrolled noise from other vessels not subject to conditioned limits, in the effects assessment.
743. We find that there is an unacceptable uncertainty as to the likely full project noise levels achieved at 500 m from the IMV even if Condition 11 is complied with.
744. The Panel finds that TTRL could have reasonably added a condition controlling the envelope of noise generated by all combined sources of noise it considered acceptable and operationally achievable.

Response to potential exceedance of Condition 11

745. Dr Pine considers that Condition 11 is likely to be exceeded frequently. Dr Clement expresses a general concern that there is no clear mitigation pathway if noise limits are exceeded and that the conditions do not stipulate how noise would be reduced back to compliant levels once operations have commenced.
746. In response, Mr Humpheson states that the primary mitigation for underwater noise is embedded in equipment design and operational management, with Condition 12

requiring that the IMV and crawler be designed and constructed to achieve the 177 dB re 1 µPa source-level limit and Condition 13 requiring certification prior to deployment.

747. Mr Humpheson explains that underwater noise mitigation options are inherently limited compared with airborne noise control, that physical retrofits are generally impractical, and that operational measures, such as temporarily reducing production rates, adjusting crawler duty cycles, optimising DP thruster use and maintaining mechanical components, are the most feasible responses if exceedances of noise limits occur. He also does not consider it necessary for specific mitigation measures to be specified in conditions because any breach of noise limits would be addressed by the regulator through compliance processes.
748. The Panel accepts Mr Humpheson's description of the constraints on available underwater noise mitigation options. However, in light of the identified uncertainty about the actual noise that will be generated by the IMV and crawler once built and thus the critical importance of the noise limits in Conditions 11 as the primary control on underwater noise, the lack of information about operationally practical mitigation and response options demonstrating how noise could be reduced to compliant levels in the event of limit exceedances is a source of considerable uncertainty.
749. The Panel finds, therefore, that there is substantial uncertainty around both the likelihood of Condition 11 being consistently achieved in practice and the availability and effectiveness of response actions if exceedances occur, and that this uncertainty reduces confidence in the robustness of Condition 11 as an effective control on underwater noise from the IMV and crawler.

Total project noise footprint

750. Dr Pine emphasises that because Condition 11 constrains noise only at 500 m from the IMV for the combined IMV and crawler, it does not address noise levels at other locations, including areas where support-vessel noise may be dominant. He notes that:³⁴⁹

Condition 11 only limits the noise from the IMV and the crawler, when it is acknowledged in the Modelling Reports that the FSO alone is a significant noise sources that is mobile. The mobile nature of the support vessels makes compliance with a limit at a fixed distance from the IMV impracticable to monitor and meaningless control of effects of the mining operation as a whole.

751. He further notes that:³⁵⁰

The offloading operations can be as loud as the IMV according to Modelling Reports, where the FSO source level is stated as being 1dB below that of the IMV + crawler. This means a receiver could be several kilometres from the IMV + crawler noise but reaching the onset TTS threshold sooner than expected due to the FSO unloading to the CEV.

³⁴⁹ Review of Information on Underwater Generated Noise from the Taranaki VTM Project, Dr M Pine dated 9 November 2025 at [66].

³⁵⁰ Review of Information on Underwater Generated Noise from the Taranaki VTM Project, Dr M Pine dated 9 November 2025 at [67].

752. The JASCO report similarly notes that support-vessel operations are likely to create additional effect zones not captured by a simple 500 m compliance distance around the IMV.³⁵¹
753. In response, Mr Humpheson reiterates that noise from other vessels was excluded from the conditions because of their transient nature, the difficulty of efficiently determining compliance when vessels may be widely separated (could be more than 1 km apart), and their status as non-predominant ongoing sources compared with the IMV and crawler.
754. He states that he has considered the cumulative effect of transient TTRL sources through sensitivity analysis and sound level contours that extend across the wider STB.
755. The Panel finds that the conditions do not provide any direct control over noise levels at locations other than in the near-field of the IMV. Noise generated at other locations, particularly during offloading from the FSO to the CEV, is relevant to assessing the overall underwater noise effects of the project. The applicant has provided little information on which we can evaluate the full actual noise footprint and the scale and relevance of noise generated and experienced at locations other than near the IMV. The applicant is not proposing to reduce this uncertainty over the duration of consent as no conditions aimed at capping or monitoring noise from sources other than the IMV and crawler and at no locations other than 500 m (monitoring would remain over the full duration of the mining operation unless addressed through additional monitoring and or controls via conditions.

Contribution to ambient soundscape

756. Dr Pine states that the underwater acoustics material submitted with the application is entirely focused on the noise generation of the mining operation and that an assessment of how the operation will alter the existing soundscape is missing from the application documents. He points out that the application deviates from typical consent applications in New Zealand, which commonly undertake passive acoustic monitoring to characterise the existing soundscape, and notes that such monitoring is now standard practice and important for understanding the potential of a new long-term noise source to generate chronic adverse noise effects.
757. Dr Clement similarly notes the lack of baseline underwater noise data in the STB and the omission of all vessel sources and cumulative noise from the modelling and considers this a critical gap in characterising the existing environment from a marine mammal perspective.
758. In response, Mr Humpheson notes that although TTRL has not recorded ambient noise data itself, he has previously referenced other sources, including JASCO's 2017 ambient noise measurements in the STB and a 2019 JASCO study

³⁵¹ Scientific Peer Review in Relation to Underwater Noise and Marine Mammals, JASCO Applied Sciences (Australia) Pty Ltd dated 29 August 2025 at page 8.

commissioned by the Ministry for Primary Industries, and has compared these data with predicted noise from TTRL's activities.

759. He points out that Conditions 11 and 12 set absolute limits, not ambient-referenced thresholds. While he accepts that comparison of predictions with the existing environment is useful, he expresses the opinion that reliance on existing regional studies is sufficient to understand spatial and temporal variation in underwater noise in the STB and that the absence of TTRL-specific ambient data does not undermine the robustness of his assessment. Mr Humpheson also concludes that TTRL's predicted noise emissions are broadly comparable to existing ambient levels and will not significantly increase the ambient soundscape outside the mining area.
760. The Panel accepts that Conditions 11 and 12 are absolute limits that do not require quantified ambient reference levels to be enforceable and acknowledges that published regional studies provide useful context for assessing where project noise sits relative to existing levels.
761. However, the Panel also accepts the evidence from Dr Pine and Dr Clement that project-specific passive acoustic monitoring is now standard practice for significant offshore developments and that this application departs from that practice.
762. The Panel therefore finds that the absence of baseline underwater noise measurements collected by the applicant is a notable information gap that limits our ability to assess the project's contribution to the existing soundscape in the STB. Its absence requires the Panel to recognise that the information before it is uncertain and inadequate and when assessing effects, therefore, favour caution and environmental protection. That includes effects that may occur beyond the EEZ, including within the CMA where the adoption of the precautionary principle is required.

Monitoring best practice and assessment of compliance limits

763. Dr Pine, drawing on the JASCO report, considers that the measurement requirements of Condition 11 do not follow best practice, referring to arbitrary choices of measurement distances, depths and sound levels, and notes that monitoring only under calm conditions may not capture maximum sound production because DP thrusters may operate at lower power than in higher sea states.
764. Dr Pine and the JASCO report emphasise that characterisation measurements should follow standards such as ISO 17208-3 and that monitoring programmes should be conducted over suitable periods to capture variability, particularly for DP operations. Dr Clement also raises concerns that single-value noise limits may be exceeded due to operational variability.
765. In response, Mr Humpheson acknowledges the importance of adhering to internationally recognised best practice and has recommended an advice note linking underwater noise measurements and compliance assessments under Conditions 11–18 to ISO 17208-3, which he notes is directly applicable to

shallow-water environments such as the mining area. We note that Condition 18 has been amended to include the ISO-based advice note.

766. Mr Humpheson explains that although the proposed conditions specify single-value underwater noise limits, these should be understood in the context of operational variability, with compliance assessed using representative averages and uncertainty analysis rather than instantaneous peaks, and that occasional exceedances do not necessarily indicate non-compliance if the overall operational profile remains within the prescribed criteria.
767. The Panel finds that incorporating an explicit reference to ISO 17208-3 strengthens the technical basis of the monitoring conditions and moves them closer to current best practice. We accept that some variability around single-value limits is inevitable in practice. However, the Panel also notes that other recommendations from Dr Pine, the JASCO report and Dr Clement, including broadening monitoring beyond calm sea conditions, have not been fully incorporated into the conditions.
768. The Panel therefore finds that there remains uncertainty about whether the monitoring regime will adequately collect and analyse data to inform compliance decisions, especially when measured levels fluctuate around single-value limits, which we consider to be a likely scenario.
769. The applicant has provided very little information that could assist us in evaluating the significance of this uncertainty. For example, it would have been reasonable for the applicant to provide noise assessments for scenarios reflecting different realistic environmental conditions, which would have provided better information about anticipated variability in monitoring data and thus the importance of adhering to monitoring best practice.
770. Finally, while the application describes baseline underwater noise surveys, the proposed conditions do not require an underwater noise monitoring plan for compliance monitoring, which we consider is an important gap. A condition requiring a monitoring plan to be prepared and certified prior to commencement of mining would reduce that uncertainty and provide a clearer compliance pathway.

9.4 Conditions

771. For the reasons above, the Panel is not satisfied that the proposed conditions provide a sufficiently robust and reliable framework to characterise the project's underwater noise footprint or verify, in practice, that noise levels relevant to sensitive receptors will remain within an effects envelope that the Panel can confidently assess. Having considered all matters, the Panel does not consider that the remaining uncertainty can be cured by conditions.

9.5 Summary of findings on underwater noise

772. In summary, we find that:

- a. the modelled scenario does not represent a realistic worst case for total project noise because of the focus on the two continuously operating noise sources (IMV and crawler) only;
- b. including other noise sources identified by the applicant would increase the predicted sound level at 500 m from 135 dB re 1µPa to around 142 dB re 1µPa. Sound levels at 1,000 m would increase to 138 dB, at 1,500 m to 137 dB, and at 2,000 m to 136 dB. An increase of 3 dB equates to a doubling of acoustic energy;
- c. some unmodelled noise sources emit high and sometimes very high frequency acoustic signals that can impact Hector's and Māui dolphins;
- d. not explicitly modelling realistic worst case combinations of IMV, DP and support vessels departs from national and international best practice and leaves the full envelope of potential marine mammal exposure insufficiently defined;
- e. noise modelling does not characterise the wider project noise footprint, especially at locations away from the IMV where mobile support vessels may dominate underwater noise generation;
- f. the absence of project-specific baseline underwater noise measurements limits assessment of how the 20 year operation will alter the existing soundscape experienced by marine mammals;
- g. Condition 11 does not control the full underwater noise footprint relevant to marine mammals because it excludes some noise sources;
- h. there is uncertainty on the likely full project noise levels achieved at 500 m from the IMV if Condition 11 is complied with;
- i. there is uncertainty about the likelihood of actual noise levels consistently meeting Condition 11 in practice and the availability, feasibility and effectiveness of operational responses if exceedances occur; and
- j. monitoring conditions reflect some but not all available noise monitoring best practice, creating uncertainty about whether monitoring will robustly characterise actual underwater noise and support robust compliance decisions, particularly if measured levels fluctuate around single-value limits.

773. Overall, the Panel is not satisfied that the proposed conditions provide a sufficiently robust and reliable framework to characterise the project's underwater noise footprint or verify, in practice, that noise levels relevant to sensitive receptors will remain within an effects envelope that the Panel can confidently assess on the record. Having considered all matters, the Panel does not consider that the remaining uncertainty can be cured by conditions.

10 Effects on the benthic environment

774. We note that there is some overlap between effects on the water column and effect on benthic habitat because sediment processes and ecological responses occur across the sediment-water interface.
775. This section focuses on effects on seabed habitats and benthic communities, including physical disturbance, deposition, and SSC effects. Matters primarily relating to the water column are addressed in the water column section of the decision, except where they are necessary to explain a benthic effects pathway or to assess the reliability of proposed benthic protection measures.

10.1 The application

776. With regard to effects on benthic ecology, the applicant describes the following key potential impacts:
- a. loss or physical disturbance of seabed habitat and the communities associated with these habitats (referred to by the Panel as 'physical disturbance effects');
 - b. impacts on physiological processes including clogging of respiratory surfaces and feeding structures and processes for animal biota (referred to by the Panel as 'suspended sediment effects'); and
 - c. smothering of benthic habitats and communities (referred to by the Panel as 'smothering effects').
777. The applicant also describes the expected recovery of benthic flora and fauna and proposes a tiered effects management approach.
778. Based primarily on work led or co-authored by Dr Alison MacDiarmid, the applicant submits that benthic habitats and species in the project area are adapted to frequent natural disturbance, that mining will cause severe but spatially and temporally limited benthic impacts in and near the mining blocks and discharge point, and that these effects will not amount to 'material harm' at the scale of the STB if mining is confined and managed as proposed.

Physical disturbance effects at the mining site

779. Physical disturbance effects will not occur over the entire proposed project area all at once but will sequentially and gradually occur within a short distance of the mining ship as it (and the crawler) traverses the project area. The sediment will be extracted in blocks of 900 m x 600 m (0.54 km²) which on average will occur over a 30-day period. The benthic habitat in this area, including at the surface and down to the maximum cut depth of up to 11 m below the seabed, will be physically removed in totality.
780. Very close to the mining operations the effects will be extreme at the suction face and within 1-2 km of the point where sediment is returned to the seabed. The main

direct physical impact on aquatic communities will be the physical removal of sessile and sedentary taxa, as well as relatively immobile taxa, within the project area. It is likely that all larger, hard-bodied organisms will be screened out at the intake point, but larger soft-bodied organisms will be destroyed if they are drawn up through the crawler's intake pump.^{5,17} Smaller organisms such as bacteria and protozoa, and possibly some polychaete worms, will survive the extraction process and be re-deposited on the seabed in the de-ored sediments.

781. Dr MacDiarmid¹⁷ notes that the mining area is surrounded by very exposed, high energy, highly dynamic sandy environments that are subjected to frequent episodic disturbances from wave events and river inputs during high rain-fall events. Consequently, the existing benthic community in the proposed project area is dominated by short-lived, opportunistic and early successional or colonisation stages, with a very low abundance of longer-lived organisms. She notes that this community is well-adapted to disturbance.
782. The application quantifies that the area of the STB that falls between 20 and 40 m depth occupies an area of approximately 1,860 km², so approximately 0.03% of this total area would be impacted per month or 0.3% per year by the project.

Suspended sediment effects on benthic fauna and flora

783. Dr MacDiarmid describes published responses of benthic invertebrate fauna to suspended sediment exposure, including the horse mussel (*Atrina zelandica*) (adverse effects on condition observed at SSC of 80 mg/L or higher) as well as green-lipped mussels (*Perna canaliculus*), common cushion sponge (*Crella incrustans*), and large dog cockle (*Tucetona laticostata*; demonstrated adverse effects but high survival at SSC of 700-1,000 mg/L).³⁵² On recovery, she described that a third of common cushion sponges had cleared sediments two weeks after the elevated SSCs were removed.
784. Dr MacDiarmid also noted that filter feeding bivalves, especially those occurring in naturally turbid environments can compensate efficiently for a decrease in food quality over a wide range of suspended sediment concentrations.
785. Placing these studies into the context of the application, Dr MacDiarmid describes that the modelled spikes in background plus mining derived SSC on inshore reefs are much lower (by up to one or two orders of magnitude) than the concentrations reported in these studies and conclude that effects on reef fauna will be negligible and thus of no 'material harm'.
786. Suspended sediment concentrations in the plume that could potentially reach the inshore reefs, kelp beds and associated fauna are low compared with naturally occurring background levels and thus will have minimal effects. Similarly, more diverse offshore bryozoan beds would only be impacted occasionally and not at levels that would cause adverse effects.

³⁵² Expert evidence of Dr A. MacDiarmid for TTRL dated 19 May 2023 at [26(d)].

Smothering effects on benthic fauna and flora

787. The application describes that:³⁵³

Sedimentation impacts will be most prominent where the de-ored sediments are re deposited in the mining lanes. Close to the operations area suspended sediment will also settle out of the water column potentially smothering the local benthic community

788. Dr MacDiarmid does not specifically refer to smothering effects in her 2023 evidence; however, she describes that very close to wherever the mining operations are currently taking place the effects will be extreme at the suction face and within 1-2 km of the point where sediment is returned to the seabed. We assume that this description includes a combination of physical disturbance and smothering effects and that smothering effects were therefore assessed to occur within approximately 2 km of the mining location.

Recovery expectations for benthic habitats and species

789. Dr MacDiarmid notes that:³⁵⁴

The time it will take for the benthic community to recover is not able to be stated with precision as recovery rates need to be inferred from studies undertaken in more sheltered locations.

790. However, she notes that the dominance by early successional stages in the area where the actual excavation and sand re-deposition takes place means that recovery should be relatively rapid and likely to be at the scale of months to a year. Recovery of some taxa such as small polychaete worms would be expected to start within a few weeks of the mining operations moving elsewhere within the consent area. Larger, long-lived biota could take months to several years to fully recover in the excavated area.

791. An earlier ecological effects assessment by James (2016)³⁵⁵ distinguishes recovery of benthic communities experiencing sediment deposition downstream of the mining area from recovery of communities in the excavated area. He described that where sandy material will be deposited on top of the existing communities downstream of the actual excavation, recovery would be expected to be quicker because only a thin layer would settle out from the plume and because the redeposited material will be similar to that extracted in terms of particle size. In contrast, recovery in the excavated area would be expected to take longer as it would rely on recruitment and advection from outside the area, although this recovery would start as soon as the material is deposited.

792. Dr MacDiarmid also cites 2023 Kaikōura Canyon research that shows strong recovery of a deepwater benthic community after it was completely buried by sediments after the 2016 earthquake, with modelling indicating full recovery within

³⁵³ Application dated 15 April 2025, page 176.

³⁵⁴ Expert Evidence of Dr A. MacDiarmid on behalf of TTRL dated 19 May 2023 at [32].

³⁵⁵ Assessment of Ecological Effects, Dr M. James dated 2016.

about 4.5–12 years.³⁵⁶ She argues that, because the STB is shallower, warmer, sandy, and already subject to frequent disturbance from storms and land-derived sediments, recovery of seafloor communities there after mining stops should be faster than in the deep, less frequently disturbed Kaikōura Canyon.

Conditions

793. The applicant proposes a number of conditions aimed at mitigating and monitoring benthic effects, which are summarised below.
794. Management of benthic effects during operations:
 - a. Operational controls require all de-ored sediment to be discharged approximately 4 m above the seabed into pits or lanes, backfilling pits and limiting residual pit depth, and prohibit direct de-ored discharge within 300 m of the CMA boundary, thereby constraining smothering and depositional effects near identified reefs and inshore habitats.
 - b. An OSPM is proposed to be developed, validated and run in real time to forecast plume intensity and spread and to distinguish background from mining-derived SSC. This is used to manage extraction in a way that keeps SSC at and near benthic monitoring and reef sites within the Schedule 2 limits. The conditions also require independent peer review of the OSPM at specified stages, and EPA certification prior to commencement of seabed material extraction.
 - c. If monitoring or the OSPM shows SSC limit exceedance, or >10% change in SSC percentiles, extraction must cease until compliance is demonstrated to the EPA. The EEMP must also identify ‘operational responses’ (e.g. relocating the IMV, altering production) to avoid or mitigate unacceptable benthic impacts.
795. Core benthic limits and spatial controls:
 - a. Benthic ecology Condition 7 sets outcome limits at ten key benthic monitoring sites (Schedule 4): no more than a 5% reduction in overall macrofaunal/floral abundance, number of taxa, or total biomass relative to pre-commencement baselines, allowing for natural variation.
 - b. These sites are described as representing “coverage of the near-field and far-field areas within the modelled sediment domain for the STB, over which the sediment plume effects will be experienced. Therefore, the effects of the sediment plume are controlled both spatially and temporally”.³⁵⁷
 - c. Sediment Conditions 5–6 cap SSC at ten monitoring sites (Schedule 2) via 95th percentile SSC limits and allow at most a 10% change in the 25th, 50th, and 80th percentiles, with exceedance triggering cessation of extraction until compliance is demonstrated.

³⁵⁶ Rebuttal Evidence of Dr A. MacDiarmid on behalf of TTRL dated 23 January 2024 at [20]

³⁵⁷ Evidence of Dr P. Mitchell and L Faithfull (Planning) for TTRL in response to comments received dated 13 October 2025 at [29].

796. Reef and wider benthic monitoring and management:

- a. Pre-commencement-monitoring (PCEMP, Conditions 47–51) includes subtidal and intertidal biology and subtidal and intertidal reef surveys, plus benthic sampling at multiple stations around the project area, to characterise infauna, epifauna, reef communities and sediment characteristics before mining. In response to comments, multi-beam mapping within a distance of 3 km from the boundary of the extraction area was added to pre-commencement monitoring to identify all reef habitat within that area.³⁵⁸
- b. Benthic and reef monitoring (EEMP, Conditions 54–56) for the duration of the mining, using fixed sites and gradient designs to detect spatial patterns in benthic effects and to test compliance with the 5% benthic limits and SSC thresholds. The TRG is proposed to review monitoring outputs and provide recommendations, including on refinements to monitoring design and whether the monitoring results indicate that the response measures specified in the conditions should be implemented. Where certification is required (for example for the OSPM and specified plans/reports), the conditions require the relevant material and TRG input to be provided to the EPA for certification or confirmation steps.
- c. Benthic ecology monitoring sites in Schedule 4 will be undertaken at offshore banks and reef associated locations (e.g. South Traps, North Traps, Graham Bank, Rolling Grounds, gradient sites from Location A towards Whanganui), to measure benthic and reef responses to the plume and deposition at identified ecologically important features.

797. Benthic recovery objectives and monitoring:

- a. Condition 8 requires that, no later than 5 years after completion of extraction within 2 km of any location, macroinfauna communities at that location must have ‘recovered’, defined as being within 15% of average pre-mining total abundance, biomass and species richness (allowing for natural variation), or annual monitoring must show recovery is on track.
- b. A dedicated Post Extraction Monitoring Plan (Condition 57) must be certified and implemented for 5 years after mining ceases, to track recovery of the benthic environment (including heavy metals) in and around the consent area using the same benthic and reef related indicators and sites. If monitoring shows recovery is not on track, the consent holder must provide expert analysis of causes, propose measures to enhance recovery, and explain how recovery will be achieved within 5 years.
- c. A Final Post Extraction Monitoring Report must then synthesise all recovery data and assess whether benthic recovery objectives have been met, including at key benthic and reef sites, with TRG input on conclusions and any recommendations.

³⁵⁸ Response to comments Dr Mitchell/Mr Faithfull

10.2 Comments received, applicant's response to comments, RFI, JWS

798. The following parties commented on benthic effects:

- a. Various councils including Horizons District Council (comments supported by Pattle Delamore Partners technical assessment), Taranaki Regional Council (comments supported by Pattle Delamore Partners), South Taranaki District Council; Whanganui District Council, Rangitīkei District Council (supports and aligns with Taranaki Regional Council's written comments), New Plymouth District Council, which explicitly supports and adopts Taranaki Regional Council and South Taranaki District Council's environmental concerns;
- b. Te Ohu Kaimoana;
- c. Te Kāhui o Taranaki Trust;
- d. Te Kāhui Maru Trust;
- e. Ōkahu-Inuawai hapū / trust;
- f. Ngāti Hauā Hapū (Taranaki);
- g. Ngāti Manuhiakai hapū;
- h. Kanihi-Umutahi me ētahi atu hapū;
- i. Te Rūnanga o Ngāti Ruanui;
- j. Te Tōpuni Ngārāhu Trust;
- k. KASM and Greenpeace (through the evidence of Dr Tara J. Anderson);
- l. Whanganui-Manawatu Sea Fishing Club, Pātea & Districts Boating Club, Castlecliff Club Fishing Adjunct and associated recreational fishing / boating groups (combined 'WMSFC and other boating clubs' comments);
- m. Parliamentary Commissioner for the Environment;
- n. Te Ohu Kaimoana;
- o. Talley's Group Limited;
- p. Ngā Motu Marine Reserve Society;
- q. Climate Justice Taranaki Incorporated;
- r. Te Kaahui o Rauru Trust (Te Kāhui o Rauru) – via their comment forms / iwi submissions;
- s. Opunake Boat and Underwater Club;
- t. NZ Rock Lobster Industry Council Ltd;
- u. Te Rūnanga o Ngāti Mutunga – via comment forms and joint iwi opposition in the Taranaki rohe; and
- v. South Taranaki Underwater Club – referred to in the combined recreational diving/fishing material.

799. The predominant view expressed by commenters is that the project presents unacceptable, inadequately characterised and potentially irreversible risks to benthic habitats and species, including unique soft sediment and rocky reef systems that underpin fisheries, biodiversity, cultural values and ecosystem functioning. Commenters note that key knowledge gaps remain about benthic communities, reef locations, plume behaviour and long-term effects, so it cannot be reliably concluded that material harm or serious adverse effects on benthic ecosystems will be avoided. Comments are generally critical of the applicant's proposed conditions and monitoring framework and call for stronger, clearer and longer term requirements.
800. Several parties referred in their comments to rocky reef information presented in Morrison et al. (2022) and Dr Anderson provided visual presentations of data and photographs presented in Morrison et al. (2022), including Figure 10 below, that the Panel considered helpful for understanding the existing rocky reef environment in the STB.

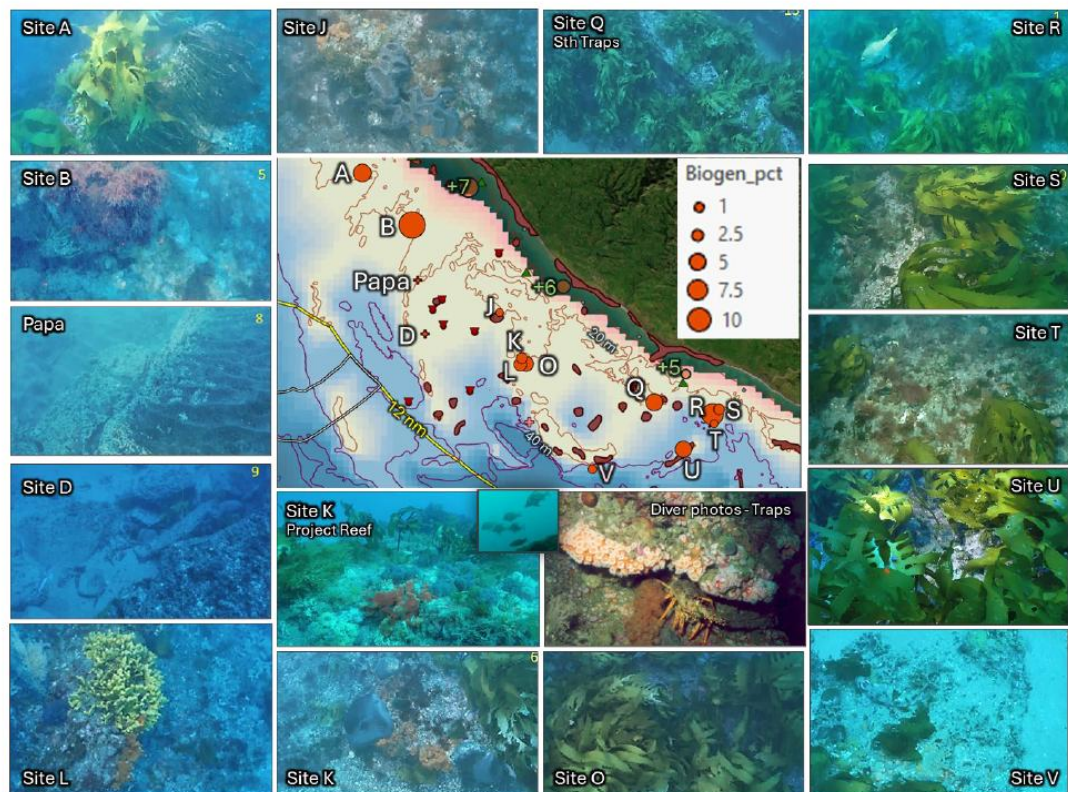


Figure 10. Photographic examples for the 14 rocky reefs (Sites A-V) verified by Morrison et al. (2022). Also shown are the rocky reef locations and the percentage cover of biogenic habitats at each site (orange circles, Biogen_pct). Site K = Project Reef, Site Q = South Traps. (Source: Evidence of Dr T. Anderson for KASM / Greenpeace dated 6 October 2025, Appendix, Figure 4)

801. The applicant's responses on sediment distribution modelling are primarily set out in the statements of evidence of Dr MacDiarmid²¹ and Dr Mitchell¹² and the tabulated responses to specific commenter groups. The applicant's responses are largely reflected in our findings.

802. In summary, the applicant accepts that mining will cause substantial local disturbance and removal of benthic habitats and communities within mined blocks, but argues these habitats are already frequently disturbed and will recover after mining stops. Regarding the protection of rocky reefs and sensitive benthic fauna, the applicant refers to proposed multi-beam mapping to 3 km around the mining area as part of pre-commencement monitoring, deferred mining near the CMA boundary for at least five years, and SSC limits at identified locations, including some reefs. SSC limits are contextualised through research findings of benthic fauna response to suspended sediment exposure. The applicant also explains that desalination brine will only slightly increase salinity and be quickly diluted in the energetic setting.
803. On uncertainty, the applicant maintains that the existing modelling and data, though partly older, constitute the best available information, with conservatively defined worst case scenarios and a large pre-commencement and operational monitoring programme to manage residual risk. The planning evidence emphasises the limits-based consent framework with quantitative SSC percentile limits at ten monitoring sites, numerical limits for benthic effects and explicit five year recovery targets and operational and management responses if limits are exceeded.
804. Cultural concerns of iwi and hapū are acknowledged, but the applicant considers biophysical benthic effects to be minor or localised and tangata whenua-focused conditions address both physical and some intangible cultural dimensions.
805. Overall, the applicant maintains that benthic effects will not amount to material harm.
806. The Panel considered that further information was required to clarify information presented by some parties on benthic habitats and species in the STB. A targeted RFI was issued to South Taranaki Underwater Club, Wanganui Manawatu Sea Fishing Club and Pātea and Districts Boating Club, Te Korowai o Ngāruahine Trust, Ngāti Hāua Hapū, Ngāmotu Marine Reserve Society, and KASM and Greenpeace.
807. The information provided by parties collectively describe diverse benthic habitats across the STB, including sandy, muddy and mixed sediments, extensive rocky reefs and banks such as the Traps, Graham Bank, Pātea Banks, and numerous smaller reefs. These habitats support rich benthic flora (including kelp forests) and abundant fauna, notably sponges and bryozoan fields, polychaete worm beds, and a wide range of demersal and reef-associated fish such as blue cod and snapper, as well as benthic-feeding sharks and rays. South Taranaki Underwater Club collated data and photographs of benthic habitats and associated species, including the collage of photographs reproduced as Figure 11 below, which the Panel considered helpful for understanding the existing rocky reef environment in the STB.

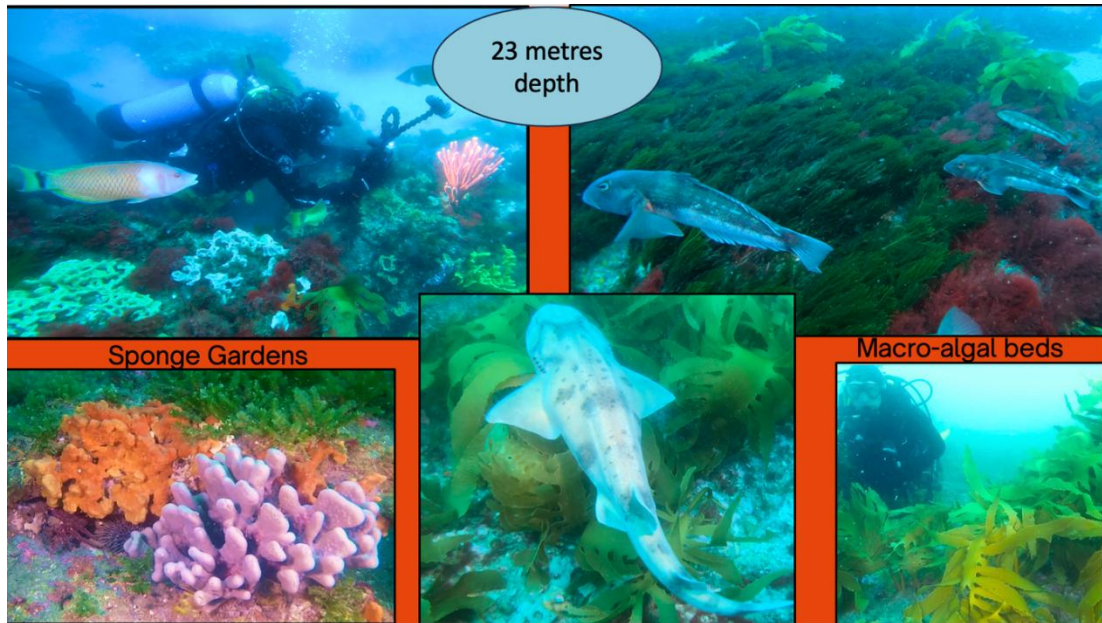


Figure 11: Collage of photographs showing sponge gardens, macrofauna, blue cod, scarlet wrasse and other benthic reef features provided by South Taranaki Underwater Club in response to Minute 14 (page 34).

808. Local and iwi observations report generally robust offshore reef communities (with sponges and anemones) but also significant changes over time, including burial or silting of some shallow reefs, increased turbidity and sediment plumes after storms, shifts in species composition, and a decline in customary shellfish abundance and size, which together have reduced the reliability of traditional mahinga kai sites. Some benthic habitats are identified as nursery and spawning grounds and biodiversity hotspots that underpin coastal fisheries.
809. Culturally, benthic habitats are central to iwi and hapū identity, kaitiakitanga and manaakitanga. Recreationally they are core to diving and fishing, with respondents stressing that ongoing sediment and pollution pressures threaten both ecological integrity and long-standing customary and recreational uses of the seabed.
810. To ensure the Panel had an accurate understanding of any outstanding agreements and disagreements among experts, expert conferencing on the topic of benthic habitats and species was directed.
811. The conference was attended by the following experts:
 - a. Dr Alison MacDiarmid on behalf of TTRL;
 - b. Dr Becky Shanahan on behalf of Taranaki Regional Council and Horizons Regional Council;
 - c. Dr Tara Anderson on behalf of KASM and Greenpeace; and
 - d. Dr Gregory Matthew Barbara on behalf of Seafood NZ.

812. Matters discussed during expert conferencing are addressed in our findings below.

10.3 Findings

Distribution and value of benthic habitats in the STB

813. The STB comprises a complex mix of benthic habitats and species, including subtidal reefs that have been a key focus of many parties and experts. There are four main habitat types in the STB and area potentially affected by the mining operation:

- a. **Soft sediment sands and muds** dominate most of the inner and mid-shelf and almost all of the nearshore area from Hāwera to Foxton. Seabeds are typically well sorted fine to medium sands in rippled or sand wave bedforms, with very low mud except in more sheltered southern and near Whanganui sites where fine muddy sands occur.

Soft sediment habitats support low densities and diversity of macrofauna (polychaetes, small bivalves, gastropods, hermit crabs, sand dollars, small crustaceans). Communities are dominated by small, motile deposit feeders, scavengers and opportunistic suspension feeders adapted to frequent disturbance by storms and naturally high suspended sediment.

- b. **Wormfields** occur extensively on the mid-shelf, including much of the proposed project area, where the sabellid *Euchone* sp. A forms dense tube fields in flat, fine-medium sands between about 30–50 m. Similar wormfields extend north and south of the project area.

Wormfields have been identified as important for habitat structure where *Euchone* tubes stabilising the upper sediment, trap fine particles and provide structure and feeding surfaces that increase local infaunal abundance and alter sediment properties. They form a distinct community type that occurs widely in and near the proposed mining area.

- c. **Biogenic shell and bryozoan rubble** habitats occur offshore beyond ~45–50 m. Dog cockle beds and shell hash are found at ~44–69 m, grading into deeper bryozoan rubble with branching bryozoans, sponges and ascidians below ~60 m. These habitats lie largely outside the project area.

These habitats have very high ecological value as suspension feeder systems, with high epifaunal and infaunal richness and biomass, complex three-dimensional structure, and strong functional roles (filtering, biogenic habitat provision, carbon and nutrient cycling).

- d. **Rocky reefs and outcrops** are scattered and small on the inner shelf and nearshore. Reefs have been increasingly mapped over the past decade but there is agreement that more reefs are likely present but unmapped, including on the mid-shelf downstream of the project area, which has not been surveyed to a comparable standard (and where Morrison et al. (2022) indicates reef habitat is more extensive than the presently mapped footprint suggests).

Rocky reefs act as biodiversity “islands” in a soft-sediment matrix, with much higher abundance and diversity of benthic invertebrates and macroalgae than

surrounding sands; they provide shelter, feeding habitat and likely nursery grounds for reef-associated fishes (including blue cod and other taonga and fishery species).

Reefs differ in relief and substrate type:

- i. Low-relief, flatter reefs are largely low-lying rock with minimal vertical height and relatively low biogenic cover, dominated by sponges that are comparatively tolerant of high turbidity and periodic sediment burial and scour.
- ii. Raised, high-relief reefs support late-successional biogenic communities, including *Ecklonia radiata* kelp and *Caulerpa flexilis* on slopes and ledges, plus diverse bryozoans, sponges and other sessile invertebrates. These assemblages are considered more sensitive to elevated suspended sediments and fine sediment deposition.

814. Culturally and customary valued taonga species associated with these habitats include pātiki/flounder, rig and school shark (nursery areas on soft sediments), surf clams, tuangi/cockles, and potentially deepwater geoduck *Panopea smithae* in offshore shells beds. Iwi, hapū and Māori organisation evidence emphasises the importance of healthy benthic habitats for mahinga kai and kai moana. These benthic pathways are also the ecological substrate for fishing effects (including Māori commercial and customary interests) assessed elsewhere, because habitat loss, altered sediment structure, and near-field contamination risk may, depending on extent and duration, translate into changes in availability, reliability, and accessibility of fishery resources.
815. Recreationally valued habitats include nearshore rocky reefs and adjacent sands used by divers and spear fishers, particularly for blue cod, butterfish, moki, crayfish and reef associated schooling fish. Benthic habitats and species in the STB underpin commercial fisheries by providing feeding grounds, nursery areas, and biogenic structure for a range of quota and non-quota species.
816. The ecological value of benthic habitats and species can also be considered in the context of descriptors used in New Zealand Coastal Policy Statement (NZCPS) Policy 11.
817. Dr Anderson's describes *Euchone* sp. A wormfields on Pātea Shoals as a unique, sediment-stabilising biogenic habitat.³⁵⁹
- a. found only in a narrow grain-size band;
 - b. not documented elsewhere in New Zealand; and
 - c. vulnerable to physical removal, altered sediment texture and changed seabed topography from mining.

³⁵⁹ Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [25(a)] and [26(b)].

818. This indicates that these features may meet the descriptors of naturally rare ecosystems under NZCPS Policy 11(a)(iii) and areas containing nationally significant examples of indigenous community types under 11(a)(v).
819. Dr Anderson also describes various mid-shelf rocky reefs habitats and associated species in one or more of the following ways:
- a. supporting dense sponges, bryozoans, kelp (*Ecklonia radiata*), *Caulerpa flexilis* and other habitat-forming taxa;
 - b. functioning as “islands of biological diversity” with much higher richness than surrounding sands, citing Dr MacDiarmid’s 2023 evidence;
 - c. providing nursery grounds for juvenile blue cod and other demersal fish; and
 - d. more sensitive downstream taxa, particularly raised reef species (*Ecklonia*, *C. flexilis*, and other reef taxa), or fragile frame-building species such as *Galeopsis* (bryozoan).
820. Morrison et al. (2022) made several observations on the ecological value of known and potential habitat on Pātea Bank, including that:
- The unusual distance of these reef systems from shore, occurring on a wide shallow continental shelf, makes them relatively unique in the New Zealand context, and may have protected them (in part) from land-based impacts seen elsewhere around New Zealand. They are worthy of careful management by the TRC, and other governance entities.³⁶⁰
- In terms of ecological function, four sites provided a habitat function for juvenile blue cod (sites D, K, U, and V), although the small spatial extent of Site K limits its possible contribution to local blue cod populations. Biogenic habitat features that supported these nursery functions were sponge gardens, dog cockle shell drifts/beds, some reef edges, and some cobble and shell zones adjacent to reef edges. Other ecological functions are not included here (e.g., primary production, oxygen production, nutrient recycling, provision of prey for larger predators) but may also be significant.³⁶¹
- Finally, there were also a range of unusual seafloor bedforms in some areas, that may be soft-sediment based, that were partially mapped with multibeam. Camera ground-truthing of these sites is likely to produce novel new habitat types, with new species associations; some of which may (or may not) be structured in part by the presence of rock/reef components.³⁶²
821. Rocky reef systems are listed as a specific example of ecosystems and habitats recognised under NZCPS Policy 11(b)(iii). The descriptions of rocky reef habitats, vegetation and ecosystems by Dr Anderson and Morrison et al. (2022) provide specific information about the features of rocky reefs that indicate that several rocky reef areas align with descriptors of indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable to modification under NZCPS Policy 11(b)(iii), habitats in the coastal environment that are important during the vulnerable life stages of indigenous species under 11(b)(ii), habitats of

³⁶⁰ Offshore subtidal rocky reef habitats on Pātea Bank, South Taranaki, Morrison et al, 2022 at page 8

³⁶¹ Offshore subtidal rocky reef habitats on Pātea Bank, South Taranaki, Morrison et al, 2022 at page 158

³⁶² Offshore subtidal rocky reef habitats on Pātea Bank, South Taranaki, Morrison et al, 2022 at page 193

indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes under 11(b)(iv), and ecological corridors, and areas important for linking or maintaining biological values identified under this policy under 11(b)(vi).

Effects on soft-sediment habitat

822. All benthic experts participating in experts conferencing agree that sedentary biota sucked up during the mining operation will be killed³⁶³ and that:³⁶⁴

within and close (<2-3 km) to the active mining area most, if not all, benthic invertebrate species would be either mechanically killed, buried, smothered or overcome by high levels of SSC.

823. They also agree that the main mechanisms of impact from suspended sediment on benthic invertebrates are:

- a. clogging of gills and effects on feeding mechanisms of invertebrates with some species being more susceptible than others. This may impact recovery rates of different species and community structure, including potential for opportunity of invasive species to colonise cleared substrate; and
- b. mobile species may be displaced or avoid areas with increased suspended sediment concentrations from the plume.

824. All benthic experts agree that soft sediment habitats and associated species are well described but there is uncertainty around the ecological significance of the *Euchone* wormfields in the mining area. Drs Anderson, Barbara, and Shanahan express that there is uncertainty around their recovery feasibility and time and a possibility that recovery may not form comparable functional habitats, particularly in regard to seabed stability.

825. Dr Anderson notes that in or on any of the strongly sloping habitats with similar depths (45 m) no wormfields were found and that this indicates an altered geomorphology, like the one expected after mining, that may not be suitable for wormfield zones.³⁶⁵

826. She explains that:

While communities in sandy, high-energy environments are often frequently disturbed and remain in early transitional stages, the recovery of *Euchone* wormfields may be far more complicated. Although individual worms of this species would be expected to recolonise once operations cease, the development of extensive sediment-stabilising bedforms will likely depend on specific precursor conditions that may not naturally return. ...³⁶⁶

and

³⁶³ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [19]

³⁶⁴ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [40]

³⁶⁵ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [54]

³⁶⁶ Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [25(a)].

DRAFT DECISION

The consequences of removing these wormfield habitats are potentially important. Loss of sediment-stabilising structures is likely to increase sediment mobility³⁶⁷

827. Drs Anderson, Barbara, and Shanahan consider that communities within the project area and nearfield should recover relatively quickly in terms of biodiversity indicators, with the important caveat that due to the “massive change in geomorphology of the seabed, some species will resettle but may not represent the original community structure”.³⁶⁸
828. Dr Anderson explains the ecological importance of these changes as follows:³⁶⁹
- Given the apparent uniqueness of these wormfields to the Pātea Shoals region, and the absence of comparable habitats elsewhere in New Zealand, their loss could carry significant long-term ecological consequences. This uncertainty, together with the worms’ reliance on narrow sediment conditions and association with flat seafloor bedforms, underscores the need for a high level of caution, and given the unknown timeframe for recovery and the likelihood that recolonisation may be precluded, it cannot be concluded that their removal would result in no material harm.
829. Dr MacDiarmid considers that, overall, seafloor communities in the PPA are likely to recover (“within 15% of total abundance, biomass, and species richness pre-mining”) within 1 year for most species and within a few years for the larger, longer-lived starfish and gastropods. She refers to recent evidence from the Kaikoura Canyon and the Chatham Rise that indicate recovery in 1-12 years after disturbance and that the warmer, shallower sandy waters of the STB where disturbance by storm events and land derived sediments is common, recovery of the seafloor community, once mining in the immediate area has stopped, should occur more quickly.
830. All experts agree that the metrics to be assessed under the consent conditions could not detect if post-recovery communities comprised different fauna. Dr Anderson considers that a completely alternate state could occur with similar total abundance, biomass and species richness (and therefore meet the requirement of Condition 8³⁷⁰) but be composed of a very different fauna “e.g. two communities can have 7 species with the same overall abundance and biomass of individuals, but different ecosystem function”.³⁷¹
831. We acknowledge that, as pointed out in the applicant’s memorandum dated 21 November 2025, the benthic experts incorrectly describe the depth of pits and height of mounds able to occur in the project area. We have considered that in our reliance on the relevant sections of the Joint Witness Statement.
832. We find that the soft sediment habitat in the mining area will likely be recolonised by benthic invertebrates within a few years post mining; however, that the post-recovery benthic community composition and structure will most likely be substantially different from what it is now. As agreed by all benthic experts, any benthic community that meets the metrics under Condition 8 (“macroinfauna

³⁶⁷ Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [35(a)(vii)].

³⁶⁸ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [52]

³⁶⁹ Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [25(a)].

³⁷⁰ In the Joint Witness Statement experts refer to Condition 57 instead of Condition 8.

³⁷¹ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [90]

communities at a specified location are within 15% of the average pre-mining total abundance, biomass and species richness”) would identify this as recovery having occurred. However, the post-recovery community could comprise different species than the pre-mining community and perform different ecosystem functions.

833. Because the ecological value of the wormfields is poorly understood, the ecological significance of a changed post-recovery benthic community is uncertain. Also uncertain is whether *Euchone* worms will ultimately reestablish or whether the change in community composition will be permanent. However, the Panel notes that, while not directly applicable in the EEZ, their alignment with two NZCPS Policy 11(a) descriptors is relevant and highlights that this area may be of greater ecological importance than assessed by the applicant.
834. We place particular importance on the possibility of the post recovery soft sediment habitat to have reduced seabed stability and increase sediment mobility. This means that resuspension of sediment into the wider environment may continue well beyond the time predicted by the applicant. Benthic habitats and species ‘downstream’ of the bottom-water currents in the mining area may therefore experience elevated SSC and sediment deposition for an unknown duration.
835. The Panel also notes that the effects of pit migration and the risk of flow liquefaction (discussed later in section 16) are likely to persist well beyond the consent term, continuing to affect, hinder the recovery of, and periodically re-disturb the wormfields.
836. Having considered the expert evidence, we find that the changes described (including altered community structure and reduced seabed stability) are capable of constituting material harm.
837. Given the predicted duration and likely magnitude of impact as well as the uncertain recovery and ecological value of the *Euchone* wormfields, the Panel finds that the predicted effects on wormfields from sediment disturbance constitute material harm.
838. The possibility of ‘recovered’ soft-sediment habitat comprising a changed community structure and providing reduced seabed stability and the associated ecological consequences in terms of both the ecological value of the habitat and the continued supply of sediment into the wider environment have not been assessed by the applicant. As noted by Dr Anderson:³⁷²

The proposal does not appear to consider these consequences, nor the potential time required for recovery of these sediment-stabilising habitats and the ecological functions they provide

839. We have considered whether material harm could be mitigated or remedied through modifications of conditions. We find that Condition 8 could be modified to include effective measures of community structure. Also, we find that other conditions could be created or modified to ensure the consequences described above would be detected. Finally, monitoring could be extended beyond the 5 year period noting the

³⁷² Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [37(c)(ii)].

applicant's requested consent duration provides for post-mining monitoring over a longer period.

840. However, even if changes in community structure, reduced seabed stability, release of sediment from the mining site or effects on nearby benthic habitats arising from the release of sediment could be detected, the evidence does not identify any practicable measures that would reliably remedy or mitigate those effects once they occur, other than avoidance (including cessation or spatial exclusion) before the harm is caused. Recovery of the soft-sediment habitats occurs through natural processes. No evidence was provided of an intervention that could reliably support the re-establishment of the *Euchone* wormfields (or equivalent sediment-stabilising function) or stabilise an alternative post-mining benthic community within a defined timeframe.
841. Accordingly, applying s 61 of the EEZ Act, including the obligation to favour caution and environmental protection where information is uncertain or inadequate, we are not satisfied that excavation of the mining pit and associated seabed reworking would avoid material harm to soft-sediment habitat function and stability. Nor are we satisfied that conditions could be imposed to remedy or mitigate that harm once it occurs (beyond avoidance measures that would materially constrain the activity).

Status of rocky reefs in the STB

842. All benthic experts participating in expert conferencing agree that the mid-shelf area was not well surveyed as this was not a target in TTRL's baseline surveys.³⁷³ They consider this was better surveyed by targeted multi-beam and video surveys in the Morrison et al. (2022) report; however, note that these surveys were not used to assess mining effects.³⁷⁴
843. Dr MacDiarmid acknowledges that it is "highly likely that other areas of rocky reef occur in this area inshore of the PPA and may be known to the local fishing and diving community but remain to be formally mapped".³⁷⁵
844. Potential rocky reefs have been identified in close proximity to the mining area, including in the EEZ within 3 km of the mining area (Morrison et al., 2022). Due to the lack of survey effort, it is possible that additional rocky reef may be present at other locations with this area.

Effects on rocky reefs - potential rocky reefs within 3 km of the mining area

845. As noted above, all benthic experts participating in experts conferencing agree that:³⁷⁶

within and close (<2-3 km) to the active mining area most, if not all, benthic invertebrate species would be either mechanically killed, buried, smothered or overcome by high levels of SSC.

³⁷³ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [12]

³⁷⁴ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [12]

³⁷⁵ Evidence of Dr A. MacDiarmid for TTRL dated 19 May 2023 at [17].

³⁷⁶ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [40]

846. Dr MacDiarmid notes in her response to comments (October 2025) that:³⁷⁷

The reefs within 2-3 km of the PPA are at the highest risk from the effects of the sediment plume when mining takes place at its northern end as they will be exposed to higher levels of suspended sediments for longer periods

847. She also refers to the Sediment Plume Modelling and Effects on Benthic Ecology Joint Witness Statement (dated 23 February 2024), which records Drs MacDiarmid and Barbara stating that:³⁷⁸

if there are large reefs close (within 1-2 km near field plume modelling area) to the proposed mining site, there is potential for significant ecological impact.

848. The threshold for material harm is well below that of significant ecological impact. Consequently, we find that, should any mining take place within 3 km of rocky reef habitat, material harm will occur. Given the predicted level of sediment disturbance and sediment impact (from suspended sediment and sediment deposition), we find that mining within 3 km of any potential rocky reef habitat within 3 km of the mining area would constitute a significant adverse effect³⁷⁹ in the CMA.

849. As the location of mining changes over the duration of consent, the impact of sediment would change; however, whether the level of harm would reduce once the mining location moves farther away would depend on the ability of the rocky reef habitat to recover.

850. The applicant's information on recovery from sediment exposure almost exclusively applies to soft sediment habitats. Dr MacDiarmid provides no specific information on how rocky reef communities would recover if they were adversely affected; instead, she assumes that material harm will be avoided so that recovery on reefs should not be required.

851. In the absence of information on potential recovery of rocky reefs within 3 km of the mining area and the long-term exposure to sediment, even if from a greater distance than 3 km, we find that should any mining take place within 3 km we are not satisfied that mining within 3 km of rocky reef habitat could proceed without a material risk of material harm, and any such harm would be likely to persist at least for the duration of exposure and potentially beyond, given the lack of recovery evidence.

852. On the evidence before us, we also find that any harm caused by the mining will not be capable of being effectively reduced (be it via avoidance, remediation, mitigation

³⁷⁷ Evidence of Dr A. MacDiarmid for TTRL in Response to Comments Received dated 13 October 2025 at [26].

³⁷⁸ Joint Statement of Expert Witnesses - Sediment Plume Modelling and Effects on Benthic Ecology dated 23 February 2024 at [52].

³⁷⁹ The Panel considers significant adverse effects as those that result in a substantial degradation of the affected ecosystem component (e.g., habitat, species) or values and serious ecological consequences. In the determination of whether an ecological consequence is serious, the Panel had regard to: the value, functional importance, sensitivity and resilience of the affected ecosystem component or value (including, where relevant, its threat status); the magnitude and spatial extent of change (including loss, modification, or fragmentation); the duration and reversibility of effects; and the impact on species populations.

or another management response). In this regard, once the harm is caused, it will be up to nature and natural processes to find a new level of dynamic equilibrium. It follows that we are of the opinion that considerable care is needed to both understand the nature and extent of all of the impacts that are expected to arise, and then to be confident with the magnitude and duration of the potential impacts.

853. This heightens the importance of an effects assessment that is sufficiently location-specific and robust to enable the Panel to be satisfied, on the best available information, that material harm can be avoided.

854. In response to concern about incomplete reef mapping and plume uncertainty in close proximity to the mining area, the applicant now proposes surveying the area surrounding the mining area boundary as part of pre-commencement monitoring through new Condition 48(g):

Provide data from multi-beam swath mapping to identify all reef habitat within a distance of 3 km from the boundary of the extraction area.

855. A new requirement was also added to the EMMP via new Condition 55(h) that stipulates that the EMMP must, as a minimum

Identify whether operational responses are necessary to avoid material harm to any reef habitat identified by the pre-commencement bathymetric survey;

856. A third new condition stipulates that extraction activities within 3 km of the boundary of the CMA must not commence for at least 5 years following the commencement of extraction activities (Condition 30A). Dr MacDiarmid notes that:³⁸⁰

this means that extraction closer to any potentially sensitive areas (e.g. reefs landward of the mining area in the CMA) would not occur until there was a considerable quantum of monitoring data available and effects within 2 km that were of concern to Drs MacDiarmid and Dr Barbara and 3 km mentioned by Dr Dearnley, would not arise.

857. Dr MacDiarmid expressed that it is her opinion that:³⁸¹

if the above conditions [new Condition 30A, 48(g), and 55(h)] are included in the proposed conditions, rocky reef habitats in the STB will not be significantly affected by the proposed mining operations and that the concerns raised by submitters will not eventuate and can be set aside.

858. While this is Dr MacDiarmid's opinion in response to submissions, it does not displace the Panel's obligation to reach its own conclusion on whether the project (as conditioned) would protect the environment from material harm, particularly given the mapping, exposure and recovery uncertainties addressed. We find that the failure of the applicant to adequately survey the area within 3 km of the mining area, despite it being identified in February 2024 as an area with potential for significant ecological impact on reef habitat is a critical information gap.

³⁸⁰ Evidence of Dr A. MacDiarmid for TTRL in Response to Comments Received dated 13 October 2025 at [28].

³⁸¹ Evidence of Dr A. MacDiarmid for TTRL in Response to Comments Received dated 13 October 2025 at [29].

859. Based on the information provided in Morrison et al. (2022) we consider there is a credible prospect (and therefore a material risk) that rocky reef habitat is present in the EEZ within 3 km of the mining area. New Condition 30A would not assist with potential rocky reef habitat in the EEZ.
860. For the reasons outlined above, if that were the case, we consider that the rocky reef habitat would experience material harm for at least the duration of the operation.
861. The applicant relies on pre-commencement monitoring to fill information on habitat characteristics in the vicinity of the mining area. That approach does not, of itself, remedy the absence of an adequate effects assessment at the decision stage.
862. Should rocky reef habitat be found during pre-commencement monitoring, the applicant proposes to identify whether operational responses are necessary to avoid material harm to any reef habitat identified. They provide no information on
- a. how they would identify the risk of material harm;
 - b. operationally feasible responses available for avoiding material harm; and
 - c. options available for monitoring and assessing whether material harm has been avoided.
863. We find that the approach proposed by the applicant to identify rocky reefs and operational responses to manage any effects on those reefs during pre-commencement monitoring inappropriately defers an assessment of effects in a way that conflicts with the obligation to favour caution and environmental protection. Further, the nature of the effects assessment would need to be different and in parts more comprehensive than the assessment provided with the application.
864. No evidence identifies any operational response that would reliably avoid material harm to rocky reefs in proximity to the mining area other than avoidance through spatial exclusion (i.e., leaving areas within the risk zone unmined) or cessation before harm occurs.

Effects on rocky reefs located more than 3 km distant from the mining area

865. We now address potential effects on rocky reefs outside the immediate vicinity of the mining area. This reflects the spatial area considered in the assessment of effects on rocky reefs by the applicant.
866. The applicant acknowledges that the STB contains rocky reefs of ecological, cultural, recreational and commercial value. Dr MacDiarmid describes that associated with these reefs are extensive areas of biogenic habitat, dominated by macroalgae (notably *Ecklonia* forests, *Caulerpa* meadows, mixed macroalgal meadows, and soft bryozoan fields), as well as areas of sponge garden. The associated fish assemblages are abundant. The unusual distance of these reef

systems from shore, occurring on a wide shallow continental shelf, makes them relatively unique in the New Zealand context.³⁸²

867. Similarly, other parties describe rocky reefs as ecologically rich and distinctive, including important nursery and taonga habitats.

868. Dr MacDiarmid describes that:³⁸³

These rocky habitats are islands of biological diversity among the otherwise low diversity communities occurring on the surrounding sandy flats. Although much rarer in spatial extent than surrounding sands, rocky reefs support a much more abundant and diverse benthic biota dominated by suspension-feeders and primary producers.

869. Subtidal rocky reefs are relatively common along the Pātea Bank and their distance offshore is unusual and makes them relatively unique in a New Zealand context.³⁸⁴

870. No location-specific assessment of effects on known reefs has been provided by the applicant. Reefs are described in general terms with reference to broad types or examples of flora and fauna with very little reference to individual reefs or associated species. In addition, as outlined in section 8, plume modelling does not provide location-specific information on predicted SSC at locations of known benthic reefs.

871. Instead, the assessment is largely based on Dr MacDiarmid's conclusion that, as the modelled spikes in background plus mining derived SSC on inshore reefs are much lower (by up to one or two orders of magnitude) than the concentrations shown to cause sustained damage in experimental studies and subject to the proposed conditions, the project will avoid material harm on rocky reefs.³⁸⁵

872. Several parties provided information on rocky reef habitats that was more comprehensive and specific than information provided by the applicant. The information presented by Dr Anderson was particularly informative. We also acknowledge the survey information from the South Taranaki Underwater Club and their observations of recent significant densities of bryozoans on the ledge of Project Reef and natural variability in *Ecklonia* on the reef; the Wanganui-Manawatu Sea Fishing Club and Pātea & Districts Boating Club for descriptions and locations of reefs; Te Korowai o Ngāruahine Trust for their observations of ecological value of reef habitats; and many other parties who demonstrated impressive local knowledge about rocky reefs in the STB. While some of this information does not meet the rigor of scientific surveys, it was persuasive in its consistency and visual material provided in support.

873. Dr Anderson³⁸⁶ noted that Morrison et al. (2022) provide an excellent characterisation of the 14 verified reef sites, including towed-video imagery that

³⁸² Evidence of Dr A. MacDiarmid for TTRL in Response to Comments Received dated 13 October 2025 at [25].

³⁸³ Evidence of Dr A. MacDiarmid for TTRL dated 19 May 2023 at [18].

³⁸⁴ Morrison et al., 2022; cited in Pattle Delamore Partners for Taranaki Regional Council s53 comments.

³⁸⁵ Evidence of Dr A. MacDiarmid on behalf of TTRL in Response to Comments Received dated 13 October 2025 at [32] and [79].

³⁸⁶ Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [31].

gives a representative overview of habitats present at each site. The report also includes data tables documenting substrata proportions, benthic taxa (species and growth forms), and fish counts by species and size class.

874. In terms of the importance of reefs mapped in Morrison et al (2022) to the application, Dr Anderson notes that:³⁸⁷

When compared with modelled mining plumes, over 60% of mid-shelf reefs lie downstream of the PPA. Even under mean conditions, some reefs (e.g., Site D) showed small SSC increases, while worst-case scenarios predicted an increase from >20 mg/L-1 to >100 mg/L-1 at multiple sites, including Project Reef and North and South Traps.

875. All experts during benthic expert conferencing agree that the lack of inclusion of a localised assessment of effects on rocky reef systems limits the ability to determine the effects of the mining operation on these key habitats.

876. We accept the observations of Pattle Delamore Partners (for Taranaki Regional Council) who noted that:³⁸⁸

Given the patchy nature of rocky reefs in the CMA, determining localised impacts is key to understanding the impacts of mining on biodiversity.

877. Dr Anderson notes that “broader ecological context is required before drawing conclusions about mining effects across benthic communities” from the studies cited by Dr MacDiarmid.³⁸⁹ Based on publications, including those cited by Dr MacDiarmid, and a detailed review of Morrison et al. (2022), Dr Anderson makes a range of observations on the available information about reef species sensitivities:³⁹⁰

- a. experimental work under the Sustainable Seas programme in the STB since 2017 shows that the sponge *Crella incrustans* and the bivalve *Tucetona laticostata* can tolerate short-term (≤4 weeks) elevated SSC; however, stress responses were observed even in these relatively resilient species, while their response to decades of chronic exposure remains unknown. The authors of these studies recommended further work on more sensitive measures, sediment-processing mechanisms, and different life stages.
- b. no comparable experimental data exist for other downstream taxa, including raised reef species (*Ecklonia*, *Caulerpa flexilis*) and fragile frame-building species such as *Galeopsis* (bryozoan), which also occur downstream of the project area and which may vary in their vulnerability to elevated SSC.
- c. high relief reef and depth range/height above the seafloor appeared to be a determinant of biogenic habitat types and a useful proxy for late-successional communities, which are often more vulnerable to elevated SSC and sediment deposition.

³⁸⁷ Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [22 (c)].

³⁸⁸ Comments from Taranaki Regional Council, August 2025, page 17.

³⁸⁹ Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [33(d)].

³⁹⁰ Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [23].

- d. low-relief reefs in the highly dynamic sedimentary environment of the STB, are particularly susceptible to burial, scouring, and re-exposure during storms. The flattest reef structures, with minimal vertical relief and the lowest biogenic cover tended to support communities dominated by sponges (including *Crella*), which are comparatively tolerant to turbid environments with periodic sediment perturbations.
 - e. blue cod nursery habitats occur within the predicted downstream plume, and juvenile fish are known to be sensitive to increased turbidity, potentially affecting growth and feeding.
878. In regard to impacts of sediment deposition, all experts participating in expert conferencing agreed that there will be movement of sediment to areas outside the project area and that the deposition of sediment on reef environments can prevent the settlement of some larval stages³⁹¹. While the applicant's assessment suggests that deposition outside the excavation area and immediate vicinity will be 'virtually indistinguishable' from background deposition and have negligible effects, Pattle Delamore Partners (for Horizons Regional Council) state that:³⁹²
- Wernberg et al. (2019) found that although adult kelp (*E. radiata*) can survive under a range of sediment loads, the attachment and survival of microscopic stages are constrained by sediment deposition and competition from more sediment-tolerant, but less habitat-forming. Turf algae (Connell, 2007). Consequently, even depositional layers thinner than 0.05 mm over large areas could reduce algal recruitment and cover over time, diminishing biodiversity on subtidal reefs.
879. In section 11 we address impacts on macroalgae on rocky reefs from primary production effects and conclude that impact on macroalgae associated with some reefs (The Crack 2, The Crack 1, Graham Bank, and Source A to Whanganui 20) are highly likely and at a magnitude that will likely affect the composition and functioning of rocky reef flora. We also find that effects on other reefs, both identified and potential yet unidentified reefs, are possible but due to uncertainties in the effects assessment, including the lack of a worst case benthic primary production effects assessment, unqualified and unquantified.
880. This assessment further highlighted the need for a location-specific assessment of effects on rocky reefs.
881. Another relevant context of this application is the proposed mining duration of 20 years. Drs Anderson, Shanahan, and Barbara raise the chronic impacts arising from such prolonged exposure to sediment and consider that:³⁹³

the impacts of mining with other stressors should be assessed as a chronic impact rather than an acute stressor given that mining will persist for 20 years.

³⁹¹ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [23] and [26].

³⁹² Comments from Horizons Regional Council, August 2025, page 14.

³⁹³ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [69]

882. Dr Anderson further notes that:³⁹⁴

With mining expected to last 20 years, long-term exposure to elevated SSC poses significant risks, especially to sensitive taxa as it may lead to chronic sediment accumulation, reduced light penetration, smothering of filter feeders, and progressive loss of ecological function across these habitats.

Consequently, there is considerable uncertainty over whether prolonged mining impacts would cause material harm to these sensitive rocky reef habitats.

883. Dr Anderson concludes that:³⁹⁵

Overall, while short-term tolerance is evident for some STB species, the long-term effects of mining-related sediment on key benthic communities and nursery habitats remain uncertain, highlighting the need for further assessment of chronic and cumulative impacts.

884. This is supported by the benthic experts participating in expert conferencing, who agreed that:³⁹⁶

There is evidence that reef size and height off the seabed may be an important co-variable with community types and their impact sensitivities. Their sensitivity to mining impacts is therefore unclear.

885. We find that the applicant has not provided sufficient information to characterise the rocky reef communities that may be affected, explain the mechanisms of potential impact on those communities, identify the attributes driving sensitivity to suspended sediment, or establish the suspended and depositional sediment levels at which adverse effects would begin or become intolerable. On the evidence before us (including Drs Anderson, Shanahan and Barbara), we also consider that any assessment of sediment effects on rocky reefs must address chronic exposure, rather than treating exposure as short-term or episodic.

886. The applicant's assessment of effects on rocky reefs rests heavily on:

- a. suspended-sediment thresholds derived from short-term (in the context of the proposed duration of mining) studies of a limited number of species that are not representative of the full range of reef assemblages present on rocky reefs in the area potentially affected, nor do they represent the most sensitive species;
- b. modelled SSC (background plus mining derived) at reefs being one to two orders of magnitude below experimental damage thresholds; and
- c. the fact that biota are tolerant to very turbid and variable conditions.

887. We find that those arguments do not resolve uncertainties about sensitive or structurally important reef taxa or life stages and about chronic, repeated exposures.

888. The Panel highlights the high ecological value and vulnerability of rocky reef habitats, vegetation, and ecosystems established in evidence as well as our

³⁹⁴ Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [22(c) and (d)].

³⁹⁵ Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [23(c)].

³⁹⁶ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [14]

conclusion that rocky reef system is listed as a specific example of ecosystems and habitats recognised under NZCPS Policy 11(b)(iii) and that various rocky reef areas align with several descriptors of Policy 11(b).

889. We acknowledge the scientific complexities associated with these matters and that it would not have been reasonable nor possible for the applicant to provide complete information or an effects assessment that would resolve all uncertainties.
890. However, we find that it would have been reasonable for the applicant to better describe rocky reef habitats, flora and fauna, including attributes that render specific reef areas sensitive to suspended sediment or sediment deposition, how these reef areas are distributed throughout the STB and how they are expected to be impacted by sediment, including the frequency and duration of sediment pulses and typical exposure levels over the 20 year duration.
891. We emphasise the ecological importance of rocky reef habitats as well as the considerable information provided by commenters, both experts and non-experts, which demonstrates that substantially more relevant information is available than what was used by the applicant in their assessment. We also refer to Drs Shanahan and Barbara who noted that environmental impacts were determined based on incomplete information, even though relevant information exists.³⁹⁷
892. As a consequence, we find that the applicant's assessment of effects on rocky reefs is based on uncertain and inadequate information (ss 61(1)(c) and (2)) and does not constitute best available information (ss 61(1)(b) and (5)). It does not enable the Panel to be satisfied, therefore, that the risk of material harm to reef habitats within the likely impact area has been adequately assessed, because the assessment does not incorporate relevant available mapping, site-specific exposure analysis, and recovery information.
893. As presented in section 11, the Panel finds that benthic primary productivity at some reefs (The Crack 2, The Crack 1, Graham Bank, and Source A to Whanganui 20) will be affected by sediment-induced reduction in light at a magnitude that will likely affect the composition and functioning of rocky reef flora. The Panel finds that the cumulative effects of direct sediment impact and macrofauna primary productivity impact will be at a level that constitutes material harm.
894. On the evidence available, the Panel also finds that in parts of the CMA where receptors with high vulnerability to the impacts from suspended or deposited sediment and reductions in light are located downstream from the mining area, it is probable that these effects reach a magnitude that constitutes significant adverse effects. However, there is uncertainty associated with this finding due to the inadequate information provided on the composition and sensitivity of rocky reef habitats and associated species as well as the uncertainties in sediment distribution modelling.

³⁹⁷ Joint Statement of Expert Witnesses - Benthic Habitats and Species dated 17 November 2025 at [81]

Other effects

895. The applicant considered potential effects on nearshore, including intertidal, benthic habitats and associated species. The sediment plume modelling predicted that the plume reaches the coast with median SSC above 0.1 mg/L but that the modelled background concentration exceeds the mining-derived concentrations by approximately two orders of magnitude (Macdonald and Hadfield, 2017) and described as indistinguishable from background, naturally occurring levels.
896. The Panel agrees that SSC near the shoreline will likely be undetectable.
897. The Panel agrees that biogenic shell and bryozoan rubble habitats located offshore beyond ~45–50 m are unlikely to be affected by the suspended sediment plume or sediment deposition. However as discussed in section 16, the Panel considers that there is a real risk of flow liquefaction and runout, which may impact these habitats. The applicant has not assessed this risk or the potential impacts of these benthic habitats, which have very high ecological value as suspension feeder systems, with high epifaunal and infaunal richness and biomass, complex three-dimensional structure, and strong functional roles. This represents, in our opinion, a substantial gap in the information and assessment before us. On the basis of the information that is before us, we cannot determine with any confidence the likelihood, nature and extent of any adverse impact on that biogenic shell and bryozoan rubble habitats associated with flow liquefaction.

Proposed mitigation and management of effects on rocky reefs at more than 3 km distance from the mining area

898. The environmental management and monitoring regime contains measures intended to mitigate, monitor and manage effects on rocky reefs through conditions and associated management plans.
899. For the Panel to be satisfied that material harm to rocky reefs will be avoided (or, where relevant, remedied or mitigated), the conditions would need to require a regime capable of achieving the following:
- a. confirm the presence or absence of rocky reefs in the parts of the STB potentially impacted by suspended sediment or sediment deposition;
 - b. specify measurable ecological indicators and thresholds capable of detecting changes in condition that may constitute material harm;
 - c. effectively monitor the condition of rocky reef habitat and associated species, including detecting changes in condition and identifying changes that constitute adverse effects at a level that constitutes material harm;
 - d. enable an assessment of whether the mining operations caused or contributed to any change in condition; and

- e. provide response actions that, on the evidence, could reasonably be expected to remedy or mitigate effects so they do not amount to material harm (rather than simply documenting harm after it has occurred).
900. We find that the proposed environmental management and monitoring regime does not achieve these requirements and therefore does not enable the Panel to be satisfied (on best available information) that effects on rocky reefs beyond the immediate mining area will be avoided or, where relevant, remedied or mitigated.
901. Our key concerns about the proposed conditions are listed below under each of the above points.
- a. Confirm the presence or absence of rocky reefs in the parts of the STB potentially impacted by suspended sediment or sediment deposition.
 - i. Even with proposed additional multibeam mapping out to 3 km from the PPA, there remains a credible prospect of unmapped small reefs or biogenic patches within or beyond this envelope, especially given the acknowledged likelihood that more reefs exist than are currently mapped.
 - b. Specify measurable ecological indicators and thresholds capable of detecting changes in condition that may constitute material harm.
 - i. There are no ecologically based benthic thresholds for SSC and it is unclear what level of protection the percentile limits in Condition 5 provide for reef communities.
 - ii. Identifying numerical values for the SSC limits hinges on validating an OSPM, which (on the evidence) is associated with a range of uncertainties, similar to those identified in section 8.
 - iii. It is not demonstrated on the evidence on what basis the maximum allowable change of 5% was determined, including whether it represents a threshold of 'material harm'. As such, it is unclear what level of protection Condition 5 provides.
 - iv. Conditions 7 and 8 lack a measure of community structure. As such, changes in community structure would not be detected as long as communities maintain the same overall abundance and biomass. It is possible that such a change would constitute material harm.
 - c. Effectively monitor the condition of rocky reef habitat and associated species, including detecting changes in condition and identifying changes that constitute adverse effects at a level that constitutes material harm.
 - i. Monitoring methods are not specified sufficiently in conditions to ensure monitoring is designed and conducted as described in evidence by the applicant's experts.
 - ii. Monitoring is focused on selected sites, so reefs not designated as compliance locations will not be monitored and may experience undetected degradation. This includes sensitive reef habitats identified by Morrison et al. (2022).

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- iii. Monitoring locations do not incorporate recommendations made by all benthic experts in expert conferencing to incorporate reef types (small vs large, low vs tall, etc.) and distance from activity in the monitoring design, and to increase the number of transects per reef to 3-5 to better represent within reef diversity and capture reef structure relative to distance from the project area.
 - iv. Monitoring locations do not incorporate a recommendation made by Dr MacDiarmid to include a suitable representation of habitats that respond differently to ecosystem effects of fishing, mining and other existing human activities or threats at different distances from the mining operations to enable clear discernment of mining impacts from other effects.
 - v. The ecological monitoring framework is designed mainly around gradients from the mining area and SSC compliance at a few 'sentinel' sites (e.g. The Traps, Graham Bank).
 - vi. Patchy, small reefs with heterogeneous communities are difficult to monitor with enough replication to detect moderate changes against high natural variability (storms, river plumes, sand movement), especially where cause-effect attribution is already described in evidence as difficult and for some reef types, potentially not reliably achievable for macroalgal reefs.
 - vii. It is unclear how the phrase "but taking into account natural variation" in Condition 7 is intended to be implemented and this could materially undermine the rigor of monitoring design.
 - viii. If background SSC is already very high and variable, a statistically compliant SSC record can coexist with biologically important shifts in light climate, fine-sediment loading on reef surfaces, or episodic peaks that affect recruitment windows, none of which are tightly constrained by the proposed limits.
 - ix. Monitoring is not framed to detect cumulative or long-term effects on benthic habitats. It is primarily directed to short-term responses and compliance at a limited number of "sentinel" sites.
- d. Enable an assessment of whether the mining operations caused or contributed to any change in condition.
- i. The applicant's own report on ecological monitoring (James and MacDiarmid, 2016) notes that monitoring of benthic communities, such as macroalgae in areas outside the mining areas and ascribing cause and effect to any changes in density or condition are very difficult, and may not be feasible with confidence because of the dynamic and complex exposed environment.
- e. Provide response actions that that, on the evidence, could reasonably be expected to remedy or mitigate effects so they do not amount to material harm (rather than simply documenting harm after it has occurred).
- i. For reefs, delay in detecting change matters. By the time a statistically robust change is detectable against high noise background variability,

impacts (including shifts from kelp-dominated to turf-dominated states, loss of biogenic structure) may already have occurred and may be slow or impossible to reverse.

902. Further, we find that, on the basis of the information that is before us, that it will not be possible to develop and impose conditions that could, to our satisfaction, avoid, remedy or mitigate the effects that are before us.
903. Further, we find that, on the basis of the information that is before us, that it will not be possible to develop and impose conditions that could, to our satisfaction, avoid, remedy or mitigate the effects that are before us.

11 Effects on the water column

904. There is overlap between effects on the water column and effects on benthic habitats, because sediment processes and ecological responses occur across the sediment–water interface. This section addresses water column effects (optical properties, primary production, and non-sediment water quality) and records the consequences of the modelling limits identified in the sediment distribution chapter for the certainty of those effects. As a consequence, this section may repeat information discussed in section 10 but within the context of water column effects.

11.1 The application

905. The application is supported by a number of technical reports prepared between 2013 and 2017 and an assessment of effects in the application.³⁹⁸ Water column effects assessed by the applicant are:
- a. optical effects (changes in water clarity and light);
 - b. primary production effects (changes in water column and benthic primary production resulting from optical changes); and
 - c. water quality effects (changes in nutrients and contaminants resulting from sediment release).

The application also describes potential consequences of optical and primary production effects on zooplankton communities and the wider pelagic food-web (which are addressed where they inform the evaluation of those effects).

³⁹⁸ Reports 1, 9, 13, 16, 17, 19, 20, 41 plus Pinkerton, M.H.; M. Gall (2015). Optical effects of proposed iron-sand mining in the South Taranaki Bight region. NIWA client report WLG2015-26 rev 2 for Trans-Tasman Resources. Project TTR15301. FN108 Optical effects - worst case update

Optical effects

906. Optical effects of mining are caused by increased suspended sediment concentrations, which can lead to changes in underwater visibility, light attenuation (which may affect primary production), and the colour of water. These effects were predicted by coupling an optical model to the sediment distribution model described in section 10.³⁹⁹
907. The optical model is based on a combination of laboratory measurements, in situ observations, and satellite data. Laboratory experiments measured the mass-specific inherent optical properties of natural and mining-derived sediments, and the optical model combined these laboratory-derived properties with background data on phytoplankton and coloured dissolved organic matter. The model was then adjusted to reconcile outputs with observed attenuation and backscatter, and used to simulate changes in light penetration, underwater visibility, and water colour resulting from sediment plumes.⁴⁰⁰
908. Optical effects were modelled in 2015⁴⁰¹ and results were updated in 2017⁴⁰² to reflect the worst case sediment plume scenario modelling. The optical effects predictions described here are those from the 2017 worst case scenario modelling. For clarity, references in this section are to the 2017 'worst case update' unless stated otherwise.
909. Optical effects were presented at different spatial scales: as widescale effects across the sediment modelling domain, and as localised effects by extracting model results at eight locations of interest: Source A to Whanganui, Graham Bank, The Crack 1, The Crack 2, North Traps, Rolling Grounds, Project Reef, Source A North 20.
910. Widescale optical effects are summarised as follows:
- a. reductions in light availability in the water column are predicted to occur predominantly to the east of the mining site due to the sediment plume often moving in this direction;
 - b. there are large reductions in light in the water column only very close to the location of mining, with maximum reductions of 32–52%, depending a little on where the mining takes place (Location A or Location B). The authors note that this maximum depends on the resolution of the modelling; cells smaller than the 1 km used would give higher maximum changes and vice versa. They consider that the mean change in water column light averaged over a large

³⁹⁹ Optical effects of proposed iron-sand mining in the South Taranaki Bight region, M. Pinkerton and M. Gall dated 2015, section 1.3.

⁴⁰⁰ Optical Effects of an Iron-Sand Mining Sediment Plume in the South Taranaki Bight Region, M. Pinkerton and M. Gall dated 2015.

⁴⁰¹ Optical effects of proposed iron-sand mining in the South Taranaki Bight region, M. Pinkerton and M. Gall dated 2015,

⁴⁰² Optical Effects of Proposed Iron-Sand Mining in the South Taranaki Bight Region - Worst Case Update, M. Pinkerton dated 2017.

region is a more reliable measure of the predicted effect of mining on primary production in the water column;

- c. the average reduction in light availability in the water column over the entire sediment modelling domain, when mining is occurring at Location A, is estimated to average 2.9%, and, when extraction is occurring at Location B, 2.4%;
- d. two limits were used to identify ecologically relevant light limits for microphytobenthos (**MPB**) growth (estimate of the approximate minimum light requirements for MPB to grow) to reflect variability in the literature: 0.04 and 0.4 mol m⁻² d⁻¹. 0.4 mol m⁻² d⁻¹ is approximately equivalent to 1% of light incident to the sea surface (used to determine the euphotic zone for phytoplankton) and is used as the limit above which macroalgae primary productivity is not impacted;
- e. the average proportions of the seabed in the sediment model domain (**SMD**) with mean light intensity greater than the two limits was estimated to be 28% (3775 km²) and 11% (1478 km²) respectively. These areas are predicted to reduce to 26% (0.04 mol m⁻² d⁻¹) and 9% (0.4 mol m⁻² d⁻¹) respectively. due to mining;
- f. there are predicted to be large reductions in light at the seabed close to the location of mining, with maximum reductions of 87–92%, depending on where the mining takes place (Location A or Location B). Again, the authors note that this maximum reduction depends on the resolution of the modelling – smaller cells (higher resolution modelling) would give a higher maximum change and vice versa. They consider that the maximum change should hence not be over-interpreted in terms of its ecological significance, and the mean change in total light at the seabed averaged over a large region (the SMD) is a more reliable measure of the predicted effect of mining on benthic algae. The annual-average light at the seabed within the area of the SMD is predicted to reduce by 30% (mining at Location A) and 21% (mining at Location B) and this reduction will primarily affect the area east of the proposed mining area;
- g. the proportion of the seabed with light greater than the two ecologically relevant limits (0.04 and 0.4 mol m⁻² d⁻¹) is predicted to be reduced by 10.3 and 22.7%, respectively (mining at Location A) and 9.3 and 19.1, respectively (mining at Location B); and
- h. this reduction reflects the fact that for much of the time the plume of fine sediment passes over relatively shallow sea floor which would otherwise be relatively well lit. Most of the SMD is deep and/or overlain by turbid water, receives little seabed light and would be little affected by the mining.

911. Key predictions of optical effects from the eight sites of interest include:

- a. mining at Location A consistently causes larger reductions than mining at Location B, for all metrics (median horizontal visibility for midwater and seabed, number of high visibility days per year at midwater and seabed defined as visibility of 5 m or more, median euphotic depth, number of days per year when >1% of surface light reaches the seabed) and sites;

- b. at the more affected sites (Source A to Whanganui 20, Graham Bank, The Crack 1 and 2, Project Reef), midwater and seabed visibility typically drop by about 35–55% under mining at Location A and 15–30% under mining at Location B, with losses of 70–140 high-visibility days per year at the worst-affected sites;
 - c. euphotic depth at those same sites typically reduces by about 35–45% (mining at A) and 15–20% (mining at Location B), and days with >1% light at the seabed decline by about 90–140 days per year (mining at Location A) and 50–70 days per year (mining at Location B); and
 - d. less affected sites (North Traps, Rolling Grounds, and Source A North 20) show smaller changes:
 - i. visibility reductions are generally <25% for mining at Location A and <10–20% for mining at Location B;
 - ii. losses of high-visibility days are mostly <40 days per year for mining at Location A and <25 days per year for mining at Location B; and
 - iii. euphotic depth and >1% seabed light days decrease modestly (e.g. ~5–20% change in euphotic depth, 4–45 days fewer with >1% seabed light).
912. The optical effects of mining are predicted to likely ease quickly after mining stops. Pinkerton and Gall (2015) describe that when suspended sediment from mining has been flushed out of the STB region (a process predicted to take a few months) optical properties may be expected to return to pre-mining levels within a few days.
913. Pinkerton (2017) describes that optical effects predicted in the 2017 (worst case) simulations are qualitatively similar to those from the 2015 simulation reported in Pinkerton and Gall (2015), but quantitatively greater. Averaged across the sediment model domain, optical effects that are relevant to estimating effects on primary productivity were 44% greater in the new simulations. This considered effects of mining on mean light in the water column, mean light at the seabed, and the number of days per year when seabed light was greater than two ecologically relevant limits.

Primary production effects

914. The applicant describes that primary production effects arising from reduced light availability involves pelagic primary production by phytoplankton and benthic primary production by benthic macroalgae and MPB. Effects of the project on primary production were assessed by Cahoon (2015)⁴⁰³ and AES (2016)⁴⁰⁴ based on the 2015 optical modelling results.
915. The Panel notes that Cahoon (2015) refers to a 'worst case' scenario, which relates to primary production parameters and does not reflect the 2017 worst case sediment modelling scenario. Cahoon (2015) describes that phytoplankton

⁴⁰³ Effects on Primary Production of Proposed Iron-Sand Mining in the South Taranaki Bight Region, L. Cahoon, M. Pinkerton, & I. Hawes dated 2015.

⁴⁰⁴ Trans-Tasman Resources Ltd Consent Application: Ecological Assessments, M. James dated 2016.

productivity in the region is mainly nutrient limited, so moderate reductions in light from the mining plume translate into proportionally smaller reductions in phytoplankton production.

916. The assessment of effects on primary production provided by Cahoon (2015) is based on the 2015 sediment and optical modelling. The Panel notes that no assessment has been provided based on the 2017 worst case scenario modelling.
917. Cahoon (2015) predicted that mining will:
 - a. reduce water column PP averaged over the SMD by 1.0% (mining at Location A) and by 0.8% (mining at Location B);
 - b. reduce benthic PP averaged over the SMD by 19% (mining at Location A) and 13% (mining at Location B);
 - c. reduce total (i.e., water column plus benthic) PP averaged over the SMD by 1.9% due to mining at Location A (2.2% under the worst case primary production scenario), and by 1.4% due to mining at Location B (1.7% under the worst case primary production scenario); and
 - d. the optical model demonstrates that without mining, about 28.6% of the seabed of the SMD receives more than $0.04 \text{ mol photons m}^{-2} \text{ d}^{-1}$, the estimated minimum light requirements for MPB growth. The area is predicted to reduce to 27.1% overall (mining at Location A) and to 27.3% overall (mining at Location B), respectively.
918. There is high interannual variability in primary productivity by phytoplankton, which means that a chronic decrease in phytoplankton primary productivity of 1% due to mining is very unlikely to lead to fundamental structural change.
919. Reductions in light at the seabed will be highest close to the sites where operations are occurring (extraction and deposition). While the reduction in light levels at these sites could be up to 95%, effects are very localised (over an extent of less than 10 km from the recovery site). Area specific reductions in benthic primary production (and thus carbon flux to seabed) could be reduced by up to 40% in the area to the east of the extraction area where the sediment plume moves over the relatively shallow (20 to 40 m deep) sandy area, which is part of the Pātea Shoals and includes the Graham Bank. The growth effects on these areas may be impacted; however, a complete loss of benthic biomass is not likely to occur.
920. Cahoon (2015) describes that Graham Bank, which is within the area predicted to experience the most substantial reduction of total light energy reaching the seabed, currently receives sufficient light for macroalgal growth. Model predictions suggest that this area will be reduced to approximately 50% of the background irradiance during mining at Location A and 75% during mining at Location B, though the

shallowest parts of Graham Bank will continue to receive more than $1 \text{ mol m}^{-2} \text{ d}^{-1}$ on average. Cahoon (2015) concludes that:⁴⁰⁵

mining impacts can thus at times be expected to significantly impact on growth of any macroalgae on Graham Bank, though elimination is unlikely.

921. While changes in bottom irradiance at the Traps is likely, an annual average of more than $1 \text{ mol m}^{-2} \text{ d}^{-1}$ of light is anticipated to reach the seabed there under all model scenarios, integrated reductions in sea floor irradiance and euphotic depth are less than 10%. The median euphotic zone depth at the Traps is predicted to reduce from 14.9 m to 13.3 m (mining at Location A) and 14.4 m (mining at Location B). So, as at Graham Bank, some reduction in macroalgal growth and coverage may occur at the Traps.
922. The other location where attached algae are recorded within the area of interest are south and southeast of the proposed site, between the 40-50 m contours, where attached coralline red algae were growing. Coralline algae are well known to be tolerant of extreme low irradiance, and their occurrence in association with biogenic habitat (shells) at this depth is not surprising. It is likely that these deep areas will be virtually unaffected by mining at Location A and only intermittently by mining at Location B.
923. The reduction in light to the seabed and subsequent effects on benthic primary producers are likely to be highly variable and episodic, ranging from negligible to moderate, depending on the location, the prevailing wind and current conditions, as well as naturally high levels of suspended sediment entering the SMD from the rivers inshore. The high variability suggests that receiving communities are predisposed to tolerate interannual variability in benthic photosynthesis of magnitudes similar to that expected from mining (15–23%), though mining will exacerbate low light episodes. Cahoon (2015) concludes that mining is unlikely to lead to unnaturally low benthic production in the SMD outside of the envelope of background variability in any given year.
924. Phytoplankton and MPB may be expected to respond very quickly (a few days) to changes in water clarity. Hence, phytoplankton and benthic primary productivity would be expected to return to pre-mining levels within at most a few months after the cessation of mining as biomasses recover.
925. Overall, the primary production effects assessment by Cahoon (2015) concluded that region-wide effects of iron-sand mining on short-lived organisms (living less than a year or two) will be indistinguishable within natural oceanographic variability. Effects at local scale proximal to the mining operations will likely manifest primarily as decreases in MPB production and organic carbon availability to benthic consumers that may exceed natural variability and may propagate locally to organisms that feed primarily on MPB and in turn to their predators, which may be more wide-ranging.

⁴⁰⁵ Effects on Primary Production of Proposed Iron-Sand Mining in the South Taranaki Bight Region, L. Cahoon, M. Pinkerton, & I. Hawes dated 2015 at page 16.

926. Cahoon (2015) notes that the accuracy and reliability of the effects on primary production are dependent on the performances of the sediment transport and optical models and that this was not assessed. He further acknowledged uncertainties and information gaps, particularly in relation to the magnitude of benthic production across the Pātea Banks, the inherent variability in the relevant oceanographic variables, the dynamic nature of the STB itself, and the significant gaps in basic understanding of some relevant parameters. He notes that the distribution of macroalgae is poorly known for much of the SMD, and effects are hard to predict quantitatively; however, known macroalgal habitats, including the Traps, are in areas where the impacts of the mining operation are predicted to be small.
927. Cahoon (2015) also notes that estimated changes in primary production strongly relied on literature values from outside of the SMD, as no local information was available. Furthermore, it was not possible to predict changes to absolute production, rather estimates are based on proportional changes to the background condition. Notwithstanding these limitations in understanding, they expressed confidence that the assessment is scientifically sound and lie well within the bounds of reasonable probability.

Water quality effects

928. Effects of the sediment plume on neritic zooplankton are expected to be negligible and indistinguishable from natural variability. Suspension- and filter-feeding zooplankton can be affected when fine suspended sediment concentrations exceed about 20 mg/L, through clogging of respiratory surfaces and feeding apparatus and impairment of prey detection but modelled suspended sediment concentrations away from the source are predicted to remain well below levels known to cause significant effects. Any impacts that did occur would be short-term because zooplankton populations are transient, have rapid generation times (days to months), and can rapidly recover following disturbance events.
929. Nutrient effects from release of porewater ammonium are estimated to be extremely small when averaged over the model domain, and any local fertilisation effect on primary production is predicted to be about 1% of the light-driven reduction in phytoplankton production. Nutrient release is assessed as an insignificant or marginally offsetting -influence.⁴⁰⁶
930. Contaminants, such as heavy metals and polychlorinated biphenyls, can potentially be released from the sediment during mining and affect biota through direct toxic effects and bioaccumulation into the food web. An assessment of potential effects using sediments from the project area was conducted by AUT. The assessment also investigated whether the grinding of enriched iron sand increases the potential of the sand to release trace metals when suspended in seawater. Given sediment

⁴⁰⁶ Effects on Primary Production of Proposed Iron-Sand Mining in the South Taranaki Bight Region, L. Cahoon, M. Pinkerton, & I. Hawes dated 2015.

characteristics and dilution, trace metal concentrations in the water column are not expected to rise to levels of ecological -concern.⁴⁰⁷

11.2 Comments received, applicant's response to comments, JWS

931. A number of parties commented on water column effects, including:
- a. Te Ohu Kaimoana;
 - b. Te Kaahui o Rauru Trust;
 - c. Te Rūnanga o Ngāti Ruanui Trust;
 - d. Ngāti Hāua Hapū;
 - e. Te Kāhui o Taranaki;
 - f. Te Tōpuni Ngārāhu Trust;
 - g. Te Runanga o Ngati mutunga;
 - h. Whanganui District Council;
 - i. Parliamentary Commissioner for the Environment;
 - j. Ngā Motu Marine Reserve Society;
 - k. Sealord;
 - l. South Taranaki Underwater Club;
 - m. Whanganui Manawatu Sea Fishing Club and Pātea and Districts Boating Club;
 - n. Horizons District Council (comments supported by Pattle Delamore Partners technical assessment); and
 - o. Taranaki Regional Council (comments supported by Pattle Delamore Partners).
932. All parties commented on technical aspects of the water column effects assessment, and consider the sediment plume modelling is central to the water column issue. They broadly agree that there are major unresolved uncertainties in plume behaviour, including its spatial reach, persistence and interaction with background conditions, which create flow-on uncertainties for optical modelling and the primary production effects assessment. Specific uncertainties are consistent with those described in section 8 and are not repeated here. Those uncertainties go not only to the magnitude of predicted effects, but also to confidence in their spatial footprint and duration, which is central to any judgement about significance and the adequacy of proposed management responses.
933. Overall, commenters see a high likelihood of significant local and potentially wider ecological harm through light reduction, decreased primary productivity and altered trophic dynamics in the water column, with cascading impacts through the food web.

⁴⁰⁷ Iron Sand Extraction in South Taranaki Bight: Effects on Trace Metal Contents of Sediment and Seawater, K. Vopel, J. Robertson and P. Wilson dated 2013.

The widely shared conclusion is that these water column risks are substantial, inadequately characterised and disproportionately high relative to claimed benefits.

934. The applicant's responses on comments on water column effects are primarily set out in the statements of evidence of Dr MacDiarmid and the tabulated responses to specific commenter groups. The applicant's responses are reflected in our findings.
935. To ensure the Panel had an accurate understanding of any outstanding agreements and disagreements among experts, expert conferencing on the topic of primary productivity was directed.
936. The conference was attended by the following experts:
- a. Dr Alison MacDiarmid on behalf of TTRL;
 - b. Dr Matthew Pinkerton on behalf of TTRL;
 - c. Professor Lawrence Cahoon on behalf of TTRL;
 - d. Dr Becky Shanahan on behalf of Taranaki Regional Council and Horizons Regional Council; and
 - e. Dr Gregory Matthew Barbara on behalf of Seafood NZ.
937. Matters discussed during expert conferencing are addressed in our findings below.

11.3 Findings

938. The proposed mining operation has the potential to affect the water column in three primary ways:
- a. decreases in water clarity and light can cause optical effects;
 - b. optical changes can result in pelagic and benthic primary production effects (with potential consequences on zooplankton communities and the wider pelagic food-web); and
 - c. nutrients and contaminants (excluding sediment) released from the disturbance and changes of the seafloor can affect water quality.

Optical effects

939. Commenters raised concerns that the plume will cause large reductions in light (euphotic zone depth) and water clarity over a very wide area, beyond the immediate mining site, reducing light for phytoplankton and benthic algae and impairing visibility for visual predators.
940. Ngā Motu Marine Reserve Society describe reduction in light is one of the biggest issues with the project and interpret the applicant's modelling as predicting mid-water light reductions of around 40–50% up to 20 km. It notes that the euphotic

zone is predicted to become shallower than seabed depth “in a significantly large area”, meaning insufficient light for macroalgae growth.

941. Iwi and hapū submissions emphasise that degraded water clarity and light reduce the mauri of Tangaroa, affect the ability to observe ecological indicators and diminish the cultural experience of being on or in the moana.
942. Councils and community groups raised concerns about reduced visibility to poorer conditions for diving, recreation and appreciation of offshore reef habitats.
943. Changes in visibility and light penetration can affect recreational values, for example through reduced enjoyment of diving in reduced visibility, both in midwater and near the seabed.
944. For example, the applicant predicted that mining at Location A results in a reduction of high visibility days (days with visibility of 5 m or more) between 8 and 133 (midwater) and 8 and 138 (bottom water) days per year. The sites most impacted are The Crack 2, The Crack 1, Source A to Whanganui 20, and Graham Bank with a loss of high visibility days between 92 and 138 days per year. At these sites current high visibility days range from 203-229 per year. In other words, at the most affected sites the predicted reduction is of an order that could remove close to half of current ‘high visibility’ days, depending on location and mining scenario. These ‘high visibility days’ metrics are derived from modelled horizontal visibility (black disk distance) and are expressly treated as a decision-relevant indicator in the optical effects reporting.
945. We note that mining at Location B results in a loss of high visibility days between 7 and 41 (midwater) and 9 and 45 (bottom water) days per year. While lower than during mining near the inshore end of the project area, these reductions are still notable.
946. Several of these sites are used for recreational diving and we consider the impacts of these predictions on recreational values in section 20.4.
947. Given the magnitude of predicted changes in visibility (both in terms of reduction in visibility and number of high visibility days) and the fact that the impacts of these reductions are experienced at specific locations of interest (e.g. for diving) rather than averaged over a wider area, we find that these reductions reflect a significant decline from current conditions.
948. Several experts participating in expert conferencing on sediment distribution modelling and benthic effects pointed out that uncertainties in the sediment plume model would be carried forward into the optical effects modelling (Drs Luick, Barbara, Anderson, and Shanahan, Joint Witness Statement on benthic habitats and species⁴⁰⁸ and Joint Witness Statement on sediment modelling⁴⁰⁹). This was

⁴⁰⁸ Joint Statement of Expert Witnesses – Benthic Habitats and Species dated 17 November 2025 at [48]

⁴⁰⁹ Joint Statement of Expert Witnesses – Sediment Distribution Modelling dated 13 November 2025 at [49]

accepted by all experts participating in expert conferencing on primary productivity. Similar concerns were also expressed by commenters.

949. Pinkerton and Gall (2015) note that the accuracy and reliability of the predicted optical effects are dependent on the performance of the sediment model. They acknowledge that uncertainties in the predictions of optical effects are unavoidable but that the model presented is the best model that could be reasonably developed at the time, and more complex and likely more accurate than modelling normally undertaken to assess optical effects of seabed mining.
950. We addressed model uncertainties in section 8 and, for the reasons provided in that section and the agreed extension of these uncertainties into the optical model, find that the results of the optical modelling carry unquantified uncertainties and therefore need to be considered as estimates of predicted change. Actual effects could be less or more intense than predicted.
951. In this context we also point to the high sensitivity of the optical model to the change in sediment parameters between the 2015 and 2017 worst case scenario sediment plume modelling. While Macdonald and Hadfield (2017) describe that the results from the worst case scenario modelling did not show a large difference from the original model runs, Pinkerton (2017) describes that optical effects predicted in the 2017 (worst case) simulations are quantitatively greater with relevant optical effects 44% greater in the new simulations when averaged across the sediment model domain.
952. The high sensitivity of optical model results to changes in sediment source term parameters indicates that uncertainty in optical models is likely greater than uncertainty of suspended sediment predictions.
953. Another matter raised by parties is the applicant's description of recovery from optical effects and the overall duration of impact. Taranaki Regional Council disagrees with the applicant's description of a quick cessation of effects after mining stops. The Council states that, considering the planned run time of the operation, it is unlikely the sediment from mining will be flushed out of the STB during the 20 year operation unless the 107 days of proposed down time each year happen consecutively. It notes that, without the consecutive down time, the optical effects are expected to last throughout the majority of the 20 year operation.
954. As described by Pinkerton and Gall (2015), optical properties are expected to return to pre-mining levels within a few months of the cessation of mining. We therefore agree that it is highly likely that optical effects will occur continuously over the 20 year operation, albeit with fluctuating intensity at individual sites due to changes in mining location, mining intensity (including down time), and hydrodynamic conditions as discussed in section 8.
955. Overall, we find that the project is likely to cause sustained and recurring changes in optical properties (including visibility and light penetration) over the operational life of the project. The modelling indicates these effects will vary spatially and temporally with plume movement and background conditions, but they are not

confined to rare events. We find that optical effects will be chronic and likely experienced continuously over the 20 year duration.

956. Ngā Motu Marine Reserve Society commented that the consent conditions focus on suspended sediment concentrations rather than light itself, despite light being the key driver of many ecological effects it is concerned about.
957. Proposed Condition 54 requires ‘optical water quality’ to be monitored and Condition 55 requires the EMMP to specify “procedures for comparing the monitoring data against the background data that assist in determining if any activities authorised by the consents have resulted in adverse effects that were not anticipated at the time of the granting”. While conditions therefore provide a focus on light, we reviewed the draft monitoring plans and could not find any proposed monitoring of underwater visibility reflecting the indicators used to assess optic effects. It is therefore uncertain how the applicant plans to monitor changes in optical properties.
958. We therefore find that the proposed conditions and monitoring do not provide a reliable framework to ensure, or to verify in practice, that optical effects will be no greater than anticipated.
959. We consider ecological consequences from changes in optical water column properties in the context of primary productivity effects below.

Primary production effects

960. There are three kinds of primary productivity in the region:
- a. phytoplankton in the water column;
 - b. MPB (photosynthetic organisms living on the sediment seafloor) on the seabed; and
 - c. macroalgae (seaweed) on the rocky reefs.
961. All experts participating in expert conferencing on primary production agree that:
- a. The key potential mechanism of the proposed mining operations on primary production is through a reduction in light available for photosynthesis. The sediment plume from mining is likely to reduce primary production by phytoplankton in the water column, by MPB on the seabed, and by macroalgae on reefs, depending on the magnitude of the shading in space and time.⁴¹⁰
 - b. The relative change in primary productivity can be estimated from each kind of primary productivity (phytoplankton, MPB, macroalgae) using changes in light availability, but that, because the overall importance of each type of primary producers is unknown, it is difficult to estimate the overall (combined) change in total primary production due to mining.⁴¹¹

⁴¹⁰ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [30].

⁴¹¹ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [10].

- c. It is not expected that there are rare or unusual species of phytoplankton, MPB or macroalgae in the region.⁴¹²
- d. The ecosystem as a whole in the STB is quite resilient to changes in primary productivity.⁴¹³
962. Before presenting our findings on the nature and magnitude of primary production effects, we address two matters arising from expert conferencing and comments: the consideration of photoadaptation in primary production modelling and the reflection of the worst case modelling scenario.
963. Experts also agreed that photoadaptation by phytoplankton, MPB and macroalgae will mean that changes in primary production will be smaller than changes in light availability but that the amount of the photo-adaptive offset is hard to predict.⁴¹⁴ The Joint Witness Statement records that for this reason the modelling took the conservative assumption of zero photoadaptation.⁴¹⁵
964. We note that Cahoon et al (2015) describes that:⁴¹⁶
- It is not possible to estimate the degree to which phytoplankton will photo-adapt to reduced water clarity in the SMD following the proposed mining operation ... Acknowledging the uncertainties in the estimate, and given that photo-saturation and photo-adaptation will reduce the extent to which reduced water clarity will directly impact on photosynthesis, we suggest that a reasonable estimate of the change in average water column PP across the SMD as a result of shading by sediment is half the change of water column light, i.e., a 10% reduction in water column light would lead to a 5% reduction in phytoplankton PP.
- and notes in the caption of Table 3-1 that:
- A factor of 50% is used to account for photo-adaptation of phytoplankton.
965. There is an apparent inconsistency between the Joint Witness Statement description of the modelling assumption and the approach described in Cahoon et al (2015) (including Table 3-1). We treat that inconsistency as an additional source of uncertainty in the quantitative estimates of phytoplankton primary productivity effects, and we have taken it into account in our evaluation below.
966. Drs Shanahan and Barbara expressed concern that the sediment plume modelling does not represent a true 'worst case' for effects and that there was no assessment of impact on primary production undertaken following the update of the worst case scenario optical effects modelling.⁴¹⁷
967. Drs MacDiarmid and Pinkerton and Professor Cahoon consider that the sediment plume modelling provides:⁴¹⁸

⁴¹² Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [15].

⁴¹³ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [53(d)].

⁴¹⁴ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [31].

⁴¹⁵ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [31].

⁴¹⁶ Effects on Primary Production of Proposed Iron-Sand Mining in the South Taranaki Bight Region, L. Cahoon, M. Pinkerton, & I. Hawes dated 2015 at page 11.

⁴¹⁷ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [26] and [29].

⁴¹⁸ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [28].

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a worse-case scenario (but maybe not a worst-case) for primary production.

968. As per our evaluation in section 8, we find that the sediment plume modelling does not represent a true worst case scenario. We also found that it is uncertain whether the worst case scenario modelling reflects a worst case scenario for sensitive receptors, which is relevant for the evaluation of effects on specific sites, including the sites of interest identified in the primary production effects assessment.
969. Professor Cahoon provided estimates of a 'worst case update' for primary production by phytoplankton and MPB (not macroalgae) in the Joint Witness Statement, estimating that it increased the projected effect of mining on light availability by 50% (water column) and 33% (seabed) and that the effects on primary productivity are hence likely to increase by ~40% from Cahoon et al. 2015 to the 'worst case' model scenario.⁴¹⁹
970. Professor Cahoon notes that the main results of the primary production assessment are:⁴²⁰
- a. primary productivity (phytoplankton + MPB) averaged over SMD and averaged by year was predicted by Cahoon et al. (2015) to be reduced by mining by 1.9% (mining at Location A) and by 1.4% (mining at Location B). In the 'worst case' modelling scenario, the reduction in primary productivity is likely to be 2.9% (mining at Location A) and 2.1% (mining at Location B); and
 - b. energy flow to the seabed ecosystem averaged over the SMD was predicted by Cahoon et al. (2015) to be reduced by 5.8% (mining at Location A), and by 4.1% (mining at Location B). In the 'worst case' modelling scenario, the reduction due to mining is likely to be 8.1% (mining at Location A) and by 5.7% (mining at Location B).
971. Professor Cahoon considers that:⁴²¹
- the area that might be affected to such an extent (10-50%) is highly unlikely to be very large or persistent in space – certainly no more than 1 km², probably much less, and variable in space as tidal and other flows move and disperse the plume. LC notes that near-bottom discharges of sediment will minimise turbidity effects in the shallower water column, where most primary production will occur.
972. Given it was known to the applicant in 2017 that the worst case scenario modelling resulted in large changes in predicted optic effects modelling, it was foreseeable at that time that there will likely be ecologically meaningful change in the primary production effects assessment. The Panel is therefore surprised that the primary production effects assessment has only been updated in the 2025 Joint Witness Statement.
973. Regarding Professor Cahoon's statement that "near-bottom discharges of sediment will minimise turbidity effects in the shallower water column, where most primary

⁴¹⁹ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [40].

⁴²⁰ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [41].

⁴²¹ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [42].

production will occur” we note that Hadfield and Macdonald (2015) showed a generally well-mixed plume through the water column.

974. Given the absence of supporting evidence for the primary production effects assessment in the Joint Witness Statement, the inconsistency with Hadfield and Macdonald (2015), and the absence of any description of uncertainty, we regard it as uncertain and inadequate for the purpose of robustly assessing phytoplankton primary production effects.
975. The missing update of the primary production assessment was also identified by Pattle Delamore Partners (for Horizons Regional Council). In her response, Dr MacDiarmid summarised key aspects of the primary production assessment but did not acknowledge or address that the assessment was based on the 2015 modelling and therefore almost certainly underestimated primary production effects.
976. We find that the late update of the primary production assessment (and the continued gaps in that update) undermines confidence that the primary production effects have been robustly assessed on the record, particularly for phytoplankton primary production under the updated ‘worst case’ sediment scenario. The lack of an updated primary production effects assessment is an important information gap. Given the missing supporting technical evidence, the scientific complexity of processes linking optical properties to primary production, and the scale of the project, we do not consider that Professor Cahoon’s phytoplankton and MPB primary production estimates in the Joint Witness Statement represents an adequate effects assessment for the project.
977. We now turn to the nature and magnitude of primary production effects, starting with phytoplankton primary production and wider food-web consequences.
978. In relation to phytoplankton primary productivity, all experts during conferencing agree that baseline data for water column primary production in the mining and plume areas are scant, but that satellite data provide reasonably good spatial–temporal coverage of phytoplankton abundance and optical conditions.⁴²²
979. Dr Pinkerton notes that states that satellite data now covers more than 2 decades and that, at the time of the 2015 optical effects work, the best available data was just 6 years, and this was what was used.⁴²³ While we agree that the information used was the best available information in 2015 and possibly 2017, we do not consider this to reflect best available information for the application.
980. The experts agree that the variability in satellite observed phytoplankton biomass from month to month is relatively high.⁴²⁴ The applicant could have accessed to approximately three times the amount of satellite data used for the effects assessment, and we consider it likely that this would have improved the representativeness of current conditions. Given the ease of access to satellite data,

⁴²² Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [11].

⁴²³ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [12].

⁴²⁴ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [53(a)]; <https://www.stats.govt.nz/indicators/marineprimary-productivity-data-to-2023/> .

we find that it would have been reasonable to update the optical effects and primary production modelling with more current data.

981. The experts also agree that there is unlikely to be a change in phytoplankton community structure in the STB due to mining.⁴²⁵ In terms of ecological consequences on the food-web, experts agree that:⁴²⁶
- a. mesopelagics (zooplankton, krill, small fish) are unlikely to be substantially affected because they are widely distributed, mobile, and feed in the water column;
 - b. the effects on higher trophic species will likely be higher on specialised benthic feeders that have high site fidelity and are resident in the local area of the plume;
 - c. species with nursery grounds in the impacted area are also potentially more at risk; and
 - d. any affected species could in turn affect their predators.
982. Finally, all experts agree that phytoplankton comprise fast generation species and their populations are very likely to recover quickly (days) following cessation of mining in any particular part of the proposed mining area.⁴²⁷
983. We consider this statement to be somewhat contradictory to the experts' discussion of recovery from optical effects, which are described by Pinkerton and Gall (2015) to take a few months from cessation of mining to return to pre-mining levels.
984. As a final consideration on phytoplankton primary production, we address the challenge of measuring primary production effects. Professor Cahoon stated that:⁴²⁸
- changes in primary production owing to modelled changes in light flux owing to mining activity are almost certainly too variable to be statistically identified (in any tractable field campaign). Therefore, LC considers that the question is whether changes in primary production will overwhelm the ability of the system to adapt to these changes.
985. We therefore need to factor in to our evaluation that it is highly unlikely that primary production effects can be monitored and that, despite the conditions requiring monitoring of primary production and determination if the activities have resulted in adverse effects that were not anticipated at the time of the granting, it will not be possible to reliably measure actual effects on primary production.
986. Given the available information we find that phytoplankton primary production effects will likely occur continuously over the 20 year operation, but that, despite high uncertainty in predictions, effects are unlikely to cause changes to the wider food web that are of ecological concern. We note the experts' reservation regarding

⁴²⁵ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [52].

⁴²⁶ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [53].

⁴²⁷ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [45(a)].

⁴²⁸ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [39].

specialised benthic feeders that have high site fidelity and are resident in the local area of the plume. Such effects are addressed in sections 10 and 14.

987. We now address benthic primary productivity. All experts participating in conferencing on primary productivity agree that on high rocky reefs (those sufficiently elevated above the sandy substrate to avoid persistent sand scouring) inshore of the project area, primary production by macroalgae is a key food source for herbivorous fish and invertebrates.⁴²⁹ They also agree that areas of elevated light at the seabed occur further offshore in the STB than is normal in the New Zealand region because of the shallower water associated with the Pātea shoal in the offshore areas of the STB and that this makes these reefs relatively unique in New Zealand.⁴³⁰
988. The experts agree that the amount of light reaching the seabed can be used as a proxy for first order assumptions about MPB production and macroalgae production.⁴³¹
989. They further agree that the consequences of reduced light at the seabed for benthic primary productivity depend on what macroalgae (seaweed) and benthic microalgae or MPB are present. Areas with a hard substrate and where more than about 0.1–1% of surface light often reaches the seabed are likely to have macroalgae present. Hard substrate in the SMD occurs at the Traps (Figure 1-2), in other small rocky outcrops and shell debris fields and cobbles around the deep margins of the banks, and in some rocky reef areas. Where macroalgae are present, reductions to the average light at the seabed will potentially reduce their growth rates, if they are light limited, and may reduce the area over which they can live if their minimum light requirement (the compensation irradiance) is no longer met.⁴³²
990. Regarding the relative importance of macroalgae primary productivity, Professor Cahoon states that:⁴³³
- PP by macroalgae is likely to be small relative to water column (phytoplankton) PP because of the small area of hard substrate at the scale of the SMD and the restriction of macroalgae to the bottom vs. the 3-dimensional distribution of phytoplankton. However, despite the sparse distribution of suitable substrate for macroalgae, their importance as substrate and habitat for many organisms may be disproportionately important relative to their overall productivity, at least locally.
991. Dr MacDiarmid considers that any impact on macroalgae is highly unlikely, given the modelled duration of reduced light events and the capacity of macroalgae to store energy in their large structures. She notes that macroalgal populations on nearshore and inshore reefs in the STB presently occur in an environment with

⁴²⁹ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [20].

⁴³⁰ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [20].

⁴³¹ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [23].

⁴³² Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [13].

⁴³³ Effects on Primary Production of Proposed Iron-Sand Mining in the South Taranaki Bight Region, L. Cahoon, M. Pinkerton, & I. Hawes dated 2015 at page 16.

frequent high turbidity events as indicated by the background sediment plume modelling.⁴³⁴

992. Model predictions presented in Pinkerton (2017) demonstrate that across all eight assessed sites, mining reduces the number of days per year when the seabed receives more than 1% of surface light, with substantially greater losses for mining at A than at B. For mining at Location A, absolute reductions range from 12 to 124 days per year (about 4–83% of background), while for mining at Location B reductions range from 4 to 64 days per year (about 1–38% of background).
993. The largest effects occur at The Crack 2, where days with >1% seabed light drop by 116 days (about 83% reduction from 140 to 24 days; mining at Location A) and by 53 days (about 38% reduction from 140 to 87 days; mining at Location B). The Crack 1, Graham Bank, and Source A to Whanganui 20 also show large absolute and proportional losses (about 58–67% reduction; mining at Location A), with more moderate but still substantial losses for mining at Location B (about 21–31% reduction). Rolling Grounds and Source A North 20 experience smaller changes (reductions between 4 and 18 days), indicating relatively minor changes in seabed light regime at these locations compared with the other sites.
994. We therefore disagree that the modelled duration of reduced light events supports Dr MacDiarmid's conclusion that impact on macroalgae is highly unlikely.
995. In relation to Dr MacDiarmid's statement that macroalgae have a capacity to store energy, we consider the following relevant statements recorded in the Joint Witness Statement:
 - a. Drs Shanahan and Barbara explain that, in addition to light reduction, deposited sediment can hinder spore settlement and regeneration of benthic macroalgae, thereby reducing both primary production and habitat provision if biomass is lost.⁴³⁵
 - b. Dr Shanahan notes that although macroalgae such as *Ecklonia radiata* can adapt to reduced light and store photosynthetic products, the associated physiological costs have not been considered, and high turbidity is known to reduce *E. radiata* biomass, depth distribution and productivity, with tolerance of low light coming at the expense of primary production and increasing vulnerability to other stressors such as rising temperatures.⁴³⁶
 - c. Dr Shanahan highlights that in healthy *Ecklonia radiata* forests, annual carbon production can reach up to five times the forest's biomass. In turbid environments, however, annual production declines to only one to two times the biomass (Blain et al., 2021).⁴³⁷

⁴³⁴ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [47].

⁴³⁵ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [33].

⁴³⁶ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [32].

⁴³⁷ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [44].

996. These descriptions are persuasive and therefore consider that, while technically Dr MacDiarmid's statement is correct, it fails to consider the cost of adaptive strategies to macroalgae growth and condition. We therefore disagree that the ability of macroalgae to store energy supports the conclusion that impact on macroalgae is highly unlikely.
997. Furthermore, experts consider chronic and cumulative aspects of the effects as follows:
- a. Drs Shanahan, Barbara, and Luick note that mining for 258 days per year for over 20 years should be considered as chronic because it limits the ability of macroalgal populations affected by the sediment plume to recover during periods of no mining.⁴³⁸
 - b. Drs Shanahan and Barbara note that sediment deposition and increased turbidity are cumulative impacts on benthic macroalgae.⁴³⁹
 - c. Drs Shanahan, Pinkerton and Barbara note that the impacts of climate change (including increased sea surface temperature, marine heatwaves, ocean acidification, and increasing storm events) and fishing are cumulative effects which will add to the effects from mining in the affected areas.⁴⁴⁰
998. We agree that the impacts of mining on benthic primary productivity need to be considered as chronic impacts and that impacts on macroalgae primary production are cumulative effects on macroalgae. We find that the chronic impacts expected from mining are not comparable to the episodic disturbances macroalgae are presently exposed to.
999. For the reasons set out above, we disagree with Dr MacDiarmid's conclusion that any impact on macroalgae is highly unlikely. Instead, we find that the evidence points to potential for chronic and cumulative reductions in light and increased turbidity and deposition, with consequential impact for macroalgae associated with some reefs (The Crack 2, The Crack 1, Graham Bank, and Source A to Whanganui 20) at a magnitude that will likely affect the composition and functioning of rocky reef flora. Effects on other reefs, both identified and potential yet unidentified reefs, are possible but due to uncertainties in the effects assessment, including the lack of a worst case benthic primary production effects assessment, not reliably quantified.
1000. Relevant to the potential significance of impact are statements related to potential recovery of macroalgae. All experts participating in expert conferencing agree that macroalgae populations (specifically, *Ecklonia radiata*) will take months to years to recover if significantly impacted.⁴⁴¹ Drs Shanahan and Barbara further consider that deposited sediment from mining in the pits and mounds in the project area will be resuspended for years to decades after mining stops which can impact macroalgal

⁴³⁸ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [48].

⁴³⁹ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [54].

⁴⁴⁰ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [55].

⁴⁴¹ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [45(c)].

primary production recovery; however, Professor Cahoon and Dr Barbara expect resuspension effects to decline exponentially with distance and with time from the mining operation.⁴⁴²

1001. We find that the proposed conditions are not sufficient to maintain conditions that avoid chronic turbidity and excess sediment deposition in areas rocky reefs. In this regard, the conditions lack assessment of and limits on elevated suspended sediment exposure duration and do not reflect the recommendation made by all experts participating in expert conferencing (bar Professor Cahoon who was absent during this discussion point) that for preserving benthic primary production, mitigation would likely better focus on preserving periods of clear water (to enable benthic primary production) rather than limiting high suspended sediment concentration.⁴⁴³
1002. Given the likely magnitude of effects on macroalgae primary production at sensitive reef-associated sites, the likely consequences for macroalgae growth and conditions, the chronic nature of impact and the slow recovery and the failure of conditions to limit duration of elevated suspended sediment exposure and provide for periods of clear water, we consider that benthic primary production by macroalgae in downstream sensitive areas (including The Crack 2, The Crack 1, Graham Bank, and Source A to Whanganui 20) would experience material harm due to suspended sediment-induced reduction in light availability for at least the duration of the operation. We do not consider that conditions can be developed and imposed to reduce this impact to the point that material harm would not arise.
1003. We will further address the cumulative effects on rocky reef flora in section 10.
1004. In this context we note that Taranaki Regional Council²⁹ raised that optical properties of the water are of specific relevance to them due to the linkage between water quality and habitat forming species present in areas of outstanding value. We also address this in section 10.
1005. Finally, we accept that, in light of the expert agreement on MPB distribution, adaptation, and recovery, effects on benthic primary production by MPB across the STB are likely below the level that would constitute material harm.

Effects on water quality from the release or nutrients or contaminants (excluding sediment)

1006. The Panel is satisfied that, on the evidence, nutrient release from the sediment is unlikely to materially affect water quality in the context of the hydrodynamic setting of the project site.
1007. Metals, metalloids, organometallic and organic compounds present in the sediment may be released into the water column through mining. These contaminants may settle on the seabed and potentially affect benthic fauna; however, we consider their

⁴⁴² Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [49-50].

⁴⁴³ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [69].

impact to be primarily a water column impact. The proposed activity would mobilise and redistribute contaminants already present in the mined sediments. Redistribution does not of itself eliminate the potential for adverse effects (including through changes in exposure pathways and concentrations at particular locations) and the Panel considers it appropriate that contaminants are monitored and maximum concentrations are controlled under Condition 6.

1008. We are generally satisfied that the proposed protection levels in Condition 6 are adequate for assessing potential effects on sediments but agree with Taranaki Regional Council that the reference to the guidelines should be updated to the current Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 (ANZG, 2018)⁴⁴⁴ and that ISQG-High should be updated to GV-high.

1009. We note that any contaminant monitoring conducted for the purpose of assessing contaminant levels in customary, recreationally or commercially caught or harvested seafood, concentration limits would need to reflect safe concentration limits for consumption.

1010. The applicant proposes to apply antifouling coatings to vessels. Mr Shawn Thompson describes that:⁴⁴⁵

With regards to Hull Cleaning and Antifouling Measures and the type of antifouling substances that would most probably be used (and their active ingredients). The most popular AFS compliant (no organotin; no cybutryne/Irgarol) coating i.e. a copper-based self-polishing copolymer (SPC) antifouling.

1011. Copper and other contaminants may leach out of the antifouling coating and may lead to elevated concentrations in the water column surrounding the vessels. The applicant has not assessed the potential impacts of the use of antifouling coatings on water quality. The Panel recognises the dynamic nature of the environment, which will facilitate rapid mixing of contaminants in the water columns. However, given the large size of the IMV, and therefore the large hull area proposed to be coated, and the permanent presence of the IMV in a relatively confined area over 20 years, the Panel considers that there is a risk of adverse impacts on water quality caused by contaminants leaching from antifouling coating. In the absence of an assessment, it is unknown whether the amount of contaminants released from antifouling coatings from the IMV and other vessels will have an adverse impact on the marine environment in the STB and what the nature of such an effect may be. This represents, in our opinion, a gap in the information and assessment before us. We are, therefore, prevented from being able to robustly assess the effects of these discharges at this point.

⁴⁴⁴ ANZG 2018. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia.

⁴⁴⁵ Evidence of S. Thompson (technical and operational) for TTRL in response to comments received dated 13 October 2025 at [45].

Brine discharge

1012. All experts participating in expert conferencing on benthic effects agree that the mechanism for discharge of the brine plume needs to be clarified⁴⁴⁶ and that more information is required to ensure that brine is adequately diluted.⁴⁴⁷ Dr Barbara notes that this process has not been assessed but it has very important consequences as brine is denser than sea water and will sink to the bottom of the pit. He further notes that brine concentrations above 45 parts per thousand are known to be lethal to most larval stages of benthic organisms and brine discharges are often low in dissolved oxygen which can then lead to dead zones on the seafloor.
1013. Dr MacDiarmid responded that it is her understanding, based on Mr Thompson's evidence (dated 13 October), that the brine will be mixed with the freshwater used to wash the ore resulting in a solution close to sea water salinity.
1014. Professor Cahoon notes that the mining activity will yield near-bottom discharges of sediment (primarily fine sand), brine from reverse osmosis (desalination process) backwash, as well as near-surface releases of fresher wash water but that the volume of effluents involved in both processes is relatively small compared to advective water transport at the mining site and should have minimal effect on primary production, except very locally.⁴⁴⁸
1015. Dr Barbara noted that the evidence presented by Mr Thompson (dated 13 October) that brine would be diluted down to 1.1 times that of sea water or less requires clarification.⁴⁴⁹ He recommends that brine discharge salinity is measured within the pit and at 100 m from the discharge point and required to not exceed 1.3 ppt above ambient salinity averaged over 24 hours.⁴⁵⁰
1016. The Panel agrees that there is a risk of adverse impacts from un- or poorly diluted brine discharge. The Panel acknowledges that the Mr Thompson describes that brine strength will be diluted down to ~1.1–1.3 times that of seawater before it is released into the ocean.⁴⁵¹ However, the applicant has provided insufficient evidence to assure the Panel that this level of dilution will be achieved.
1017. The applicant has not proposed conditions that require the salinity of the discharge (before or immediately after discharge, or near sensitive receptors) to be measured or controlled. On the basis of the information that is before us, we therefore cannot determine with any confidence the nature and extent of any adverse impact associated with brine discharge.

⁴⁴⁶ Joint Statement of Expert Witnesses – Benthic habitats and species dated 17 November 2025 at [15]

⁴⁴⁷ Joint Statement of Expert Witnesses – Benthic habitats and species dated 17 November 2025 at [16]

⁴⁴⁸ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [34].

⁴⁴⁹ Joint Statement of Expert Witnesses – Benthic habitats and species dated 17 November 2025 at [36].

⁴⁵⁰ Joint Statement of Expert Witnesses – Benthic habitats and species dated 17 November 2025 at [94].

⁴⁵¹ Evidence of S. Thompson (technical and operational) for TTRL in response to comments received dated 13 October 2025 at [30].

Assessment against the Horizons Regional Council coastal water quality targets

1018. The comments from Taranaki Regional Council and Horizons Regional Council refer to Horizons Regional Council's One Plan coastal water quality target of no change in visual clarity greater than 20% or less than 1.6 m and provisions for no change of greater than 10% in the euphotic zone. They acknowledge that this refers to the region's estuaries rather than coastal waters but consider the visibility and euphotic zone target a reasonable guideline for interpreting mining impacts on water clarity, particularly for habitats with important biodiversity features. The technical comments from Pattle Delamore Partners on behalf of the councils notes that mining would exceed that limit at six of the eight sites investigated.
1019. We treat these targets as contextual guidance only, given the different receiving environments, but we consider they assist in framing the scale of predicted change at sensitive habitats.

Conditions and monitoring

1020. All experts participating in expert conferencing (bar Professor Cahoon who was absent during this discussion point):
- a. Considered that the conditions limiting and monitoring the total production of ultra fines are targeting the greatest uncertainty and the most important factor determining the likely effect of mining on primary production.⁴⁵²
 - b. Considered that for preserving benthic primary production (MPB and macroalgae), mitigation would likely better focus on preserving periods of clear water (to enable benthic primary production) rather than limiting periods of high suspended sediment concentration, as is presently the focus.⁴⁵³
 - c. Agreed that variability in the location and movement of the plume means that in situ monitoring of suspended sediment will likely be difficult.⁴⁵⁴
 - d. Considered that satellite and/or aerial observations will be able to provide wide-area, synoptic information on the scale, intensity and optical effects of the sediment plume, in clear-sky conditions and that remote observation is hence likely to be a cost-effective complement to in situ plume monitoring.⁴⁵⁵
 - e. Agreed that instrumentation on mobile, autonomous (uncrewed) seacraft should also be considered alongside water sampling, in situ fixed stations and remote sensing for monitoring the plume.⁴⁵⁶
 - f. Agreed that sediment accumulation should be monitored at the additional key sites identified in the Morrison et al., (2022) report, as well as nursery grounds.

⁴⁵² Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [66].

⁴⁵³ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [69].

⁴⁵⁴ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [70].

⁴⁵⁵ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [70].

⁴⁵⁶ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [71].

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This should be measured in both pre-commencement and operational management plans as well as postmining (for at least 5 years).⁴⁵⁷

1021. Drs Shanahan, Barbara and Pinkerton suggest and support improved monitoring of water clarity via a suite of real-time turbidity buoys at key sites (e.g., reefs around the project area, Project Reef, the Traps) with trigger values for an operational response. They suggest that, once trigger values are set from measurements, operational responses can be set for tiered responses as seen in other consents. For example: tiered responses could be adopted (for example, internal escalation at a lower threshold, regulator notification at a higher threshold, and suspension of operations where exceedance persists until conditions return to agreed levels).⁴⁵⁸
1022. Drs Shanahan, Barbara and Pinkerton also propose an additional measure to pre- and post-commencement monitoring to identify whether operational responses are necessary to avoid material harm to reef habitat identified by pre-commencement bathymetric survey at certain sites. They would like to add key sites identified in the Morrison et al., (2022) report, as well as nursery grounds.⁴⁵⁹
1023. Given the high level of agreement by the experts, including Dr Pinkerton, we support these recommendations.
1024. Drs Shanahan and Barbara recommend that turbidity limits be based on measurements rather than modelled or predicted values, that irradiance/ photosynthetically active radiation measurements should be taken at the same time as turbidity measurements, and that both are measured at different depths in the water column. They note that these can help inform ecologically relevant thresholds.⁴⁶⁰
1025. We agree with these recommendations. As set out in our sediment distribution modelling findings, the proposed SSC limits and compliance framework depend on model outputs that are subject to material uncertainty and must therefore be applied conservatively and supported by monitoring and appropriate conditions.
1026. Professor Cahoon notes that he has reviewed the proposed Benthic Ecology Management Plan (**BEMP**) and is satisfied that, within the bounds of what is tractable in field conditions, there will be sufficient data to inform proper responses.
1027. Given Professor Cahoon's statements about the difficulties statistically identifying changes in field campaigns⁴⁶¹ and his subsequent statement that "the question is whether changes in primary production will overwhelm the ability of the system to adapt to these changes", it is unclear what magnitude of effect he considers detectable and thus capable of triggering a response. It is also unclear what type of

⁴⁵⁷ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [75].

⁴⁵⁸ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [73].

⁴⁵⁹ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [74].

⁴⁶⁰ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [72].

⁴⁶¹ Joint Statement of Expert Witnesses – Primary Productivity dated 24 November 2025 at [39].

response is contemplated as a whether such a response would be feasible at the spatial and temporal scales relevant to the predicted effects.

1028. In that context, reliance on monitoring and adaptive management cannot be treated as a substitute for an effects finding where (a) detection confidence is low, and (b) credible, timely, and effective operational responses are not clearly articulated. Accordingly, the evidence before us does not provide sufficient specificity to support that primary production effects could be reliably measured and effectively responded to through the BEMP as presently framed.

12 Effects on marine mammals

12.1 The application

1029. The application was supported by two statements of evidence on potential effects on marine mammals by Dr Simon Childerhouse⁴⁶², an effects assessment report prepared by NIWA⁴⁶³ (the NIWA report), a cetacean monitoring report prepared by Martin Cawthorn Associates, and a baseline report prepared by NIWA⁴⁶⁴ in 2011 and updated in 2015. Various reports and statements of evidence prepared during the previous application processes are referred to in these documents and were reviewed by the Panel as appropriate.

Marine mammals use of the STB

1030. Dr Childerhouse describes the STB as an important hotspot for marine mammal diversity within New Zealand, including as a feeding and breeding location.⁴⁶⁵ He states that, while the wider STB region is an important area for marine mammals, the modelled distribution of most marine mammal species is further offshore of the proposed consent area (with some notable exceptions such as common dolphins) and the proposed mining area is highly unlikely to be an area of any special biological significance to marine mammals.⁴⁶⁶
1031. Specifically, in his 2023 evidence, Dr Childerhouse concludes that:
- a. Literature on blue whale observations and distribution modelling confirms a low likelihood of blue whales being present in the proposed project location.
 - b. New spatial, distribution, and habitat suitability modelling confirms that the offshore areas of the STB, including the proposed consent area, are highly unlikely to be suitable habitat for Māui dolphins, are areas where Māui dolphins

⁴⁶² Evidence of Dr S. Childerhouse for TTRL dated 19 May 2023; Rebuttal Evidence of Dr S. Childerhouse for TTRL dated 23 February 2024.

⁴⁶³ Assessment of the Scale of Marine Ecological Effects of Seabed Mining in the South Taranaki Bight, Dr A. MacDiarmid, D. Thompson, & J. Grieve dated 2015

⁴⁶⁴ South Taranaki Bight Factual Baseline Environmental Report, N. Ching & others dated 2011

⁴⁶⁵ Evidence of Dr S. Childerhouse for TTRL dated 19 May 2023 at [4].

⁴⁶⁶ Rebuttal Evidence of Dr S. Childerhouse for TTRL dated 23 February 2024 at [12].

- will be found very rarely and, if they are present, are likely to be in very low numbers.
- c. Spatial distribution models confirm a low probability of southern right whale and orca occurrence within the STB.
 - d. Common dolphins are distributed throughout the region and have a high modelled probability of occurrence within the proposed consent area.
1032. The application includes a list of 47 marine mammal species extracted from sighting, stranding and incident data for the STB region from the Department of Conservation Marine Mammal Database to April 2023. Dr Childerhouse notes that the database shows:⁴⁶⁷
- a. only one record of a common dolphin within the proposed consent area;
 - b. six records from within a 5 km buffer around the outside of the proposed consent area (i.e., 4 common dolphin, 1 minke whale, 1 orca); and
 - c. six further records within a 5 km and 10 km buffer around the outside of the proposed area (i.e., 4 common dolphins; 1 Hector's or Māui dolphin, 1 blue whale).
1033. The application shows the threat status of marine mammals recorded in the STB derived from the NZTCS and the IUCN Red List⁴⁶⁸.
1034. We note that the applicant's approach for identifying threatened marine mammals is inconsistent with the threatened species definition of the EEZ Act. As described in section 3.4 (paragraph 158), threatened species include any species that fall within the definition of threatened species in s 2(1) of the Biosecurity Act 1993 or are declared to be threatened species or at-risk species by the Minister of Conservation under s 19 EEZ Act. The two documents listing marine mammal species and their relevant threat statuses under these legislations are the IUCN Red List, which was used by the applicant, and the Minister of Conservation's Declaration Notice dated 11 July 2013⁴⁶⁹. The threat status assigned to marine mammals under the New Zealand Threat Classification System (**NZTCS**) is not relevant for identifying threatened species under the EEZ Act; however, we acknowledge that it is ecologically relevant and informative for the assessment of effects on marine mammals.
1035. Before describing the applicant's effects assessment, the Panel examined whether the threatened species definition used by the applicant, and that under the EEZ Act, resulted in different threat statuses of marine mammals using the STB.
1036. The application identified eleven species as threatened: blue whale (specifically Antarctic blue whale, *Balaenoptera musculus intermedia*, and pygmy blue whale, *Balaenoptera musculus brevicauda*), bottlenose dolphin (*Tursiops truncatus*),

⁴⁶⁷ Evidence of Dr S. Childerhouse for TTRL dated 19 May 2023 at [32].

⁴⁶⁸ Application dated 15 April 2025, Table 3.4.

⁴⁶⁹ <https://gazette.govt.nz/notice/id/2013-go4245>

Bryde's whale (*Balaenoptera brydei*), fin whale (*Balaenoptera physalus*), Hector's dolphin (*Cephalorhynchus hectori hectori*), Māui dolphin (*Cephalorhynchus hectori maui*), humpback whale (*Megaptera novaeangliae*), orca (*Orcinus orca*), sei whale (*Balaenoptera borealis*), sperm whale (*Physeter macrocephalus*), and New Zealand sea lion (*Phocarcos hookeri*).⁴⁷⁰

1037. The assessment of the applicant's species list against the threatened species definition under the EEZ Act by the Panel identified the southern right whale (*Eubalaena australis*) as an additional threatened species due to its inclusion in the Minister of Conservation's Declaration Notice.
1038. We find that the effects assessment and proposed conditions apply an incorrect definition of 'threatened species', which has led to southern right whale being omitted from the application's list of threatened species. While that omission is a deficiency, it is mitigated to some extent by the fact that habitat suitability modelling and an effects assessment were undertaken for southern right whales. We return to the implications of this in our findings.

Assessment of effects on marine mammals

1039. The main potential effects on marine mammals considered by the applicant are:
- a. behavioural disturbance and temporary displacement due to suspended sediments within the SSC plume;
 - b. behavioural disturbance and auditory effects from underwater noise; and
 - c. vessel collision.
1040. Within the application documents, several effects assessments are presented, each with a different focus, scope, and assessment approach:
- a. the NIWA report assesses effects of the project on seven species: blue whale, southern right whale, killer whale, Hector's dolphin, common dolphin, pilot whales, and New Zealand fur seal. The report does not provide a rationale for the choice of species assessed; however, the application describes that the assessment:⁴⁷¹

has focused on the six species that have been summarised above as they are either known to be present within the project area, have a high threat status, and/or are of particular significance to local communities and tangata whenua.

The NIWA report evaluates the proportion of each species' distribution and core habitat overlapping the modelled area of SSC elevation and applies a standardised consequence scale (negligible to catastrophic) based on habitat proportion affected, population-level impact and recovery time.

⁴⁷⁰ The New Zealand sea lion is identified as threatened by Dr Childerhouse¹ but was omitted from Table 3.4 in the Application.

⁴⁷¹ Application dated 15 April 2025, page 86.

- b. Dr Childerhouse comments on specific effects on marine mammals, primarily effects from underwater noise, or on specific species in his review of new information in his 2023 evidence⁴⁷² and in response to matters raised by other experts his 2024 rebuttal evidence.⁴⁷³
 - c. The application provides an overall assessment of effects on marine mammals, relying on information from the NIWA report, Dr Childerhouse's statements of evidence, reports and evidence on underwater noise⁴⁷⁴, and scientific literature.
1041. Effects arising from the suspended sediment plume were assessed in the NIWA report by determining consequence levels for the intensity of the proposed mining activity for the seven species. Consequence levels were determined by combining three descriptive factors: the proportion of the relevant habitat that is affected; the nature and magnitude of the ecological impact on populations, communities or habitats expressed as increasing changes ranging from undetectable or minor shifts through substantial alteration, local extinctions and loss of functional groups; and the expected recovery period once the activity ceases.
1042. To determine ecologically consequential concentrations of suspended sediment on marine mammals and other pelagic and benthic species, the NIWA report reviewed published species responses to SSC. The report summarises SSC thresholds identified for pelagic fish, benthic species, and zooplankton. It identified that there are no similar data available for sea birds or marine mammals. For this reason, the 2 mg/L threshold was used as a conservative minimum threshold for all pelagic species of fish and invertebrates, sea birds, and marine mammals.
1043. The size of the area where the proposed iron sand mining activities is estimated in the NIWA report to elevate suspended sediment concentration above 2 mg/L in surface and near-bottom parts of the water column were calculated as 45.3 km² (surface water) and 75.7 km² (bottom water). For pelagic species, including marine mammals, the affected area was estimated based on the average of the surface and near-bottom values (60.5 km²).
1044. The findings of the marine mammal impact assessment of the NIWA report are as follows:
- a. The potential feeding area of blue whales in the STB is approximately 29,930 km² if areas shallower than 25 m are excluded. Given that the areas of SSC elevated above 2 mg/L due to the proposed mining represents only 0.2% of this potential feeding area and lies on the margins of blue whale feeding grounds, any displacement of blue whales or decrease in krill abundance or availability due to mining should have negligible effects on blue whales while in the STB.
 - b. Given that southern right whales are unlikely to be feeding on locally available prey during the period they transit through the inshore waters of the STB, and

⁴⁷² Evidence of Dr S. Childerhouse for TTRL dated 19 May 2023.

⁴⁷³ Rebuttal Evidence of Dr S. Childerhouse for TTRL dated 23 February 2024.

⁴⁷⁴ Described and evaluated in section 9 – Underwater noise generation

that modelling suggests that the majority of the STB is unfavourable habitat for southern right whales during the winter calving, suckling and migration period, the proposed mining activities are unlikely to affect this species through any ecological effect. Ship strikes and underwater noise remain a possible threat, but these can be mitigated through adoption of standard procedures.

- c. Given that modelling suggests orca are distributed over a very large proportion of the EEZ and the extended continental shelf, the most favoured habitats lie well away from the region, the majority of the STB is only moderately favourable habitat for orca, and its prey species occur over a wide area in the STB, the proposed mining activities are unlikely to cause significant or measurable displacement, or decrease prey abundance or availability during the periods that orca visit the region.
- d. Given that modelling suggests that the majority of the STB is unfavourable habitat for Hector's dolphins (including the sub-species Māui dolphin), the present-day near absence of sightings of Hector's dolphins in the region, the preference of Hector's dolphin for areas of low water clarity, and the likely negligible effects of mining activities on stocks of prey species, mining 50 Mt per annum is likely to have negligible effects on this species in the near future. This conclusion should be reviewed from time to time, particularly if sightings of Hector's dolphins in the region increase.
- e. Common dolphins have a wide distribution and wide ranging movements around New Zealand. The area of distribution of Jack mackerels, their common prey species, in JMA7 is 171 times the size of the area potentially impacted by the proposed mining activities. Any displacement of common dolphins or decrease in prey abundance or availability due to proposed mining is highly likely to have negligible effects on the status of the common dolphin population in the STB.
- f. Pilot whales have a wide distribution and wide ranging movements around New Zealand. Any displacement or decrease in prey abundance or availability due to mining activities is highly likely to have negligible effects on the status of the pilot whale populations.
- g. The proposed mining activities are within foraging range of the closest breeding colonies of New Zealand fur seals on Stephens Island and on the Sugar Loaf Islands. Lactating females are the most at risk to threats as their foraging range is restricted because they must return to their colony to suckle their pups at frequent intervals. If lactating females from Stephens Island and the Sugar Loaf Islands forage a mean maximum distance of 100 km from their rookery (as described in scientific literature), they would be displaced from, or experience a decrease in prey abundance or availability over <1% of their foraging area due to overlap with the area of SSC elevated above 2 mg/L due to mining 50 Mt per annum. This is a negligible impact. As males and non-lactating females are not obliged to return to shore at frequent intervals and potentially forage over much greater areas, the impact of the proposed mining activities will also be negligible on these animals.

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1045. Overall, the NIWA report concluded that the combination of wide-ranging movements and small relative plume footprint resulted in negligible consequences to be assigned to the seven marine mammals species assessed.
1046. The Panel notes that the NIWA report did not assess impacts of suspended sediment on eight threatened marine mammals identified by the applicant as using the STB, namely bottlenose dolphin, Bryde's whale, fin whale, Māui dolphin, humpback whale, sei whale, sperm whale, and New Zealand sea lion.
1047. Potential effects from underwater noise generated by the project were addressed by Dr Childerhouse, who relied on underwater noise modelling by Mr Humpheson described in section 9. The key elements and findings of assessments are provided in his 2023 and 2024 evidence and can be summarised as follows:
- a. While Dr Childerhouse believes that there was sufficient information relating to marine mammals and the potential impacts upon them provided in the 2017 case for the DMC, he describes that additional information on marine mammal (use and distribution) made available since 2017 has considerably improved understanding of marine mammals in the region.
 - b. Based on available data and a consistent pattern whereby the probability of presence of a species within the proposed mining area was estimated to be consistently lower than many other parts of the STB region, he concludes that while the wider STB region represents an important area for marine mammals, the proposed mining area is highly unlikely to be an area of any special biological significance to marine mammals.
 - c. There has been less new information about marine mammal population numbers in the region. Dr Childerhouse considers estimating abundance to be an extremely difficult task given the variety and sheer number of species, the large area over which they range, the estimated low density of marine mammals, and the logistical, financial and scientific challenges with estimating abundance of marine mammals. He notes that while it may be possible to obtain abundance estimates, he considers it to still be possible to assess impacts of the mining operation on marine mammals in the STB without abundance estimates.
 - d. In regard to potential effects on Hector's and Māui dolphin from underwater noise, he notes that if any Hector's or Māui dolphins were present around the mining area, then their 50 km home range would provide them plenty of area to move away from the operation while remaining inside their home range. Also, the operation will be more than 12 nautical miles (~22 km) offshore at all times (and regularly much further offshore than this) which means that the area of dolphin home range between the shoreline and 22 km offshore will be unimpacted by the operation and provide areas for dolphins to move to in the unlikely event that they are disturbed or displaced by the offshore operation.

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- e. In response to comments that uncertainties in underwater noise estimates preclude undertaking a robust assessment of any impacts, Dr Childerhouse notes that it is not essential to be able to predict the underwater noise levels of the operation because TTRL have proffered Condition 11 that sets the maximum allowable level of underwater noise from the operation. He states that if this condition is implemented, then the operation will be limited in the amount of noise it is allowed to make and therefore the maximum noise levels possible from the operation are known.
- f. Underwater noise from the crawler and IMV is identified as the main direct effect pathway, with updated modelling showing:
 - i. No likelihood of PTS for any marine mammal at 500 m from the operation.
 - ii. No likelihood of TTS for any marine mammal at 500 m from the operation except for a small possibility of TTS for very high frequency cetaceans (including Māui/Hector's) if they remain in the area for more than 24 hours.
 - iii. Potential for TTS or PTS at distances <500 m is considered theoretically possible but practically very unlikely, and therefore a negligible risk.
- g. With respect to potential behavioural effects, Dr Childerhouse describes that it has become more difficult to provide a definitive assessment as the previously used assessment standard (120 dB threshold) is no longer considered appropriate and there is no new standard. He notes that the combined noise level estimated to be generated by the crawler unit and IMV combined is 177 dB re 1µPa₁₃ and that this level is significantly lower (i.e., 90% quieter) than the average noise level of 187 dB re 1µPa for large vessels (i.e., 100-300 m in length) measured in New Zealand and overseas. He therefore suggests that the potential behavioural effects from this operation will be significantly less than we would expect to see from a large vessel with the possible caveat that this operation is very slow moving compared with faster moving a large vessel.
- h. Dr Childerhouse describes the 2020 designation of two Important Marine Mammal Areas (**IMMAs**) within the broader STB region in recognition of the high diversity of marine mammals within each area, including the presence of threatened and endangered species. The proposed consent area falls completely within the STB IMMA and covers approximately 0.1% of the IMMA area. He notes that the aim of the IMMA to ensure mitigation or avoidance of impacts on marine mammals has been achieved through a very detailed consideration of the potential impacts on marine mammals as part of this consent process and the proposed conditions to protect marine mammals by TTRL.

- i. In regard to uncertainty in data on marine mammals, Dr Childerhouse agrees that there is some uncertainty with some aspects of the available data, however, he believes that there is sufficient data upon which to make robust and accurate assessments with respect to marine mammals. Where the best available information includes gaps or uncertainty, it is still possible to proceed in making sensible judgements while accounting for uncertainty and implementing a precautionary approach if required. In his opinion, the best available information presently before the decision makers is sufficient to form some reasonable conclusion about the likely impact of this project.
1048. The application provided an assessment of effects on marine mammals from vessel collision. It states that while there is always the potential for collisions between marine mammals and any vessels, including project related vessels, given that most of the vessels associated with the project (e.g., IMV, Trans-Shipment FSO, CEV) will be either stationary or moving very slowly (i.e. less than 5 knots or 8 kph) while on site, marine mammals that may be in the area will be more than capable of swimming away from the vessels and avoiding collisions. As such, the applicant concludes that the risk of vessel collision with marine mammals will be negligible.
1049. While the risk of a collision is very low, any collision if it did occur, is only likely to result in minor injuries due to the very slow speed of the vessels involved. There is a negligible risk of any maiming or the death of marine mammals from such slow speed collisions.
1050. Notwithstanding the already negligible risk, TTRL has proposed some additional mitigation actions to further reduce any residual risk (e.g., marine mammal observers, Vessel transit protocols including watchkeeping for marine mammals) which are provided for in the proposed consent conditions.
1051. The application includes the following additional notable statements:
- a. Some species of whales or dolphins may be highly sensitive to any disturbance while other cetacean species may even be attracted to the activities. In addition, some individuals within a given population such as juveniles, old, diseased, or disoriented individuals may be more prone to disturbance or other impacts. Consequently, the operational activities employed, timing of activities and the behavioural state of an individual or group will also influence the probability of interactions occurring.
 - b. The application states that:

Ching et al.⁴⁷⁵ concludes that the project would not impact on southern right whales when considering their typical range, habitat and behaviour.⁴⁷⁶

Ching et al. concludes that the proposed project is likely to have negligible effects on Hector's and Maui dolphins due to the absence of sightings in the STB, their

⁴⁷⁵ South Taranaki Bight Factual Baseline Environmental Report, N. Ching *et al* dated September 2011 (updated November 2015), pages 18.

⁴⁷⁶ Application dated 15 April 2025, page 198.

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preference for areas of low water clarity, and the likely negligible effects of project on prey species⁴⁷⁷

When considering the large area occupied by the common dolphin around New Zealand, and its ability to range over an extensive area, Ching et al. concludes that any potential effects on the common dolphin population in the STB will be negligible⁴⁷⁸

Based on its foraging area, potential displacement and extent of potential effects on marine ecology and fisheries, Ching et al. concludes that any potential effects on fur seals will be negligible.⁴⁷⁹

1052. The Panel reviewed Ching et al. (2015) but could not find these conclusions. In this regard, Ching et al:

- a. Describe overall whale and dolphin presence using Department of Conservation and other sighting records, but it does not present a project-specific effects assessment for any species.
- b. Do not provide any information on New Zealand fur seals.
- c. Provide relevant information to supplement the effects assessment. Specifically, the report:
 - i. Identifies southern right whales as one of three endangered or critically endangered cetacean species that frequent the STB (noting that relatively few sightings of cetaceans have been made within the northern and southern Taranaki bights and that the populations of these species are extremely low New Zealand wide)
 - ii. Provides a population estimate of Maui's dolphin (111 individuals), describes habitat preferences and Hector and Māui dolphins and their distributions, and describes seven sightings of Māui dolphin from the Department of Conservation and Cawthron datasets within a 25 km buffered TTRL area reflecting a seasonal distribution pattern: all summer sightings are close to shore, while 1 winter sighting is also close to shore while a second sighting was recorded approximately 25 km from shore and in waters greater than 100 m deep.

1053. The application states that:⁴⁸⁰

DOC do not have any monitoring programmes for Maui dolphins within the STB given that they are not expected to be there.

1054. The Panel notes that this statement is not referenced, so it cannot be verified. In the absence of a supporting source, we place no weight on this statement.

⁴⁷⁷ Application dated 15 April 2025, page 199.

⁴⁷⁸ Application dated 15 April 2025, page 199.

⁴⁷⁹ Application dated 15 April 2025, page 200.

⁴⁸⁰ Application dated 15 April 2025, page 199.

Conditions

1055. The applicant proposes a range of conditions aimed at mitigating, managing and monitoring effects on marine mammals. The most relevant conditions are described below.
1056. Core protection standard (Condition 10):
- a. Condition 10 sets an overarching limit that project activities must not cause adverse effects on blue whales or any marine mammal listed as Nationally Endangered, Nationally Critical, or Nationally Vulnerable, and requires other marine mammal effects to be avoided “to the greatest extent practicable”.
 - b. It mandates dedicated trained observers on all operational vessels, staff training on legal obligations, systematic recording and reporting of sightings (especially Māui/Hector’s dolphins), speed reduction and avoidance measures near large whales and blue whale feeding aggregations, and prompt reporting of any strike, entanglement, injury, or death.
1057. Soft start procedures:
- a. Before IMV start-up, trained observers must visually clear a 500 m mitigation zone of whales and dolphins for at least 30 minutes, delaying start-up if animals are present until 30 minutes after they leave.
 - b. These soft starts aim to let animals move away before full power noise begins, and all prestart observations must be logged and reported.
1058. Management plans (Marine Mammal Management Plan (**MMMP**), PCEMP, EMMP)
- a. A MMMP must be developed (with Department of Conservation and kaitiaki input) and certified before mining, to show how Condition 10 will be met, set procedures to minimise entanglement risk, define indicators of adverse effects on key STB species, and prescribe operational responses, while integrating Marine Mammals Protection Act obligations.
 - b. A two year pre-commencement monitoring programme must be run under a PCEMP, including marine mammal and underwater noise components with defined objectives, methods, sites, analyses, and reporting.
 - c. Once operating, an EMMP must ensure ongoing monitoring of marine mammals and underwater noise, compare operational data to baseline to detect any unanticipated adverse effects, and specify operational responses if such effects arise, with any revisions keeping monitoring adequate in duration, frequency, and relevance.

1059. Technical Review Group:

- a. A TRG must always include experts in marine mammal ecology and underwater noise, providing specialist scrutiny of monitoring and management relating to these effects.

12.2 Comments received, applicant's response to comments, RFI, JWS

1060. The following parties commented on marine mammal effects:

- a. Forest and Bird (expert evidence of Dr Deanna Clement, includes JASCO scientific peer review commissioned by Department of Conservation, referred to as the "JASCO report");
- b. KASM (expert evidence of Dr Leigh Torres);
- c. Te Tōpuni Ngārāhu Trust (Ngā Iwi o Taranaki collective);
- d. Te Kāhui o Taranaki Trust;
- e. Te Rūnanga o Ngāti Ruanui Trust;
- f. Te Kāhui Maru Trust;
- g. Ngāti Tū hapū;
- h. Araukūkū hapū;
- i. Kanihi-Umutahi me ētahi atu hapū;
- j. Ngāti Haua hapū;
- k. Ngāti Manuhiakai hapū;
- l. Te Rūnanga o Ngāti Mutunga;
- m. Te Kaahui o Rauru Trust.
- n. Various councils including South Taranaki District Council, New Plymouth District Council, Whanganui District Council, Rangitīkei District Council, Taranaki Regional Council (with Pattle Delamore Partners technical support) and Horizons Regional Council (with Pattle Delamore Partners technical support);
- o. Parliamentary Commissioner for the Environment;
- p. Climate Justice Taranaki Incorporated;
- q. Ngā Motu Marine Reserve Society;
- r. Whanganui Manawatu Sea Fishing Club and Pātea and Districts Boating Club;
- s. Te Ohu Kaimoana;
- t. Brooks Seafood Ltd & Awaroa Fisheries Ltd;

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- u. Opunake Boat and Underwater Club; and
 - v. Talley's Group Limited.
1061. Commenters consistently state that the STB supports a diverse assemblage of marine mammals, including several threatened taonga species. The project area is described by many commenters as ecologically important for these species and assert that this is underestimated by the applicant.
1062. Many commenters raise concern about underwater noise from a novel, continuous mining operation, with uncertain but potentially wide-ranging behavioural and hearing effects. Criticism is raised about inadequate baseline information and cumulative effects assessment, both in regard to cumulative noise and wider impacts, including those arising from climate change. Commenters note that the application does not utilise all available information, including recent research, and thus does not reflect best available information on marine mammals and their habitats.
1063. Deep cultural objections are noted from iwi and hapū that impacts on marine mammals, their prey and habitats undermine mauri and breach kaitiakitanga and Treaty-based relationships.
1064. There is widespread doubt among commenting parties that proposed conditions, management plans and monitoring will avoid, remedy or mitigate adverse effects on marine mammals, given uncertainties, project duration and existing stressors.
1065. The applicant's responses to comments on water column effects are primarily set out in the comprehensive statements of evidence of Dr Childerhouse⁵. Dr Childerhouse notes that while a wide range of comments were received from parties, there were few new issues that had not already been addressed in previous material and, overall, there is nothing sufficiently new or updated for him to change any of his previous views.
1066. The Panel considered that further information was required to clarify information presented by some parties on marine mammal use of the STB. A targeted request for information was issued to South Taranaki Underwater Club, Whanganui-Manawatu Sea Fishing Club, Mr Brooks (representing Brooks Seafoods Ltd and Awaroa Fisheries), Araukuuku hapū, Ngāmotu Marine Reserve Society, Kiwis Against Seabed Mining Incorporated and Greenpeace Aotearoa Incorporated, and Taranaki Offshore Partnership.
1067. We refer to specific comments relevant to our findings, the applicant's responses, and information received by parties in response to our request for information in our findings below.
1068. To ensure the Panel had an accurate understanding of any outstanding agreements and disagreements among experts, expert conferencing on the topic of marine mammals was directed.

1069. The conference took place on 20 November 2025 and was attended by the following experts:
- a. Dr Simon Childerhouse on behalf of TTRL;
 - b. Dr Deanna Clement on behalf of Forest and Bird;
 - c. Anna Madarasz-Smith on behalf of Taranaki Regional Council and Horizons Regional Councils; and
 - d. Dr Leigh Torres on behalf of KASM and Greenpeace.
1070. Experts participating in expert conferencing on the effects on marine mammals agreed that:⁴⁸¹
- a. the baseline information is sufficient to identify which marine mammal species use the STB;
 - b. any species observed in the wider area could be present near the project area;
 - c. the most vulnerable species that need to be considered are blue whale (due to year-round presence in STB) and Māui/Hector's dolphin (due to low abundance);
 - d. any additional impact on Māui dolphins will be unsustainable and therefore should be avoided; and
 - e. managing adverse effects on blue whales and Māui dolphins will likely provide protection for other species.
1071. In regard to potential impacts on marine mammals, all experts participating in expert conferencing agree that:⁴⁸²
- a. the key potential impacts include underwater noise, entanglement, vessel strike, direct and indirect effects from the sediment plume, and trophic effects;
 - b. these impacts can lead to loss of foraging opportunities due to displacement, habitat alteration, potential increased physiological stress, poor prey quality and quantity, and consequently could impact the health, reproductive capacity, and population abundance of marine mammals;
 - c. the level of impact will vary significantly between species and populations;
 - d. vulnerable life stages include calving, migration, breeding and foraging;
 - e. overall, the potential incidence of vessel strike and entanglement is low (but note that a death of a single individual from a threatened species could have catastrophic consequences, including population-level effects);

⁴⁸¹ Joint Statement of Expert Witnesses – Marine Mammals dated November 2025 at [11], [16], [31].

⁴⁸² Joint Statement of Expert Witnesses – Marine Mammals dated November 2025 at [12], [15], [17], [18], [19], [20].

- f. habitat destruction and the sediment plume represent a risk to marine mammals; and
 - g. underwater noise represents a potentially high risk to marine mammals.
1072. Disagreements among experts and comments received cluster around the magnitude of risks from suspended sediment and underwater noise to marine mammals, including the certainty and sufficiency of information, and whether the proposed conditions are sufficient to protect marine mammals, especially vulnerable species.
1073. The agreement among experts on these matters provides a helpful focus for our evaluation. We note however that several iwi, hapū, and Māori organisations stress that marine mammals are taonga and that the moana is a living entity with mauri, so impacts on marine mammals, especially on threatened taonga species, are cultural harm.
1074. Therefore, while our evaluation recognises blue whales and Māui dolphins as the most vulnerable species to the effects of the proposed mining operations, we carefully assess effects on all threatened species identified as using the STB. We accept that managing adverse effects on threatened species will likely provide protection for other species

12.3 Findings

Importance of the area for marine mammals

1075. The STB is an important hotspot for marine mammal diversity within New Zealand. Dr Childerhouse describes the wider STB region as an important area for marine mammals but considers it highly unlikely that the proposed mining area is an area of any special biological significance to marine mammals. Several commenters state that the applicant underestimates the presence and significance of marine mammals in and around the mining site, including for pygmy blue whales and Māui dolphins.
1076. Twelve threatened marine mammal species have been identified as using the STB (blue whale (specifically Antarctic blue whale), bottlenose dolphin, Bryde's whale, fin whale, Hector's dolphin, Māui dolphin, humpback whale, orca, sei whale, sperm whale, southern right whale and New Zealand sea lion) and, as agreed by experts in expert conferencing, any species observed in the wider area could be present near the project area.
1077. Dr Childerhouse helpfully considered Policy 11 of the NZCPS in his rebuttal evidence dated 23 January 2024 and concluded that:⁴⁸³

both policy 11(a) and 11(b) apply to this application as is consistent with the judgement in the Supreme Court decision.

⁴⁸³ Rebuttal Evidence of Dr S. Childerhouse for TTRL dated 23 February 2024 at [50].

1078. In addition to the information presented by experts, we received responses to our request for information that was generally consistent with the scientific expert information. We acknowledge the reduced scientific robustness of this information; however, note that it demonstrated generally consistent observations and useful insights into patterns of marine mammal use of the STB that complements the scientific information available. We point out the information provided by the Whanganui-Manawatu Sea Fishing Club who surveyed their members asking for descriptions of marine mammal sightings and described:
- a. Sightings of multiple marine mammal species in the STB that confirm previously described species, including threatened blue whales, Hector's or Māui dolphin, humpback whale, orca, sperm whale, and southern right whale.
 - b. Specific behaviours and movement patterns, such as orca swimming through in early summer and chasing stingrays near the Whanganui River, mega-pods of dolphins passing through while single animals or pairs remain visible over several days, and orca moving up and down the Whanganui River over about a week each year before disappearing.
 - c. Whales (including humpbacks) are reported as “always seeming to be coming through” with particular mention of humpback sightings in June–July and whales observed breaching and ‘playing’, sometimes with juveniles present, suggesting that the STB provides a migratory corridor and feeding or resting areas during seasonal movements.
 - d. Observations of baby whales and baby dolphins, along with breaching and active behaviour, that are interpreted in the response as indicating feeding, resting and potential nursery or calf rearing use of parts of the STB during migration periods.
 - e. More frequent sightings of marine mammals in warmer months, particularly spring and summer, with fewer observations in winter. This pattern is noted as broadly aligning with when recreational fishing and diving effort is highest (spring–autumn), meaning most sightings occur during these busier seasons.
1079. We also note that the STB has been designated by the IUCN as an IMMA, recognising it as an area of high diversity of marine mammals, including the presence of threatened and endangered species. As described by Dr Childerhouse, the proposed consent area falls within the STB IMMA and covers approximately 0.1% of the IMMA.⁴⁸⁴
1080. We find that the STB is ecologically important area for marine mammals due to the high diversity of marine mammals, including twelve threatened species. Given the available information, it is likely that all twelve threatened species occur within the area predicted to be impacted by the project via suspended sediment or underwater noise.

⁴⁸⁴ Evidence of Dr S. Childerhouse for TTRL dated 19 May 2023 at [70]

1081. Eleven of the threatened species meet the descriptors of NZCPS Policy 11(a)(i) and (ii) with southern right whale being classified under the EEZ Act definition.

Effects from suspended sediment

1082. Experts participating in expert conferencing agree that increased turbidity and suspended-sediment concentrations can modify prey quality, distribution, abundance, and behaviour through changes in light availability, habitat structure, and water quality and that these changes can reduce the foraging efficiency of marine mammals that depend on prey species sensitive to turbidity or benthic disturbance.⁴⁸⁵
1083. However, experts strongly disagreed on the likely magnitude of risk posed by the sediment plume.⁴⁸⁶ While Dr Childerhouse notes that the extensive plume modelling and risk assessment undertaken by the applicant concludes that there will be little or no impact on marine mammals or their prey other than in the immediate area around the operation, Dr Torres considers the sediment plume to be a high risk. Ms Madarasz-Smith and Dr Clement consider there to be insufficient evidence to inform their views on the level of risk in relation to sediment plume.
1084. The NIWA report concluded that the combination of wide-ranging movements and small relative plume footprint resulted in negligible consequences for the seven marine mammal species assessed. This conclusion was subsequently applied to marine mammals in general as described in the application as follows:⁴⁸⁷

While these three groups do not cover all the possible marine mammals that may occur within the area of activity, they represent either: (i) the species that occur in the area most commonly or (ii) that may occur in the area less commonly but have a threatened status. The consideration of potential impacts on these three broad groups is considered to broadly cover any potential impacts that may be possible on any of the other species that are not being directly addressed.

1085. Dr Torres raised that:⁴⁸⁸

there is a need to assess the impacts of the mining operation across a more realistic range where sound and sediment plume will extend.

1086. As outlined in section 8, the suspended sediment plume is mobile and responds to wind-driven fluctuations in currents. As explained by Dr Collins, the percentile map (used to calculate the 60.5 km² area within which SSC may exceed 2 mg/L) does not provide an adequate picture of the areas within the STB that are likely to be affected by suspended sediment. Therefore, both the size and the location of the area exceeding 2 mg/L will fluctuate dynamically over the duration of the operation. We agree with Dr Torres that there is uncertainty around the spatial extent of the sediment plume. While we agree with the applicant that the 2 mg/L threshold is conservative for identifying areas of direct impact of SSC on marine mammals via

⁴⁸⁵ Joint Statement of Expert Witnesses – Marine Mammals dated November 2025 at [14].

⁴⁸⁶ Joint Statement of Expert Witnesses – Marine Mammals dated November 2025 at [21].

⁴⁸⁷ Application dated 15 April 2025, page 196.

⁴⁸⁸ Evidence of Dr L Torres for KASM and Greenpeace dated 6 October 2025 at [40].

displacement, the applicant could have reasonably reduced uncertainty in the spatial extent of suspended sediment effects by providing an estimate of the total area affected by SSC above 2 mg/L. However, the applicant did not.

1087. Several commenters also link sediment plume effects to marine mammals via prey and ecosystem changes (primary productivity, benthic communities, reef systems) and raise concern that the plume footprint could extend many kilometres, including into productive foraging areas and blue whale habitat, with uncertain SSC, persistence and recovery (e.g. comments by Dr Torres).
1088. Experts attending expert conferencing on primary productivity agreed that mesopelagics (zooplankton, krill, small fish) are unlikely to be substantially affected because they are widely distributed, mobile, and feed in the water column and that the effects on higher trophic species will likely be higher on specialised benthic feeders that have high site fidelity and are resident in the local area of the plume.
1089. We rely on the primary productivity experts and find that suspended sediment will not materially impact marine mammals via changes in prey species.
1090. However, a comment made by Dr Torres on the implication of unpredictable foraging grounds is relevant to the Panel's consideration of the applicant's assessment approach. In response to comments, Dr Torres describes that Dr. MacDiarmid had noted on day three of the 2023 hearing that whales can travel long distances in search of food. Dr Torres responded to that comment by stating:⁴⁸⁹

While this is true, it does not mean that this is a healthy strategy. Travelling and searching for many kilometres and days takes significant energy. Furthermore, time spent travelling is time spent not eating. Blue whales rely on the STB region for predictable prey availability; It remains the only confirmed blue whale foraging ground in New Zealand. If the STB provides poor foraging opportunities, either due to environmental conditions or disturbance from human activities, then the whales need to work a lot harder to find food, causing reduced health and lower reproductive capacity.

1091. The applicant's experts did not respond to this comment specifically, but Dr Childerhouse referred to the extensive plume and sediment modelling and reiterated that:⁴⁹⁰

Given the extremely large home ranges of these whales, any impacts from the proposed operation will only affect a very small proportion of their total home range.

1092. Dr Childerhouse also refers to Dr Clement's statement that this project presents a relatively low risk to marine mammals in relation to sediment plume impacts.⁴⁹¹

⁴⁸⁹ Evidence of Dr L Torres for KASM and Greenpeace dated 6 October 2025 at [41].

⁴⁹⁰ Evidence of Dr S. Childerhouse on behalf of Trans-Tasman Resources Limited in Response to Comments, 13 October 2025 at [181]

⁴⁹¹ Evidence of Dr S. Childerhouse on behalf of Trans-Tasman Resources Limited in Response to Comments, 13 October 2025 at [181]

1093. We note that Dr Clement's most recently noted that she considered there to be insufficient evidence to inform her views on the level of risk in relation to sediment plume.⁴⁹²
1094. Based on the information presented by the applicant and other parties, we find that there is uncertainty around the effects of suspended sediment on marine mammals in the STB. The applicant's effects assessment relies strongly on the proportion of foraging habitat potentially lost as a consequence of the mining operation. We agree that this area has been assessed using a conservative SSC threshold; however, there is uncertainty on the variability of the area affected in space and time and the applicant has not addressed the potential consequences of an increased unpredictability of foraging habitat.
1095. As noted above, marine mammal experts agree that the level of impact will vary significantly between species and populations and that vulnerable life stages include calving, migration, breeding and foraging. The applicant has not addressed these factors in the effects assessment, including in the assessment of effects on Māui dolphins, blue whales, or other threatened marine mammal species.
1096. Those uncertainties are not minor. They prevent the Panel from being satisfied, on the best available information, that adverse effects on marine mammals will be avoided or reduced to a non-material level. Applying the information principles, this uncertainty weighs against reliance on the assessment as presented.
1097. Effects arising from on sediment in the water column are proposed to be assessed under Condition 10. We comment on Condition 10 below.

Assessment of effects from underwater noise

1098. Underwater noise has been consistently identified as the primary risk of the mining operation for marine mammals. Many parties commented on marine mammals, with most specific concerns also being addressed in expert conferencing on effects on marine mammals.
1099. We reviewed information provided and comments received on underwater noise in section 9 and refer to our findings as appropriate.
1100. Dr Childerhouse assessed effects by comparing estimated sound exposure levels (**SEL**) modelled by Mr Humpheson to published TTS and PTS for different marine mammal hearing groups.⁴⁹³ His assessment was made on the basis of the likely type of underwater noise that will be generated by the activity and that it will be operating almost continuously for the period of the consent, i.e., the IMV and crawler.
1101. Dr Childerhouse uses standards for TTS and PTS from Southall et al. (2019). We reproduced this information in Table 14 below.

⁴⁹² Joint Statement of Expert Witnesses – Marine Mammals dated November 2025 at [21(d)]

⁴⁹³ Expert evidence of Dr S. Childerhouse for TTRL dated 19 May 2023.

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Marine mammal hearing group	Examples	TTS onset: SEL (weighted)	PTS onset: SEL (weighted)
Low frequency cetaceans	Blue, humpback, southern right whale	179	199
High frequency cetaceans	Bottlenose, dusky dolphin, orca	178	198
Very high frequency cetaceans	Hector's, Māui dolphin	153	173
Phocid carnivores in water	Leopard seal	181	201
Otariid carnivores in water	NZ fur seal	199	219

Table 14: International best practice standards for TTS and PTS thresholds for marine mammal groups exposed to non-impulsive noise (e.g. seabed mining) taken from Table 6 of Southall et al (2019). SEL thresholds in dB re 1 $\mu\text{Pa}^2\text{s}$ under water.⁴⁹⁴

1102. Dr Childerhouse relies on the SEL (the total noise energy produced from a single noise event) at specific distances from the point of underwater noise generation by the IMV and crawler predicted in the AECOM report, which he considers to still represent the best available information about the likely noise level of the proposed operation (para 83). Table 2 of Dr Childerhouse's evidence is reproduced as Table 15 below.

Distance	SPL re 1 μPa	SEL dB re 1 $\mu\text{Pa}^2\text{s}$				
		10 sec	10 min	1 hr	3 hr	24 hr
500 m	135	145	163	167	170	175
1000 m	130	140	157	162	165	170
1500 m	129	139	156	161	164	169
2000 m	128	138	155	160	163	168

⁴⁹⁴ Expert evidence of Dr S. Childerhouse for TTRL dated 19 May 2023, Table 3.

Table 15: Sound Exposure Levels (SEL) and Sound Pressure Level (SPL) estimated for differing exposure periods and distances from the underwater noise generated from the crawler unit and IMV combined Source: Humpheson (2017)⁴⁹⁵

1103. Dr Childerhouse describes that the assessment of predicted underwater noise of the proposed operation against the new underwater noise standards requires two key assumptions. First, the standards use m-weighted SEL metrics, which adjust the noise spectrum to reflect the hearing sensitivity of each marine mammal group, meaning frequencies that animals cannot hear are effectively discounted. Second, the predicted SELs for the operation are unweighted broadband values, treated as if all frequencies are fully audible to all marine mammals, so comparing these broadband SELs directly with m-weighted criteria is inherently precautionary because it assumes greater audibility and potential impact than will occur in practice.
1104. Dr Childerhouse concludes his assessment as follows:
- a. for low-frequency cetaceans (e.g. blue and humpback whales), high-frequency cetaceans (e.g. bottlenose and common dolphins), phocids (e.g. elephant seals) and otariids (e.g. NZ fur seals), the estimated operational SELs at 500 m are all below the relevant TTS and PTS thresholds, so no risk of auditory injury is predicted at that distance.
 - b. for very high frequency (**VHF**) cetaceans such as Hector's and Māui dolphins, broadband SELs suggest that both TTS and PTS could occur at or beyond 500 m, but this approach is considered inappropriate and biased because most operational noise energy is at low frequencies to which these species are less sensitive, so VHF-specific m-weighted SELs are required.
 - c. using data from Humpheson (2017), VHF m-weighted SEL and sound pressure levels is back-calculated, giving VHF m-weighted estimate of a source level of SEL 182 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$ specific to VHF cetaceans. The dB propagation losses identified from the source to 500 m from the various models in Humpheson's (2017) range from 18 to 61 dB depending on the model selected, resulting in VHF m-weighted noise levels at 500 m from the source ranging from 121 to 164 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$.⁴⁹⁶ These noise levels can then be compared with VHF m-weighted TTS and PTS standards of 153 and 173 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$.
 - d. These calculations indicate no risk of PTS at 500 m for VHF cetaceans under any of the six propagation models, and no risk of TTS for five of the six models. Only the dBSeaPE model produces a 500 m SEL (164 dB re 1 $\mu\text{Pa}^2\cdot\text{s}$) above the TTS threshold, whereas the model identified by Humpheson (2017) as most appropriate for the STB (dBSeaModes) predicts neither TTS nor PTS.
 - e. The single model result indicating possible TTS is further qualified by noting that the SEL TTS standard assumes continuous 24-hour exposure at that level,

⁴⁹⁵ Expert evidence of Dr S. Childerhouse for TTRL dated 19 May 2023, Table 2.

⁴⁹⁶ We reproduced the estimated VHF m-weighted SEL for Hector's and Māui dolphins at 500 m from the operational noise source shown as Table 4 in the 2023 evidence of Dr Childerhouse in Table 16.

which is conservative given the slow movement of the IMV and crawler and the ability of dolphins to move away, and by highlighting that the propagation models do not include frequency-specific attenuation, so high-frequency components (most relevant to VHF cetaceans) are likely over-propagated and under-attenuated in the modelling.

Sound propagation algorithm	Estimated m-weighted SEL at source 1 m (dB re $1\mu\text{Pa}^2\cdot\text{s}$)	dB loss from source to 500 m	Estimated m-weighted SEL at source 500 m from source (dB re $1\mu\text{Pa}^2\cdot\text{s}$)
20 log (r/r0)	182	61	121
20 log (rd/r0+10log (r/rd))	182	44	138
User defined 15log	182	36	146
dBSeaPE	182	18	164
dBSeaModes	182	36	146
dBSeaRay	182	34	148

Table 16. Estimated very high frequency (VHF) m-weighted Sound Exposure Level (SEL) for Hector's and Māui dolphins at 500 m from the operational noise source. VHF Permanent Threshold Shift (PTS) = 173 dB re $1\mu\text{Pa}^2\cdot\text{s}$. VHF Temporary Threshold Shift (TTS) SEL = 153 dB re $1\mu\text{Pa}^2\cdot\text{s}$. Data modified from Humpheson (2017).⁴⁹⁷

1105. Overall, Dr Childerhouse concludes that there is no likelihood of PTS for any marine mammal at 500 m from the operation. Furthermore, there is no likelihood of TTS for any marine mammal at 500 m from the operation except for a small possibility of TTS for VHF cetaceans (including Hector's and Māui dolphins) if they remain in the area for more than 24 hours. Notwithstanding these results at 500 m from the operation, it is possible for TTS or PTS to potentially occur within 500 m of the operation.⁴⁹⁸
1106. Dr Childerhouse contextualises these conclusions by stating that in real-world situation it is extremely unlikely that an animal could get within 1 m of the sound sources as the sound source is not a point discharge but is rather dispersed and distributed in space since the generators, winches, and suction are all dispersed over the >300 m length of the ship and between the surface and the seabed. Furthermore, a marine mammal would have to swim towards the source of noise to reach a point close enough where they may be physiologically impacted by it and remain within that area for sufficient time. Therefore, while TTS and PTS are theoretically possible, he believes that they are highly unlikely given the length of

⁴⁹⁷ Expert evidence of Dr S. Childerhouse for TTRL dated 19 May 2023, Table 4.

⁴⁹⁸ Evidence of Dr S. Childerhouse for TTRL dated 19 May 2023 at [89].

time and close approach a marine mammal would need to make to potentially be affected, and therefore this represents a negligible risk.⁴⁹⁹

1107. Dr Pine comments in his review on modelling related to the TTS and PTS effects thresholds that inform the assessment on marine mammals. He considers that issues exist with the methodology used to assess the noise generation, the assumptions made, and the propagation loss models. Overall, he considers the underwater noise assessment for the proposed activity to be incomplete, scientifically questionable and unreliable for informing the assessment of noise-related impacts from the proposed mining activities on marine mammals.⁵⁰⁰
1108. He identifies the following main concerns:
- a. The IMV and crawler source levels are likely underestimated because they are back-derived from De Beers data that cannot be reproduced, are lower than published levels for comparable DP vessels, and include unreferenced FSO levels. As a consequence, using 171 dB re 1 μ Pa for the IMV and 177 dB re 1 μ Pa for IMV+DP is not robustly justified and this underpins TTS/PTS distance estimates and the “no risk at 500 m” conclusion.
 - b. Assumptions about the IMV DP system rarely operating and the exclusion of support vessels from the main noise assessment on the basis that they are intermittent (discussed in section 9) would materially increase noise levels (e.g. ~7 dB at 500 m) and greatly extend behaviour and TTS ranges.
 - c. The application of the dBSea raytracing solver for octave bands from 250 Hz upward in shallow water, where the depth-to-wavelength ratio falls outside normal validity for ray models, is not appropriate. This choice likely overestimates propagation loss (especially below 1 kHz where most energy and LF cetacean sensitivity lie), produces substantially smaller contours than the 2017 AECOM normal modes model, and therefore underestimates the spatial extent of exposure and TTS/PTS ranges.
 - d. A homogenous sand sediment layer has been applied throughout the STB region in the noise model, despite reports describing the seafloor as containing muddy deposits over gravel, sands and gravelly sands in some areas near the activity area. The acoustic reflectivity of gravelly sands is substantially higher than sandy sediments and using soft, sandy sediments of indefinite depths will be overestimating the propagation loss with range than if gravel, or gravelly sands, were incorporated.
 - e. The NMFS 24-hour SEL metric is misinterpreted as requiring continuous 24-hour exposure from a small number of continuous sources, and this is then used to justify excluding intermittent but loud support vessels from cumulative exposure modelling.

⁴⁹⁹ Evidence of Dr S. Childerhouse for TTRL dated 19 May 2023 at [90].

⁵⁰⁰ Review of Information on Underwater Generated Noise from the Taranaki VTM Project, Dr M Pine dated 9 November 2025 at [18-19].

1109. Mr Humpheson clarifies the propagation loss modelling, including his decision-making for and changes in various model settings and parameters over the subsequent assessments. He acknowledges that his description in previous reports has led to some unfounded confusion and notes that differences in noise contours between 2017 and 2025 identified by Dr Pine are a direct result of calculation algorithm change and not any other reason. We are unable to resolve whether Dr Pine and Mr Humpheson agree on specific matters and therefore treat those matters as disputed. The existence of that dispute contributes to uncertainty in the evidence base and is considered accordingly in our assessment.
1110. On sediment properties, Mr Humpheson explains that dBSea can only apply a single homogeneous seabed layer and that extending sand from 15 m thickness to infinity is a modelling refinement representing best practice. He notes that constructing a detailed geo-acoustic model of the seafloor is very resource intensive, and therefore an approximation is sufficient for modelling purposes.
1111. Mr Humpheson describes he conducted sensitivity testing using 2017 seabed properties and that this resulted in no change in receiver levels and that using a more reflective gravel / sand substrate resulted in a slight reduction in receiver levels within 2.8 km of the sound source and an increase of 1-2 dB at greater distances.
1112. Overall, Mr Humpheson rejects the suggestion that the propagation loss modelling materially underestimates the sound field and maintains that it is robust. He maintains that the underwater noise assessment supporting the application is consistent with best practice and fit for purpose for both setting enforceable limits and informing the marine mammal effects assessment.
1113. Some of these matters were also addressed in expert conferencing on marine mammal effects. Drs Clement and Torres and Ms Madarasz-Smith noted that based on the reviews (JASCO report and Dr Pine's review) they have concerns around the ability to determine the magnitude, footprint, and duration of noise effects from the current noise source assessment and sound propagation loss modelling undertaken; however, Dr Clement and Ms Madarasz-Smith noted that this modelling is outside their expertise.
1114. Dr Clement and Ms Madarasz-Smith consider that the two peer reviews of underwater noise modelling suggest further work is needed before these models are fit for use in assessing noise effects. They further note that the models need to consider a range of scenarios including a worst case scenario that involves all aspects of the proposed activities (e.g. IMV + crawler + support vessels).
1115. Several commenters expressed specific concern about effects on blue whales and the broad nature of the effects assessment. For example, Dr Torres noted that:⁵⁰¹

Persistent, elevated noise exposure is correlated with increased cortisol stress levels in whales, which can cause negative long-term health and reproductive consequences.

⁵⁰¹ Evidence of Dr L Torres for KASM and Greenpeace dated 6 October 2025 at [38(b)(v)].

1116. In response Dr Childerhouse noted that:⁵⁰²

Dr Torres has not provided a citation for this statement, but I believe it to be true. However, it is likely that the whales showing these increased stress levels were exposed to much higher levels of impact than what would be expected in the STB from the proposed mining operation given the proposed controls and limits on noise levels.

1117. Neither Dr Torres nor Dr Childerhouse provided us with robust information to make a finding on how the predicted noise levels compare to levels potentially causing stress in blue whales.

1118. Drs Clement and Torres consider that Mr Humpheson and Dr Childerhouse may be misinterpreting the TTS and PTS thresholds as marine mammals will experience TTS / PTS if they swim within or through the threshold range, even if they only remain for a few minutes.

1119. There are several unresolved disagreements between Dr Pine and Mr Humpheson and Dr Childerhouse, on the underwater noise assessment methods (including modelling) and assumptions. Marine mammal experts representing other parties have identified several matters under disagreements as having important implications for the effects assessment as they relate to the intensity and spatial extent of the noise footprint of the project.

1120. While Mr Humpheson and Dr Childerhouse have provided comprehensive responses to specific comments made by Dr Pine and other parties and acknowledged potential uncertainty with the estimation of noise source and propagation modelling, they have done little to quantify or contextualise the uncertainties.

1121. The Panel accepts that all models have limitations, that model assumptions are necessary and inevitably lead to uncertainties, and that a degree of uncertainty in underwater noise modelling was unavoidable.

1122. However, the Panel also finds that it would have been both possible and reasonable for the applicant to reduce key uncertainties in the assessment of effects on marine mammals arising from modelling assumptions and limitations. We agree with Dr Clement and Ms Madarasz-Smith that the applicant could have modelled worse- or realistic worst-case scenarios (e.g., different noise sources or source levels) and used scenarios to present a more comprehensive envelope of effects based on the range of plausible model outcomes and expected variability in actual effects.

1123. The Panel considers that explicitly describing how predicted underwater noise levels and TTS/PTS ranges vary across model scenarios and outlining a corresponding range of potential effects reflecting this variability, would have placed the conclusions about risk to different marine mammal groups on a more certain footing. Providing clearer information on the sensitivity of model results to key assumptions and general uncertainties would have materially assisted in

⁵⁰² Evidence of Dr S. Childerhouse on behalf of Trans-Tasman Resources Limited in Response to Comments, 13 October 2025 at [193].

contextualising model outputs and would have provided a more robust basis for evaluating the likelihood and magnitude of underwater-noise effects on marine mammals.

1124. Finally, Dr Childerhouse concluded that it is possible for TTS or PTS to potentially occur within 500 m of the operation. Dr Pine concluded that the lack of baseline characterisation and comparison against existing ambient conditions limits understanding of chronic exposure and long-term TTS and PTS. Similarly, Drs Clement and Torres point to the novelty of the project, noting that this is the first case of introducing a completely new sound sources to a New Zealand habitat that will run constantly for 20 years. They consider the project will change the soundscape in this area for at least 20 years and becomes chronic noise pollution if it is more than 1-2 dB more than ambient.⁵⁰³

1125. Given the uncertainty in assessment (including noise modelling), uncertainty in actual noise generated by the operation (notably the omission of potentially important noise sources), and the lack of an explicit assessment of effects from chronic exposure of noise, we find that there are important information gaps on the specific consequences on marine mammal species, including threatened species, from exposure to underwater noise from the 20 year long mining operation.

1126. The applicant notes that:⁵⁰⁴

It is important to note that it is not essential to be able to predict the actual underwater noise levels of the operation as the proposed consent conditions (Condition 11) proffered sets the maximum allowable level of underwater noise from the operation.

1127. In the context of this application, we disagree with this statement. Conditions can manage operational responses where effects are adequately characterised, but they cannot cure a baseline information deficit where source contributions, ecological relevance or the practical achievability of proposed limits remain uncertain, as it is the case here. For that reason, we do not accept that conditions by themselves are capable of resolving the uncertainty we have found.

Noise limits in Condition 11(b) and (c)

1128. Several parties comment on noise compliance limits, both in terms of their appropriateness and in terms of their completeness for managing noise generated from the mining operation. For example, Pattle Delamore Partners (for Taranaki Regional Council) note that:⁵⁰⁵

The proposed maximum operational noise threshold of 135 dB is used as a compliance benchmark, but there is limited empirical data to confirm how this threshold reflects actual conditions in the South Taranaki Bight. Consequently, there is some uncertainty about the potential effects of noise on marine mammal behaviour, distribution, and foraging, particularly for sensitive and endangered species such as blue whales, Hector's and Maui dolphins, and New Zealand sea lions.

⁵⁰³ Joint Statement of Expert Witnesses – Marine Mammals dated November 2025 at [29].

⁵⁰⁴ Application dated 15 April 2025, page 204.

⁵⁰⁵ Comments from Taranaki Regional Council, page 27

1129. Dr Childerhouse responds that Condition 11 is:⁵⁰⁶

a very active and forceful control on the amount of noise that can be generated by the activity. Condition 11(b) and 11(c) clearly define the overall combined noise level at 500 m from the IMV (Integrated Mining Vessel)

and that:⁵⁰⁷

Given the careful selection of this maximum noise level, and its inherent constraint on the activity, there will be no noise greater than the levels specified from the operation. Therefore, there is no need to know the actual Conditions of the STB, as we know what the maximum noise level from the activity can be and can thereby use that maximum level to assess possible effects, which is what has been done.

1130. The Panel considers that Dr Childerhouse has not fully addressed the comment by PDP as noise levels only apply to noise generated from the IMV and crawler. We therefore disagree with Dr Childerhouse that “we know what the maximum noise level from the activity can be” and that we can “use that maximum level to assess possible effects”.

1131. As addressed earlier, the assessment of effects on marine mammals have almost exclusively focussed on the IMV and crawler and there are information gaps on the potential effects of other noise sources on marine mammals, both individually, e.g. at location where support vessels operate, or cumulatively with the two main noise sources near the IMV. Mr Humpheson has demonstrated that other noise sources may increase noise levels at 500 m from the IMV to around 142 dB dB re 1µPa. We find that this value is better used to describe the maximum noise level from the activity.

1132. Regarding the origin of the noise levels, Dr Childerhouse explains that:⁵⁰⁸

the 130 dB re 1µPa RMS linear level was originally proposed by Professor Bernd Würsig, and also supported by Mr Andrew Baxter, both of whom were appearing on behalf of DOC. Both the 130 and 135 dB re 1µPa RMS linear levels were agreed to by many of the working group at that time and were seen as a critical control on the mining operation. It was carefully and deliberately set at a level that would minimise or eliminate biologically meaningful impacts on marine mammals from noise based on the empirical data provided by Professor Würsig.

1133. And, in response to comments in the JASCO report, that:⁵⁰⁹

Professor Würsig recommended establishing a noise threshold for disturbance below a point where disturbance was likely to be biological meaningful. He considered this to be the equivalent of ‘Level 5’ of Table 4 of Southall et al. (2007). Professor Würsig then reviewed all the disturbance data available for all species of marine mammals at that time and concluded that the equivalent of ‘Level 4’ disturbance (below his threshold for being

⁵⁰⁶ Evidence of Dr S. Childerhouse on behalf of Trans-Tasman Resources Limited in Response to Comments, 13 October 2025 at [40].

⁵⁰⁷ Evidence of Dr S. Childerhouse on behalf of Trans-Tasman Resources Limited in Response to Comments, 13 October 2025 at [43].

⁵⁰⁸ Evidence of Dr S. Childerhouse on behalf of Trans-Tasman Resources Limited in Response to Comments, 13 October 2025 at [41].

⁵⁰⁹ Evidence of Dr S. Childerhouse on behalf of Trans-Tasman Resources Limited in Response to Comments, 13 October 2025 at [121].

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biologically meaningful) across all groups considered was 130 dB re 1µPa RMS linear to be implemented across a range of different frequency bands, and hence proposed that value with different spectral characteristics.

1134. Given the importance of the noise limits for controlling noise from the operation, we reviewed the evidence of Professor Würsig dated 24 February 2014.
1135. Professor Würsig provided a comprehensive review of effect of sound on different marine mammal species, and we note that much of the information presented by Professor Würsig adds important context to the information presented by Dr Childerhouse. In summary, Professor Würsig states that:
- a. The severity scale of marine mammal behavioural responses to anthropogenic noise ranges from levels "0" of no reaction to "9" of flight, panic, stranding events, etc. These responses are summarised as follows:
 - i. Brief re-orientations.
 - ii. Moderate re-orientations, respiration parameters, vocal activity.
 - iii. Minor changes in locomotion and dives, moderate respiration changes, minor changes in vocalization including the Lombardi Effect (of changing loudness or frequency of vocalizations).
 - iv. Moderate locomotion and dive changes, moderate vocal behaviour changes, brief changes in group distribution but no overall avoidance of the area.
 - v. Extensive or prolonged changes in locomotion, dive profiles, vocal behaviour; change in inter-individual distances or group sizes.
 - vi. Visible startle responses, brief or minor separation of mothers and calves, extended cessation of vocal behaviour.
 - vii. Severe or sustained avoidance of sound source, moderate separation of mothers and calves, clear anti-predator response.
 - viii. Prolonged separation of mothers and calves and disrupted (or masked by the noise) vocalization for re-union, obvious and prolonged aversion and progressive sensitization to the sound, long-term avoidance of ensonified area.
 - ix. As stated above, panic, flight, stampede (pinnipeds on land), potential for stranding.
 - b. It is his expert opinion that brief and mild to moderate disruptions of behaviours are not likely to be biologically meaningful, so she sees the level category of "5" and above as being important for all stated marine mammals.
 - c. His conclusions on sound levels per species categories are realistic yet tend towards the precautionary, with potential biologically-meaningful levels "flagged" after review of the existing data.

- i. Low-frequency cetaceans. Humpback whales reacted at level 6 in received levels of 100 to <110 dB, and at level 7 at 130 to <140 dB. It is worth noting, however, that some humpback whales did not react (level 0) at 110 to <120 dB. Right whales reacted at level 7 at 130 to <140 dB, with no lower level determinations noted. Again, at least 1 to 2 groups of right whales did not react (level 0) at 130 to <140 dB. Feeding blue whales kept feeding at 140-150 dB, but detailed behavioural observations that could have indicated other levels of potential disturbance were not assessed. Recent evidence of blue whales reacting to seismic (long-term pulsive) activities indicate that the whales called more during than in the absence of the activities (Di Iorio and Clark 2012). Perhaps more to the point of the present non-pulsed sounds, blue whales in the presence of 115 dB to about 135 dB received levels at 1-8 kHz) of Mid Frequency Active sonar called less often in their own <100 Hz frequency band, apparently because they were disturbed by these sounds even though much higher in frequency than their calling frequency (Melcón et al. 2012). Blue whales did not react similarly to ship noises, although increased their calling rates at ship noise received levels above 130 dB. I conclude that low-frequency cetaceans should generally not be exposed to non-pulsive sounds above a received level of 130 dB (RMS).
- ii. Mid-frequency cetaceans. The only appropriate species measured appear to be *Lagenorhynchus* dolphins (such as the dusky dolphin, and probably similar to the short-beaked common dolphin) and killer whales. *Lagenorhynchus* showed a level 3 reaction at 110 to <120 dB, and no other dB categories and levels are noted. Killer whales (in two different studies) showed level 8 (severe) reaction at 140 to <150 dB, and a level 6 reaction at 160 to <170 dB. He concludes that short-beaked common dolphins and killer whales should not be exposed to non-pulsed sounds above a received level of 130 dB (RMS).
- iii. High-frequency cetaceans, i.e. *Cephalorhynchus* sp., the Hector's/Maui dolphin. The only reaction data that seem to exist are for harbour porpoises (*Phocoena phocoena*), and for them there are quite a few data, from both captivity and nature. Overall, non-pulsed sounds in nature elicited variable reactions (levels 0-6) at exposure levels of 80 to <120, also 120 to <130 dB, and level 6 reactions at 140 to <160 dB. I conclude that barring further experimental evidence for Hector's/Maui dolphin, they should not be exposed to non-pulsed sounds above a received level of 130 dB (RMS).
- iv. Pinnipeds. Unfortunately, detailed behavioural investigations relative to dB levels do not appear to exist for eared seals (as is the NZ fur seal), but harbour seals (*Phoca vitulina*) variably reacted at levels 0 (i.e. not at all) and 6 at 80 to <110 dB. We therefore do not have enough data for extrapolation to NZ fur seals, but a starting point for a suggested receive level can be no more than 130 dB (RMS).

1136. Given the information available, we consider that of the response levels of Southall et al. (2007), the level 5 descriptor appears to be the most appropriate one to describe material harm. As such, the Panel agrees that, based on the information available at the time (as described by Professor Würsig), level 5 reflects the appropriate magnitude of harm relevant to the proposal.
1137. The information on noise impacts on marine mammals provided by Professor Würsig is considerably more detailed than the information provided with the application. Utilising the specific species responses in the interpretation of underwater noise modelling would have improved the specificity and robustness of the noise effects assessment. We therefore find that the information does not reflect best available information. Furthermore, the review by Professor Würsig was conducted in 2014 and it is likely that new information on specific species responses to underwater noise has become available since, which could have been used to provide a more current review.
1138. The Panel therefore considers that the advice from Professor Würsig can no longer be relied on as best available and scientifically robust advice. It is therefore uncertain whether the limits derived from Professor Würsig's advice would avoid material harm to marine mammals.
1139. Dr Clement notes that:⁵¹⁰
- the assessment of underwater noise following best practice standards would use some baseline data and predictive modelling along with USA NOAA guidelines to review appropriate thresholds for the various species involved.
1140. Dr Clement refers to the framework by Jolliffe et al., (2025), which describes that:⁵¹¹
- Best practice approaches for underwater noise EIA, mitigation and management ... include first identifying the environmental outcome that is to be achieved. This outcome should reflect what is determined to be an acceptable level of impact. The level of acceptable impact will vary between species, environmental contexts and jurisdictions but should be informed by an understanding of species vulnerability and legislative context.
1141. The Panel therefore considers that an assessment of effects of underwater noise on marine mammals reflecting best practice would have involved utilising updated species-specific responses to underwater noise. The assessment provided by the applicant is therefore not consistent with best practice.
1142. Dr Childerhouse notes that Condition 11 is the first of its kind in New Zealand for constraining underwater noise from an activity to a level so as to avoid significant impacts on marine mammals. He considers it is the most precautionary threshold ever applied in New Zealand and based on the associated modelling work, and it will provide a high degree of protection for marine mammals.⁵¹²

⁵¹⁰ Joint Statement of Expert Witnesses – Marine Mammals dated November 2025 at 47].

⁵¹¹ Scientific Peer Review in Relation to Underwater Noise and Marine Mammals JASCO Applied Sciences (Australia) Pty Ltd dated 29 August 2025 at page 13 (provided with the Forest and Bird comments).

⁵¹² Joint Statement of Expert Witnesses – Marine Mammals dated November 2025 at [46].

1143. Dr Childerhouse and the overall effects management regime rely strongly on the noise limits in Condition 11. The information these limits are based on has not been updated since 2014 and it is therefore uncertain whether a contemporary review would identify the same noise limits. We therefore find that the noise limits in Condition 11 are not based on best available information and, therefore, that there is uncertainty associated with their effectiveness in managing effects to avoid material harm on marine mammals.
1144. Of particular relevance are the conclusions by Professor Würsig that short-beaked common dolphins, orca, and Hector's/Maui dolphins should not be exposed to non-pulsed sounds above a received level of 130 dB (RMS) and the observations of level 5 and 6 responses to exposure of sound around the noise levels. Given the uncertainty arising from the lack of current information, the vulnerability of Māui dolphin, the threatened classification of orca and the prevalence of common dolphins in the project area, we find that the reliance on noise limits developed more than ten years ago does not favour caution and environmental protection.
1145. Earlier Decision Making Committee findings and proposed conditions form part of the background to this application. They do not constrain the Panel's statutory assessment, which must be made on the evidence before the Panel in this process. However, we briefly comment on the evidence of and Mr Baxter and the expert agreement on the proposed noise levels in previous processes. We reviewed the evidence of Mr Baxter from 24 February 2014 and 1 April 2014, and the 2014 Joint Witness Statement (dated 26 March 2014) and the suggested underwater noise conditions dated 1 April 2014.
1146. In his evidence dated 24 February 2014, Professor Würsig initially recommended that (emphasis added):⁵¹³
- Anthropogenic (non-pulsive) sounds from all noise sources combined should not exceed 130 dB re 1µPa (RMS) at 500 m for each of the three frequency bands outlined in the previous paragraph [low frequency sounds as 10-100 Hz, mid-frequency sounds as 100-10,000Hz, and high frequency sounds as >10,000 Hz].
1147. Experts attending the expert conference on 26 March 2014 (including Dr Childerhouse and Mr Humpheson) considered different sound levels and distances from the source as potential conditions. The experts agreed that setting a noise limit at a distance from the operation is an appropriate management approach but were unable to reach agreement on a sound level or distance to use as a condition. Experts agreed that any consent conditions need to address the influence of the noise on the ability of the marine mammals to communicate as well as other potential impacts of noise.
1148. Mr Baxter describes in his evidence dated 1 April 2014 that:⁵¹⁴
- Subsequent discussions between some of the noise/marine mammal experts (Hegley, Humphesen, Childerhouse, Wursig and Baxter) resulted in a set of recommended

⁵¹³ Evidence of B. Würsig for the for the Director-General of Conservation dated 24 February 201 at [F]

⁵¹⁴ Summary of Evidence of A. Baxter for the Director-General of Conservation dated 1 April 2014 at [22]

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conditions (1 April 2014) relating to underwater noise production and monitoring. I support these conditions which I attach as Appendix 1.

1149. We have not been provided with documentation of the ‘subsequent discussions’ referred to by Mr Baxter, beyond the recommended conditions attached to his evidence. The conditions dated 1 April 2014 applied the noise limits to the same noise sources as the current conditions but differed from the current conditions in that they required monitoring within one month of commencement of operations with a monitoring report being provided to the EPA within two weeks of monitoring. We note that this additional monitoring provides important additional information on actual noise and, providing effective response actions were implemented, would limit the duration of potential limit-exceeding noise levels. Under the current conditions, monitoring may not occur until 6 months after commencement of operations, potentially exposing marine mammals to excessive noise for six times as long as the 2014 conditions would have.

Effects on Māui dolphins

1150. The Department of Conservation has assessed the conservation status of Māui dolphins as “nationally critical”; that is, “most severely threatened, facing an immediate high risk of extinction.” It states that there is 95% certainty that the number of individual Māui dolphins over the age of one year remaining is between 48 and 64.⁵¹⁵
1151. Given the importance of protecting Māui dolphins from material harm and the agreement of experts participating in marine mammal expert conferencing the marine mammal group identified of being most likely affected by noise generated from the project are VHF cetaceans, which include Māui dolphins, we provide additional comments on our findings in relation to Māui dolphins.
1152. Dr Childerhouse concludes that there is a small possibility of TTS for VHF cetaceans at 500 m if they remain in the area for more than 24 hours. However, several experts consider the 24-hour exposure duration requirement was misinterpreted and that instead of having to be exposed for a fixed 24-hour duration, the 24-hour SEL metric is an accumulation window, not a minimum exposure time. This potential misunderstanding adds to the uncertainty in our understanding of expected effects of Māui dolphins in the event that they swim closer to the IMV than intended.
1153. Given the uncertainties in information discussed above, we are not satisfied that the project would avoid exposing Māui dolphins to combined underwater noise at or above 135 dB re 1µPa for the IMV and crawler, within 500 m of the mining area. On the evidence before us, exposure at or above that level is likely to result in behavioural responses that we consider would amount to material harm for this most severely threatened species. We consider that restricting the noise limit to the IMV and crawler only would not favour caution and environmental protection, especially

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<https://www.doc.govt.nz/nature/native-animals/marine-mammals/dolphins/maui-dolphin/facts/>

in light of the information on noise impacts on Māui dolphin provided by Professor Würsig.

1154. Our finding is supported by the agreement of marine mammal experts that any additional impact on Māui dolphins would be unsustainable and therefore should be avoided and the agreed assumption of the effects assessment that any species observed in the wider area could be present near the project area.
1155. The actual noise of the proposed operation is unknown. While we accept the limitations in modelling, we consider that the applicant could reasonably have reduced that uncertainty through a more robust assessment of scenarios and sensitivities.
1156. Under the proposed conditions, the applicant is not required to measure actual noise for up to six months after the commencement of mining. In those circumstances, the Panel is not satisfied, on best available information, that Māui dolphins would not be exposed to noise levels capable of causing material harm during that period. Given the threatened status of Māui dolphins, we consider that a monitoring regime that permits up to a six-month delay before confirming actual noise levels does not reflect the precautionary direction in s 61(2) EEZ Act. Instead, we consider that it creates a significant risk of material harm and significant adverse effects. In conclusion, the Panel finds that material harm will likely occur within the EEZ and that there is a credible risk of significantly adverse effects on Māui dolphins within the CMA. Given the available information, no measures are available to avoid, remedy or mitigate these effects. It follows that we find that conditions cannot be developed and imposed to prevent material harm from arising.

12.4 Conditions

Condition 10 – “no adverse effects” on marine mammal populations

1157. The applicant’s legal submissions describe that, based on the expert advice of Dr Childerhouse and Dr Mitchell, the previous reference to ‘population level’ in Condition 10 has been removed under the current application.⁵¹⁶
1158. The applicant’s legal submissions describe the reason for this change as follows:⁵¹⁷

The condition stating that there must be “no adverse effects at a population level” expressed an outcome. The expression of that outcome was never intended to be the means by which the outcome would be achieved. Rather, the outcome would be achieved through a large number of other specific operational conditions such as conditions requiring: marine mammal observers on all vessels, recording and reporting marine mammal sightings, reducing vessel speeds in proximity to any sighted marine mammals, compliance with underwater noise limits, certification of vessels and equipment to ensure those limits would be met, “soft starts” of equipment, controlled rates and limits on discharge, development of a marine mammal management plan in consultation with the

⁵¹⁶ Legal submissions for TTRL in response to comments received dated 13 October 2025 at [67].

⁵¹⁷ Legal submissions for TTRL in response to comments received dated 13 October 2025 at [64].

DRAFT DECISION

Department of Conservation, and training of personnel in relation to marine mammal matters

1159. In regard to the proposed pre-commencement monitoring, the applicant's legal submissions note that the purpose was not to quantify the populations of marine mammals but as described in draft baseline and operational monitoring plans, to better understand abundance and distribution in 'relative' and 'variable' terms, not in absolute terms.⁵¹⁸
1160. The Panel understands that under the applicant's proposed approach in Condition 10 describes that overarching outcome and that other conditions are intended to ensure that outcomes under Condition 10 are achieved.
1161. However, in order to determine whether Condition 10 is achieved, the meaning of 'avoid effects' needs to be clear. On the evidence available, the Panel does not know what constitutes an adverse effect on a marine mammal population or what constitutes material harm or significant adverse effects. This represents, in our opinion, a substantial gap in the proposed conditions. Given these limitations, we question whether Condition 10 can be achieved. We also find, therefore, that there is no certainty that marine mammals will be protected from material harm, even with the applicant's conditions in place.
1162. In addition to our comments above on noise limits and the timing of monitoring, we make the following observations on the proposed conditions:

Condition 10(a) – Threatened species definition

1163. The definition of 'threatened species' in Condition 10(a) should be amended to reflect the statutory definition in the EEZ Act.

Condition 10(a) and (b) - Timing of noise verification and achievability

1164. As outlined above, actual noise levels will not be known until monitoring takes place due to uncertainties in modelling. The proposed conditions allow monitoring to occur up to 6 months after commencement of mining. During that period, marine mammals, including blue whales and threatened species, may therefore be exposed to noise levels that have not been confirmed in the field and that may be capable of constituting material harm. In those circumstances, there is uncertainty as to how Conditions 10(a) and (b) can be complied with in practice without earlier verification of operational noise levels.
1165. This concern is heightened for Condition 10(a) and particularly Māui dolphins. The Panel notes that the experts agreed that any additional impact on Māui dolphins would be unsustainable and therefore should be avoided. We understand this to mean that any effect would represent material harm.

⁵¹⁸ Legal submissions for TTRL in response to comments received dated 13 October 2025 at [65].

Condition 10(b) - Avoided to the greatest extent practicable

1166. Condition 10(b) requires adverse effects on other marine mammals to be “avoided to the greatest extent practicable”. We consider that the phrase “to the greatest extent practicable” lacks sufficient certainty to be enforceable because it does not specify what “greatest extent practicable” requires in operational terms (including what constraints and operational limitations may be taken into account). As drafted, the condition leaves material discretion to the consent holder without clear evaluative criteria.

Condition 10 - Reliance on observer detection for Māui dolphins

1167. The mitigation of effects on Māui dolphins relies strongly on observations. Dr Childerhouse cites a paper by KA Forney et al.⁵¹⁹ that highlight that Māui dolphins are extremely difficult to detect reliably from vessels. They report that even trained observers on scientific marine mammal surveys detected only about 40 to 50% of small dolphins/porpoises (most similar to Māui dolphins) in moderate weather, dropping to ~20% in rough seas. Detection probability falls sharply with distance so animals beyond a few hundred metres are rarely seen.
1168. This evidence indicates a material limitation in detectability, which undermines the reliability of mitigation measures that depend on vessel-based observers detecting Māui dolphins in time to implement avoidance responses.

Conditions 11 and 12 - Response actions to noise limit exceedances

1169. Drs Clement and Torres and Ms Madarasz-Smith consider that there are insufficient methods to alter operations should noise limits be exceeded.⁵²⁰ Dr Childerhouse responds that it is his belief that Condition 11 and 12 sets a maximum operational noise level and, if they are exceeded, then operations will have to cease.
1170. This statement by Dr Childerhouse reflects a strong reliance on the effectiveness of Conditions 11 and 12. If the effects assessment relies on cessation (or immediate operational modification) as the effective response to exceedances, that response should be expressly required by the conditions, including clear timeframes and reporting requirements. Absent that specificity, the assumed mitigation pathway may not operate in practice.

Condition 17 / 11 - Propagation modelling and validation

1171. Condition 17 requires the applicant to:

Undertake robust underwater propagation modelling using empirical underwater noise data (i.e. as detailed and collected in Condition 11) to estimate the distance of the 120 dB contour from the noise source as identified in Schedule 7.

⁵¹⁹ Nowhere to Go: Noise Impact Assessments for Marine Mammal Populations with High Site Fidelity. Endangered Species Research 32, Forney KA et al. dated 2017 at page 397.

⁵²⁰ Joint Statement of Expert Witnesses – Marine Mammals dated November 2025 at [75].

1172. Drs Clement and Torres consider that the following should be added to Condition 11(a) "... and 2 km (or the exact distance of the 120dB contour)" to validate that portion of the propagation model.

1173. Dr Childerhouse describes the use of the 120 dB in the effects assessment as follows:⁵²¹

A behavioural threshold for marine mammals of a root mean square (RMS) sound pressure level of 120 dB re 1µPa (unweighted) was applied to assess potential behavioural impacts. The modelling confirms that the behavioural threshold is reached at approximately 3.6 km from the Integrated Mining Vessel (IMV) noise source. This means that any marine mammals within this range of the operation have the potential for behavioural disturbance. This suggests that the potential behavioural effects from this operation will be significantly less than we would expect to see from a large vessel transiting the area with the possible caveat that this operation is very slow moving compared with faster moving a large vessel.

1174. Given the reliance on the 120 dB contour in the effects assessment and the uncertainties identified with underwater propagation modelling conducted for the assessment, we consider validation through monitoring under Condition 11(a) and (f) is necessary to ensure the modelling required under Condition 17 is robust. In particular, validation monitoring should be specified at distances sufficient to confirm the predicted location of the 120 dB contour.

No monitoring of changes to ambient noise levels

1175. Dr Clement noted that there is no condition requiring TTRL to demonstrate that the project will not increase overall average ambient noise levels in the project area.⁵²² Dr Childerhouse responds that:⁵²³

While it may be potentially desirable to ensure that the proposed activity does not increase the ambient noise level, there is no requirement for them to do so. ... TTRL have committed to a set of precautionary underwater noise conditions which limits their operational noise to a specific level that was set on the basis of eliminating any biologically meaningful impacts to marine mammals ... To the best of my knowledge, no other marine user in New Zealand has offered or been required to comply with such a Condition. TTRL is doing so voluntarily.

1176. The Panel considers that the proposed underwater noise conditions do not operate as a precautionary framework in relation to overall ambient noise, because they do not require monitoring or assessment of whether the activity increases average ambient noise levels in the project area, nor do they provide a mechanism to detect or respond to cumulative increases over time. Accordingly, biologically meaningful impacts could occur without being identified or managed under the proposed framework.

⁵²¹ Evidence of Dr S. Childerhouse for TTRL in Response to Comments, 13 October 2025 at [8].

⁵²² Evidence of Dr D. Clement for Royal Forest and Bird Protection Society Inc dated 6 October 2025 at [65].

⁵²³ Evidence of Dr S. Childerhouse for TTRL in Response to Comments, 13 October 2025 at [157].

Condition 66 - Indicators of adverse effects on marine mammals

1177. Condition 66 stipulates that the MMMP must “Set out indicators of adverse effects on marine mammals that utilise the South Taranaki Bight listed in Condition 10.a.”.
1178. The Panel finds that the selection of indicators of adverse effects forms a core component of the effects assessment that should have been provided with the application and that, therefore, Condition 66 inappropriately defers an assessment that the Panel needs to make to the MMMP. The Panel notes that the draft MMMP does not contain indicators of adverse effects. The conditions also do not set out a clear process for identifying such indicators.
1179. Accordingly, we consider that the available evidence does not provide sufficient specificity to support that adverse effects on marine mammals could be reliably measured and effectively responded to through monitoring and the MMMP as presently framed.

Condition 48 - Pre-commencement monitoring

1180. The Panel acknowledges that within the applicant’s proposed marine mammal effects management framework, the purpose of the pre-commencement monitoring is not to quantify marine mammal populations but instead to better understand abundance and distribution in “relative” and “variable” terms.⁵²⁴
1181. Condition 48 describes that the purpose of pre-commencement monitoring includes to:
- a. establish a set of environmental data that identifies natural background levels while considering spatial and temporal variation; and
 - b. confirm the current understanding of the seasonality and natural variability of environmental parameters that will be monitored during seabed material extraction activities
1182. Condition 48 relies on indicators of adverse effects being identified. In the absence of indicators of adverse effects on marine mammals, it is unclear whether two years of pre-commencement monitoring is sufficient to achieve the purpose of pre-commencement monitoring required under Condition 48.
1183. Given the evidence available, marine mammal data are generally highly variable and the Panel considers it likely that two years pre-commencement monitoring is not sufficient to meet the purpose under Condition 48. The applicant has not demonstrated the feasibility of pre-commencement monitoring as stipulated in Condition 48 or considered the possibility of two years pre-commencement monitoring being insufficient and how this would be addressed and managed.

⁵²⁴ Legal submissions for TTRL in response to comments received dated 13 October 2025 at [65].

13 Effects on seabirds

13.1 The application

1184. The application relies on Dr David Thompson's evidence⁵²⁵, a 2015 NIWA report (Dr MacDiarmid et al.)⁵²⁶, a summary of seabird presence within the STB⁵²⁷, and a report on the effects of ship lights on seabirds⁵²⁸.
1185. Dr Thompson states that the STB supports a relatively modest seabird assemblage, in terms of the number of species utilising the area, compared to the approximately 162 seabird taxa reported from throughout the New Zealand region, but detailed, systematic and quantitative information on the at-sea distribution of virtually all species is currently lacking in the STB.⁵²⁹
1186. Dr Thompson presented a table of seabird species likely to occur in the STB "at some time during the year". He notes that:⁵³⁰
- This list is not intended to be definitive and additional taxa could occur in the region from time to time.
1187. He describes that based on NZTCS classifications, three seabird taxa classified as 'Threatened – Nationally Critical' are likely to occur in the STB (Antipodean albatross, Gibson's albatross and Salvin's albatross), and a further eight 'Threatened' taxa (either 'Nationally Endangered' or 'Nationally Vulnerable') are also likely to occur in the area (Black-fronted tern, Southern royal albatross, Northern royal albatross, Caspian tern, Light-mantled sooty albatross, Hutton's shearwater, Spotted shag, Grey-headed albatross).
1188. Dr Thompson, describes that:⁵³¹
- The seabird assemblage utilising the proposed mining area and adjacent areas in the STB, and how this might vary seasonally, remains to be quantified. Nevertheless, it is possible to draw up a list of seabird species that likely occur in the STB and to use this as the basis for assessing the impact(s) of potential effects. The information is sufficient for me to give my expert opinion on the potential effects of the proposed mining operations and resulting sedimentation on seabirds in the STB.
1189. Dr Thompson notes that potential effects on seabirds from the project could arise through displacement from the mining site (physical exclusion), reduced foraging efficiency (via increased turbidity from the sediment plume), noise, fuel or oil pollution and through effects of artificial nocturnal lighting.

⁵²⁵ Evidence of Dr D. Thompson on behalf of TTRL, 2023; Rebuttal Evidence of Dr D Thompson on behalf of TTRL, 2023.

⁵²⁶ Assessment of the Scale of Marine Ecological Effects of Seabed Mining in the South Taranaki Bight, A. MacDiarmid, D. Thompson, J. Grieve, 2015.

⁵²⁷ Seabirds of the South Taranaki Bight (Updated November 2015), D Thompson, 2013.

⁵²⁸ Effects of Ships Lights on Fish, Squid and Seabirds (Updated November 2015), D. Thompson, 2013

⁵²⁹ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [13].

⁵³⁰ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [14]

⁵³¹ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [48]

1190. The 2015 NIWA report⁵³² presents an assessment of effects on five seabird species (Gibson's albatross, Westland petrel, sooty shearwater, red-billed gull and little blue penguin). The report concluded that the STB, and specifically the project area and sediment plume footprint, comprise a very small proportion of each species' foraging or coastal range (typically less than 0.1%, and less than 0.01% for sooty shearwaters using a conservative distribution). Specific comments made for each species include that for Gibson's albatross the STB is not a particularly important area, Westland petrels may occur in the project area but its footprint is tiny relative to their winter breeding distribution, sooty shearwaters have wide foraging and depth ranges, red-billed gulls do not have major breeding colonies in the STB, and the nearest little blue penguin colonies lie more than 50 km from the plume. For each species, the NIWA report concludes that any effects of the project will be negligible.
1191. Dr Thompson's assessment of effects on seabirds can be summarised as follows:⁵³³
- a. Seabirds may be reluctant to approach the mining vessel and could therefore be physically excluded from the proposed project area (PPA) and could similarly be unable to exploit the water column below the mining vessel and for an extended area beyond the location. However, Dr Thompson considers that, as a worst case scenario, even if seabirds are completely displaced from the proposed project area and waters around the mining vessel, the effect on them would be negligible because they forage over much larger areas, their prey is patchy in space and time, and similar prey is likely to be available outside the project area.⁵³⁴
 - b. Relying on the sediment plume modelling evidence of Dr Macdonald, Dr Thompson describes that the increase in SSCs resulting from mining will be relatively small compared to background SSCs, and concludes that coupled with the relatively small area affected by elevated SSCs compared to the relatively large foraging ranges utilised by seabirds, mining-derived sediment would be unlikely to affect foraging in seabirds.⁵³⁵
 - c. Noise from mining operations and the mining vessel may displace seabirds from the immediate area influenced by operational sound, but because seabirds use relatively large foraging areas, any such displacement is not expected to have a significant effect on affected species.⁵³⁶
 - d. Unplanned fuel or oil spills could directly or indirectly kill or harm seabirds depending on fuel type, spill timing and location relative to seabird distribution and behaviour. Dr Thompson notes that these spills have been assessed in detail in his 2016 evidence and were not identified as a key issue of concern in expert conferencing or the 2017 Decision Making Committee decision.⁵³⁷

⁵³² Assessment of the Scale of Marine Ecological Effects of Seabed Mining in the South Taranaki Bight, A. MacDiarmid, D. Thompson, J. Grieve, 2015.

⁵³³ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023.

⁵³⁴ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [20].

⁵³⁵ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [24].

⁵³⁶ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [25].

⁵³⁷ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [27].

- e. Lighting from the large, permanently moored, processing vessel, which will operate continuously, will increase artificial nocturnal light locally and poses a theoretical threat, mainly to nocturnal seabirds that can be attracted to lights, especially in poor weather, near colonies or where lights shine upwards or outwards.⁵³⁸ Dr Thompson considers that while it is possible that the vessel's lights may attract nocturnal seabird species, the remoteness of the PPA from major seabird breeding colonies and standard mitigation protocols, as detailed in the draft Seabird Effects Mitigation and Management Plan (SEMMP), should ensure the impact from this effect on seabirds will be less than minor.
1192. In terms of specific effects on little penguin, Dr Thompson calculated the average extent of the surface and near-bottom suspended sediment plume (as defined by median SSC above 2 mg/L) from Dr MacDiarmid's 2017 supplementary evidence⁵³⁹ as 78.6 km² and concluded that, even assuming little penguins avoid this area completely, the 'lost' area only represents approximately 3% of the area a little penguin could exploit. He further notes that the SSC of 2 mg/L is a relatively low threshold (the lowest SSC found to be avoided by pelagic fish) and that it is possible that little penguins could still forage successfully in water with this SSC level. Dr Thompson concludes that "it is clear that even removing the affected area completely will have a negligible effect".⁵⁴⁰
1193. Dr Thompson concludes that:⁵⁴¹
- I consider the proposed mining, regulated by appropriate conditions (as discussed above), will not result in material harm to seabirds, and that a grant of consent on this basis would achieve the requirement of favouring caution and environmental protection.
1194. In his 2023 rebuttal evidence⁵⁴², Dr Thompson provides a brief assessment against NZCPS Policy 11. He notes that in his view kororā/little penguin, and other seabird taxa, will not be adversely affected by the project for the reasons set out in his evidence and that the project is therefore consistent with any relevant part of Policy 11 of the NZCPS, or CNC Policy 4 of the Taranaki Regional Policy Statement⁵⁴³

Conditions

1195. The applicant proposes a range of conditions aimed at mitigating, monitoring, and managing effects on seabirds.
1196. Condition 9 requires that:
- a. there are no adverse effects on seabird species that utilise the STB that are classified under the New Zealand Threat Classification System as 'Threatened' or 'At-risk' or 'Threatened' in the IUCN 'Red List'; and

⁵³⁸ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [28-29].

⁵³⁹ Supplementary Evidence on behalf of Dr A. MacDiarmid, on behalf of TTRL dated 2017.

⁵⁴⁰ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [33].

⁵⁴¹ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [49].

⁵⁴² Rebuttal Evidence of Dr D Thompson on behalf of TTRL dated 23 January 2023.

⁵⁴³ Rebuttal Evidence of Dr D Thompson on behalf of TTRL dated 23 January 2023 at [27].

- b. for all other seabirds, adverse effects are mitigated and, where practicable, avoided.
1197. Condition 65 requires the preparation of a Seabird Effects Mitigation and Management Plan (**SEMMP**) in consultation with the Department of Conservation. The purpose of the plan is to minimise any adverse effects on seabird species, and to ensure that there are no adverse effects on seabirds resulting from lighting, oil spills and the sediment plume. A draft SEMMP has been provided with the application.
1198. The 2-year pre-commencement monitoring will include seabirds to identify baseline conditions and confirm the current understanding of the seasonality and natural variability of environmental parameters that will be monitored once operations commence.
1199. Dr Thompson considers that this monitoring should ideally take the form of a structured and systematic boat-based survey, following well-established protocols to record seabird occurrence, that covers an area encompassing not only the project area but a substantial additional area beyond the project area allowing seabird use of the project area to be placed in a regional context.⁵⁴⁴ The survey should be repeated at least four times per year to capture temporal variation in seabird use of the project area specifically, and the STB more generally. In his view this should be sufficient to establish seabird species occurrence within the STB, species abundances and how these vary in both space and time.⁵⁴⁵
1200. Overall, the applicant considers that the potential effects of the project on seabirds will be minor and will be further minimised through the proposed monitoring, management and mitigation measures provided for through the various management plans and the proposed consent conditions.

13.2 Comments received, applicant's response to comments, RFI, JWS

1201. A number of parties commented on seabird effects, including:
- a. KASM and Greenpeace (evidence from Dr John Cockrem)
 - b. Various councils including Horizons District Council (comments supported by Pattle Delamore Partners technical assessment), Taranaki Regional Council (comments supported by Pattle Delamore Partners), New Plymouth District Council, South Taranaki District Council, Rangitīkei District Council and Whanganui District Council;
 - c. Climate Justice Taranaki Incorporated;
 - d. Forest and Bird;
 - e. Ngā Motu Marine Reserve Society;

⁵⁴⁴ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [45].

⁵⁴⁵ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023 at [45].

- f. Te Kāhui o Rauru Trust;
 - g. Te Korowai o Ngāruahine Trust;
 - h. Te Rūnanga o Ngāti Ruanui Trust;
 - i. Okahu/Inuawai hapū;
 - j. Te Ohu Kaimoana;
 - k. Parliamentary Commissioner for the Environment;
 - l. South Taranaki Underwater Club;
 - m. Whanganui Manawatu Sea Fishing Club and Pātea and Districts Boating Club;
and
 - n. Ohawe Boat and Angling Club.
1202. The primary concern raised relates to incomplete and uncertain information, especially for kororā/little penguin who are described as frequently foraging in and over the proposed mining and plume area. Commenters note that the plume and associated habitat changes pose substantial but uncertain risks to seabird foraging systems, and that noise and lighting add further disturbance. They note that many seabirds are already threatened and that the added stressors from seabed mining should be regarded in a cumulative effects context.
1203. The applicant's response to comments provided on seabirds is primarily set out in the statements of evidence of Dr Thompson prepared in 2025⁵⁴⁶ (responding to the Statement of Evidence of Dr Cockrem on behalf of KASM and Greenpeace Aotearoa dated 6 October 2025 only) and the tabulated responses to specific commenter groups.
1204. The Panel considered that further information was required to clarify information presented by the Ngā Motu Marine Reserve Society on kororā/little penguin. The Panel specifically requested available data on kororā/little penguin, including GPS tracks, dive profiles, and breeding data, which was provided as figures with supporting interpretation.
1205. To ensure the Panel had an accurate understanding of any outstanding agreements and disagreements among experts, expert conferencing on the topic of 'effects on birds' was directed.
1206. The conference was attended by the following experts: ⁵⁴⁷
- a. Dr David Thompson on behalf of TTRL; and
 - b. Dr John Cockrem on behalf of KASM and Greenpeace.

⁵⁴⁶ Evidence of Dr D Thompson on behalf of TTRL in Response to Comments Received dated 13 October 2025.

⁵⁴⁷ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025.

13.3 Findings

Importance of the STB and mining area for seabirds

1207. Several commenters note that there is insufficient information on seabird presence, distribution, foraging areas and behaviour in the STB to fully and confidently assess the impacts of the mining activity on seabirds (e.g. Pattle Delamore Partners on behalf of Taranaki Regional Council). Ngā Motu Marine Reserve Society raises specific concern about the lack of on-land or at sea penguin surveys.
1208. Dr Cockrem considers that the data used to inform the effects assessment on birds are not adequate in spatial and temporal coverage to assess species of concern, including rare, threatened, or migratory seabirds.⁵⁴⁸
1209. Dr Thompson acknowledges that to the best of his knowledge, there have been no systematic and structured at-sea surveys of seabird occurrence and abundance, and how these vary temporally, in STB. He notes that:⁵⁴⁹
- it would be fair to say that 'bird use of the area' is not well or fully understood.
1210. Dr Thompson lists threatened and at-risk seabirds and shorebirds.⁵⁵⁰ We note that, as for the identification of marine mammals, threatened species were identified using the NZTC and IUCN Red List but no assessment of threat status was done using the Minister of Conservation's Declaration, as required under the EEZ Act. As a consequence, some species were not considered as threatened in the applicant's effects assessment, including fairy prion (*Pachyptila turtur*).
1211. Pattle Delamore Partners on behalf of Taranaki Regional Council notes that the STB is located within the Cook Strait Important Bird Areas and Key Biodiversity Area, meaning that the area is recognised as internationally important for bird conservation and known to support key bird species and other biodiversity. Two of the species that trigger the Important Bird Area status (grey faced petrel, *Pterodroma macroptera gouldi*, and Bullers shearwater, *Puffinus bulleri*) are also listed in Schedule 4A of the Taranaki Coastal Plan as being regionally significant for their coastal indigenous biodiversity values.
1212. The applicant intends to address knowledge gaps through pre-commencement monitoring as described in the applicant's response to environmental groups:⁵⁵¹

With respect to the knowledge base on seabirds, the two-year, pre-commencement environmental monitoring plan (see conditions 47-48) will include a systematic and structured seabird survey covering the proposed project area (PPA) and beyond. The survey will be temporally resolved enabling seabird abundance within the PPA to be determined on a seasonal basis. This survey will address existing knowledge gaps around the utilisation of the PPA by seabirds.

⁵⁴⁸ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [11].

⁵⁴⁹ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [10].

⁵⁵⁰ Evidence of Dr D Thompson on behalf of TTRL dated 19 May 2023.

⁵⁵¹ Applicant's response - Comments Received from Environmental Groups, page 15.

1213. Dr Thompson considers that the two-year pre-commencement monitoring, can answer questions around space use by seabirds in the STB and the relative importance of the proposed mining area to seabirds, provided the monitoring was structured and applied appropriately.⁵⁵²

1214. Dr Cockrem disagrees, noting that:⁵⁵³

the proposed pre-commencement monitoring for two years would be inadequate to determine the use of the STB by seabirds. The minimum period of monitoring needed for a seabird population is 10 years; and

Monitoring of numbers of birds at sea would not provide any information about population trends or about the vulnerability of populations to adverse effects from mining.

1215. The Panel accepts that the STB, including the project area, is an important area for birds, including several threatened species. Fairy prion, kororā/little penguin, grey faced petrel and Bullers shearwater were specifically noted by commenters.

1216. The Panel accepts that bird use of the STB, including the project area and wider sediment plume footprint, is not well understood. Information gaps include data on abundance, distribution, and habitat use.

1217. To identify the significance of specific information gaps, we now turn to the assessment of effects, focussing on kororā/little penguin and fairy prion as two species identified as particularly vulnerable, particularly during breeding season.

Assessment of effects on kororā/little penguin and fairy prion and other birds

1218. We first address the assessment of effects on kororā/little penguin. The Panel has carefully considered the contrasting views of Dr Thompson and Dr Cockrem, as well as new tracking and observational information presented by Ngā Motu Marine Reserve Society.

1219. Dr Thompson considers that while penguins may be displaced from areas of relatively high suspended sediment concentrations within a few kilometres of the mining site, the affected area would be small relative to the wider foraging habitat available to kororā/little penguin and that the proposed consent conditions provide adequate safeguards for their protection.⁵⁵⁴

1220. In contrast, Dr Cockrem considers that kororā/little penguin that breed along the south Taranaki coast would experience significant impacts. Their foraging range when feeding chicks is limited to approximately 30 km and the adverse effects of increased turbidity of the water due to mining would reduce foraging efficiency for the local kororā/little penguin population.⁵⁵⁵

⁵⁵² Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [40].

⁵⁵³ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [46-47].

⁵⁵⁴ Evidence of Dr D Thompson for TTRL in Response to Comments Received dated 13 October 2025 at [16-17]

⁵⁵⁵ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [26].

1221. We find that the assumption of limited offshore use by kororā/little penguin is not supported by the tracking data and offshore observations provided by Ngā Motu Marine Reserve Society, and that kororā/little penguin should be considered likely to overlap spatially with the sediment plume and mining area during at least part of the year. We also accept that the absence of mapped colonies along the South Taranaki / Whanganui coast reflects limited survey effort and access rather than evidence of absence, and that unrecorded colonies may exist.
1222. Dr Cockrem considers that there are no data on current use of the STB by seabirds, no data on population size for kororā/little penguin that use STB, no data on population trends, and no information on the vulnerability of the kororā/little penguin population to reduction in food supply that would occur if seabed mining went ahead. He considers that there may be population-level and conservation-significant impacts of mining on kororā/little penguin and that the extent of these impacts cannot be reliably predicted.⁵⁵⁶
1223. Given that kororā/little penguin meet the definition of “threatened species” and their cultural significance as taonga, we conclude that the information provided by the applicant is uncertain and inadequate. Given the available information, it is possible that the impacts from the proposed mining operation may cause material harm to kororā/little penguin.
1224. The second seabird species identified as particularly vulnerable is the fairy prion. Dr Cockrem describes that fairy prions breed on Takapourewa Stephens Island that they rely on the STB for feeding and would be adversely affected.⁵⁵⁷ Dr Cockrem notes that the absence of data on this colony’s current population size, breeding success, and population dynamics means that there is no evidence available to determine the vulnerability of this population to the reduction in food supply that would occur if seabed mining went ahead.
1225. Dr Cockrem considers that there may be population-level and conservation-significant impacts of mining on fairy prions and that the extent of these impacts and the ability of the fairy prion colony to recover from adverse effects of mining cannot be reliably predicted.⁵⁵⁸
1226. In addition to potential impacts from reduced feeding efficiency, Dr Cockren considers that there is the possibility of large mortality to fairy prions attracted to lights on mining vessels⁵⁵⁹ and that the increasing impacts from marine heatwaves are making fairy prions more vulnerable to adverse effects of mining than was appreciated in the past.⁵⁶⁰
1227. Dr Thompson considers that fairy prions, as visual, pelagic foragers, could experience some reduction in foraging efficiency in areas of elevated suspended sediment near the mining site but that any affected area would be small relative to

⁵⁵⁶ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [23].

⁵⁵⁷ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [14].

⁵⁵⁸ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [23 and 30].

⁵⁵⁹ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [39].

⁵⁶⁰ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [30].

the wider foraging habitat available, so that adverse effects on the population are unlikely. He also considers that with standard mitigation measures to reduce light spill and given the distance to the seabird breeding colony, it would be “fairly safe to conclude that the potential effect of artificial nocturnal lighting causing deck strike leading to injury or death of seabirds would be minimal (as far as practicable), and that the impact on seabirds would be minor”.⁵⁶¹

1228. Given the recognised conservation significance of fairy prion, expert evidence on the importance of the Pātea Shoals and wider STB as feeding areas, the absence of information on the Takapourewa Stephens Island colony status, uncertainty about vulnerability to reduced foraging efficiency, uncertainties about the spatial extent and intensity of the sediment plumes, risk of mortality due to attraction to light, and the cumulative impacts of marine heatwaves on fairy prion (which we agree are increasing in frequency and/or intensity), we conclude that the information provided by the applicant is uncertain and inadequate. Given the available information, it is possible that the impacts from the proposed mining operation may cause material harm to fairy prions from the Takapourewa Stephens Island colony.
1229. For those reasons and applying a precautionary approach to the information gaps identified on the record, we find there is a credible prospect of material harm to kororā/little penguin and fairy prion.

Assessment of effects on other seabird species

1230. Dr Thompson considers that taking into account all potential effects and considering all bird groups, he thinks kororā/little penguin, kuaka diving petrel, shearwater species and shag species (i.e. those species that (can) forage underwater using primarily visual cues) would be most susceptible to proposed activities.⁵⁶² He notes that these species would be potentially affected by the sediment plume, which would reduce foraging efficiency where suspended sediment concentrations were relatively high. He considers that in his opinion, seabirds are unlikely to experience significant impacts.⁵⁶³
1231. Dr Thompson notes that some of his conclusions are based on the sediment plume modelling, and that.⁵⁶⁴

it should perhaps be noted that should the characteristics of a ‘real’ plume differ substantially from those of the modelled plume then his conclusions would need to be revisited.

1232. Dr Cockrem considers that together, the absence of information about seabirds, and the high uncertainty about the extent of the plume, mean that detailed predictions of the spatial extent and intensity of adverse effects on seabirds cannot be made.⁵⁶⁵

⁵⁶¹ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [36].

⁵⁶² Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [13].

⁵⁶³ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [24].

⁵⁶⁴ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [50].

⁵⁶⁵ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [19].

1233. Drs Thompson and Cockrem disagree as to whether the proposed conditions on proposed mitigation and monitoring measures are suitable and sufficient to avoid, remedy, or mitigate adverse effects on birds.⁵⁶⁶
1234. We find that a number of the uncertainties and risks identified for kororā/little penguin and fairy prion also arise for other seabird species that use the STB, including petrels, shearwaters, shags, gulls and terns that rely on visual foraging, reef-associated prey, or are vulnerable to artificial lighting at sea. In particular, limited baseline information on species-specific distribution and habitat use, uncertainty about the sediment plume and associated changes to prey and poorly quantified risks from continuous vessel lighting and disturbance, mean we lack adequate information to assess the importance of the potentially impacted area for seabirds, the vulnerability of seabirds to impacts from the project, and the likely effects of the project over the proposed 20 year operational period, including on other threatened seabird species.
1235. Given these uncertainties and expert evidence before us on the potential magnitude of impact, the Panel is not satisfied that the impacts on other seabird species that rely on visual foraging, reef-associated prey or are vulnerable to lighting at sea will be at a level that is not material.

13.4 Conditions

1236. The applicant proposes collecting data during pre-commencement monitoring. While we agree with Dr Cockrem that two years are insufficient to achieve the broad objectives stipulated by the applicant (e.g. “enabling seabird abundance within the project area to be determined on a seasonal basis”, “address existing knowledge gaps around the utilisation of the project area by seabirds”⁵⁶⁷), more importantly, we find that this information is, in the Panel’s view, information that would ordinarily have been available to inform a more robust effects assessment. In our view, the monitoring proposal does not resolve the present uncertainty about seabird use, vulnerability, and exposure pathways.
1237. The applicant proposes high-level performance conditions (including a requirement for ‘no adverse effects’ on Threatened and At-Risk seabirds), a two-year pre-commencement monitoring programme, and the development of a Seabird Effects Mitigation and Management Plan to collect additional information and manage effects on seabirds.
1238. Dr Cockrem considers that if the proposed activity was undertaken, then it would be in his view impossible to meet Condition 9(a), as the proposed activity would have adverse effects on individuals of ‘Threatened’ and ‘At-risk’ species. He refers to his 2023 evidence, in which he identified 46 seabird species in this category.⁵⁶⁸

⁵⁶⁶ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [48].

⁵⁶⁷ Applicant’s response - Comments Received from Environmental Groups, page 15.

⁵⁶⁸ Joint Statement of Expert Witnesses – Effects on Seabirds dated 20 November 2025 at [43].

1239. The Panel accepts there is a credible prospect that threatened species will be adversely affected. Avoiding those effects would require a robust and clearly specified effects mitigation and management framework. We find that the proposed conditions lack specific objectives and measurable indicators for identifying and assessing adverse effects. In combination with the inherent complexity of undertaking seabird surveys (as described by Dr Cockrem) this creates high uncertainty about the applicant's ability to monitor and manage adverse effects.
1240. Given these findings, we agree with Dr Cockrem that the proposed conditions are not suitable and sufficient to avoid effects on threatened seabirds. The applicant has not demonstrated that conditions can prevent material harm to seabirds, particularly for threatened species such as kororā/little penguin and fairy prion. Further, we are not able to develop and impose conditions to address the limitations that we have found.

14 Effects on fish

14.1 The application

1241. The effects assessment for fish draws primarily on three technical reports: a NIWA baseline report⁵⁶⁹, a NIWA effects report⁵⁷⁰ and an AES ecological report,⁵⁷¹ which relies on information presented in the NIWA effects report. These documents address ecological effects on fish (including sharks and rays) and their habitats. Several other reports address effects on fisheries and fishing activities. Those matters are addressed separately in the decision. This chapter is confined to fish and fish habitat as ecological receptors.
1242. The NIWA baseline report relies on predicted distributions and relative abundances of fish around New Zealand and describes the STB as supporting a range of marine habitats that in turn support reef fish, invertebrates, crayfish, demersal fish and pelagic fish species, with species richness of the reef fish, demersal fish and pelagic fish assemblages described as moderate on a national scale. None of the strictly marine fish species reviewed are nationally threatened, although several diadromous species occurring in the region are listed as "At Risk – Declining".
1243. The report highlights a group of demersal and pelagic species whose predicted adult distributions and catch rates particularly coincide with the project area, including barracouta, blue cod, carpet shark, eagle ray, John dory, golden mackerel, kahawai, leatherjacket, lemon sole, red cod, red gurnard, rig, school shark, snapper,

⁵⁶⁹ South Taranaki Bight Fish and Fisheries, MacDiarmid et al. dated 2013

⁵⁷⁰ Assessment of the scale of marine ecological effects of seabed mining in the South Taranaki Bight, Dr A MacDiarmid, Dr D. Thompson and Dr J. Grieve, dated September 2015

⁵⁷¹ Trans-Tasman Resources Ltd Consent Application: Ecological Assessments, Aquatic Environmental Sciences dated January 2016

spiny dogfish, tarakihi, trevally, common warehou and witch. These species are the focus of the quantitative effects analysis in the NIWA effects assessment.

1244. The AES and NIWA assessments consider effects from suspended sediment and modification of benthic habitats by increased sediment deposition, including:
- a. impacts on physiological processes such as respiration and feeding;
 - b. impaired visibility for prey detection;
 - c. loss or changes in feeding area and food resources; and
 - d. loss or changes in spawning areas.
1245. The AES ecological report describes that scientific studies identified 2 mg/L and 3 mg/L as the lowest SSC that would be avoided by pelagic and demersal fish respectively and that acute and chronic impacts would be expected to be at much higher levels. Other studies showed juvenile snapper in estuaries changing foraging strategies and reduced condition at 35-40 mg/L. The AES assessment notes that published SSC thresholds indicate that for most species impacts beyond avoidance or a reduction in feeding only occur at levels well over 500 mg/L and that such levels would not be encountered even right at the source and near the seabed.
1246. The assessment concludes that:⁵⁷²
- Fish are relatively mobile and will tend to avoid areas of high turbidity. Suspended sediment concentrations of 2-3 mg/L may be avoided but acute and chronic impacts would only occur at significantly higher concentrations and at levels that would only be found in bottom waters close to the source. Based on spatial information on fish distribution and a conservative level of 2-3 mg/L, less than 1% of the area occupied by each fish species in the South Taranaki Bight would be impacted.
1247. The AES report states that the area potentially impacted by the mining operations is not known as an important spawning area for fish and on that basis considers that any impacts of SSC if they were to occur would be no more than minor and limited in spatial extent in the context of this part of the STB. For fish that spawn inshore the AES assessment considers that effects are likely to be within the range of background levels of SSC that the fish populations would encounter naturally.
1248. The NIWA effects report focusses on fished species and, for commercial and recreational species (including leatherjacket, red gurnard, rig, school shark, snapper, spiny dogfish, tarakihi, trevally, barracouta, red cod and several other key species), concluded that:⁵⁷³

Given that the area potentially impacted by the proposed mining activities comprises less than 1% of their area of distribution in their QMA, that individuals are relatively mobile, and occur either close inshore in areas already impacted by high background levels of SSC, or principally offshore, any displacement of fish or decrease in prey abundance or

⁵⁷² Trans-Tasman Resources Ltd Consent Application: Ecological Assessments, Aquatic Environmental Sciences dated January 2016 at page 48.

⁵⁷³ Assessment of the scale of marine ecological effects of seabed mining in the South Taranaki Bight, Dr A MacDiarmid, Dr D. Thompson and Dr J. Grieve, dated September 2015 at page 68.

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availability due to the proposed mining activities will have negligible effects on the state of their stocks.

1249. Eagle rays are treated separately because of their distribution and feeding behaviour on shallow soft sediments. The NIWA effects report indicates that for eagle ray, the area where SSC is predicted to exceed 3 mg/L overlaps a higher proportion of its core distribution than for other species (on the order of several percent of its high-probability-occurrence area rather than <1% of its QMA) and notes that this species may therefore experience a greater degree of local habitat modification and displacement. The report concludes that:⁵⁷⁴

Using this threshold a minor to moderate proportion of the stock could be affected by mining through displacement of fish, or decrease in prey abundance or availability. During summer and autumn eagle ray tends to concentrate inshore in water less than 10 m deep where background SSC may reach over 100 mg/l (Hadfield and Macdonald 2015). This suggests that eagle rays may be tolerant to SSC higher than the threshold of 3 mg/l used to assess the impact of SSC elevated by the proposed mining activities.

1250. For rock lobsters, the NIWA baseline report describes that at certain times of the year, particularly immediately after the mating and moulting in winter and summer respectively, larger males may migrate offshore across sand flats to feed on shellfish. Egg-brooding females may also form offshore aggregations in areas of high water current in spring at the time of larval hatching. The report describes that the limited available data from the STB suggests that this migration does not carry lobsters as far offshore as TTRL's proposed project area. The NIWA effects report concludes that, given that the main area of distribution is close inshore in naturally turbid water, any displacement of lobsters or decrease in prey abundance or availability due to mining should have negligible effects on the state of the stock in area 935 or in CRA9. It notes that populations that occur on offshore reefs such as the North and South Traps could be affected to a minor extent.

1251. For kaimoana species, the NIWA assessment report identifies three groups:

- a. Species occurring close inshore or penetrating reaches of the river systems in the region and a large number of invertebrate species fished or gathered from intertidal and shallow sub-tidal parts of rocky reefs or muddy or sandy shores. Species in this group include kanae (grey mullet), patiki mohoao (black flounder), tuna heke (long finned eel), tuna roa (short finned eel), and paraki/ngaiore (common smelt). The invertebrates include koeke (common shrimp), kaunga (hermit crab), papaka parupatu (mud crab), papaka (paddle crab), waikaka (mudsnail), pipi, purimu (surfclams), tuangi (cockle), tuatua, kotore or humenga (sea anemone), kina (sea urchin), patangatana (starfish), karaura (rock oyster), kutae/kuku (green lipped and blue mussel), pupu (cats eye), rori (sea-snail), paua and hihiwa (black- and yellow-foot paua), kaeo (sea tulip), and waharoa (horse mussel).

⁵⁷⁴ Assessment of the scale of marine ecological effects of seabed mining in the South Taranaki Bight, Dr A MacDiarmid, Dr D. Thompson and Dr J. Grieve, dated September 2015 at page 68.

For these species, the report concludes that:⁵⁷⁵

Given that their main area of distribution in the STB is close inshore in naturally turbid water, or in freshwater rivers, they are highly unlikely to be affected by the mining activities or sediment plume and any displacement of fish or decrease in prey abundance or availability due mining 50 M t per annum will have no or negligible effects on the state of their stocks.

- b. The second group includes two species, hapuka (groper), and para (frostfish), with a broad distribution in the STB but with their centre of distribution in deeper offshore waters, and seven other species including kuakua (scallop), and rore/rore (sea cucumber), moki (blue moki), patiki rore (New Zealand sole), patiki totara (yellowbelly flounder), patiki (sand flounder), and reperepe (elephantfish) occurring mainly in depths less than 50 m.

For these species, the report concludes that:⁵⁷⁶

Given that the area of SSC concentrations elevated over background levels by the proposed mining of 50 M t per annum comprises less than 1% of the area of distribution of these species in FMA8, any displacement of individuals or decrease in prey abundance or availability due to the proposed mining activities will have negligible effects on the state of their stocks.

- c. In the third group are rocky reef, demersal or benthic species occurring mainly close inshore but with their distributions extending across the inner part of the shelf to depths of 50 m wherever suitable habitat occurs. This group includes marari (butterfish), koiro (conger eel), koura (rock lobster or crayfish), and wheke (octopus).

For these species, the report concludes that:⁵⁷⁷

Although their populations close inshore will be largely unaffected by mining 50 M t per annum, it is possible that individuals occurring at or near the mining site or areas affected by the near seafloor sediment plume, could be displaced or experience a decrease in food abundance or availability. However, for each species the impact on their overall population is likely to be negligible.

14.2 Comments received, applicant's response to comments, independent review

1252. A large number of parties commented on the effects on fish, including:

- a. Various councils including Horowhenua District Council, Whanganui District Council, Taranaki Regional Council (including the assessment by Pattle Delamore Partners), Horizons Regional Council (including the assessment by Pattle Delamore Partners),

⁵⁷⁵ Assessment of the scale of marine ecological effects of seabed mining in the South Taranaki Bight, Dr A MacDiarmid, Dr D. Thompson and Dr J. Grieve, dated September 2015 at page 68.

⁵⁷⁶ Assessment of the scale of marine ecological effects of seabed mining in the South Taranaki Bight, Dr A MacDiarmid, Dr D. Thompson and Dr J. Grieve, dated September 2015 at page 68.

⁵⁷⁷ Assessment of the scale of marine ecological effects of seabed mining in the South Taranaki Bight, Dr A MacDiarmid, Dr D. Thompson and Dr J. Grieve, dated September 2015 at page 68.

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- b. Climate Justice Taranaki;
- c. EDS;
- d. Forest and Bird;
- e. KASM and Greenpeace;
- f. South Taranaki Underwater Club;
- g. Te Ohu Kaimoana;
- h. Ngā Motu Marine Reserve Society;
- i. Te Rūnanga o Ngāti Ruanui (affidavit of G. Young);
- j. Te Rūnanga o Ngāti Mutunga;
- k. Ngāti Manuhiakai;
- l. Ngā Tāngata Tiaki o Whanganui;
- m. Kanihi-Umutahi me ētahi atu hapū;
- n. Nga Rauru;
- o. Araukuuku;
- p. Ngāti Hāua Hapū;
- q. Te Kāhui o Taranaki;
- r. Ōkahu-Inuāwai;
- s. Te Kāhui Maru Trust;
- t. Te Korowai o Ngāruahine Trust
- u. Ngāti Tū hapu and others;
- v. Brooks Seafood Ltd & Awaroa Fisheries Ltd;
- w. Hollings Resource Management Ltd;
- x. Talley's Group Limited;
- y. Whanganui-Manawatu Sea Fishing Club and Pātea Districts Boating Club;
- z. Ohawe Boat and Angling Club;
- aa. Opunake Boat and Underwater Club;
- bb. Sealord;
- cc. Mark Bamford;
- dd. Te Kahui o Taranaki Iwi;
- ee. Seafood New Zealand;
- ff. New Zealand Rock Lobster Industry Council Ltd;
- gg. Parliamentary Commissioner for the Environment; and

hh. Minister for Oceans and Fisheries.

1253. Overall, comments express concern that seabed mining in the STB would cause significant, and in some cases potentially long-lasting, adverse effects from sediment and underwater noise on fish habitats, fish health and behaviour, and fish populations, under conditions of substantial scientific uncertainty and existing cumulative pressures. The applicant's responses are primarily set out in the statements of evidence of Dr MacDiarmid²¹ and the tabulated responses to specific commenter groups. Overall, the applicant's response is that, with the updated science, modelling and proposed conditions, effects on fish, including effects on fish habitat, will be localised, minor to negligible, and not amount to material harm on fish.
1254. The Panel considered that an independent review was required to test whether the application documents provide a sufficient and reliable basis for understanding the nature and magnitude of effects on fish generated by the activity.
1255. Overall, the review by Mr Paul Taylor dated 12 January 2026 found that, while the evidence does not demonstrate stock-scale sustainability impacts, it does not support the level of confidence implied by the applicant's characterisation of "no more than minor" effects.⁵⁷⁸
1256. The applicant responded to Mr Taylor's review in a memorandum dated 19 January 2026 compiled by Dr MacDiarmid, Mr Humpheson, Dr Mitchell, Mr Faithfull, and counsel for TTRL. The applicant considers that Mr Taylor provides a useful summary of the evidence and positions taken by the various parties with an interest in fish and fishing in the STB, however, that his review was compromised to an extent by not accounting for all the relevant reports and evidence available to the Panel and that inclusion of this 'unreviewed' information confirms its position that the overall effects of the mining operations on fish species and populations will generally be no more than minor, and that there will be no material effect on either the abundance or health of the commercial or recreational fisheries in the STB.
1257. We have considered the comments received, the applicant's response to comments, the findings of the independent review as well as the response from the applicant to the review in our findings below.

14.3 Findings

1258. Commenters, including iwi authorities, environmental groups and stakeholders with fishing interests, challenge the applicant's 'no more than minor' effects characterisation, emphasising:
- a. uncertainty in sediment and optical modelling;

⁵⁷⁸ Review of information on finfish and fisheries relevant to the Taranaki VTM project, Mr P Taylor dated 12 January 2026 at page 2.

- b. inadequate linkage between modelled SSC and optical changes and ecologically meaningful thresholds for reef productivity, nursery function and fish responses;
 - c. concern that rocky reef habitats at Pātea Shoals and elsewhere, including juvenile blue cod and other nursery areas, could experience persistent reductions in light climate and increased deposition; and
 - d. specific concern about impacts from underwater noise and suspended sediment on fish.
1259. In response to concerns about sediment and optical modelling uncertainty, Dr MacDiarmid accepts that these models are inherently uncertain but says they are state-of-the-art, calibrated to extensive STB data, and previously tested in 2017 and 2024 processes.⁵⁷⁹ She emphasises that assessments use a deliberately conservative “worst-case” plume scenario, and that pre and post-commencement monitoring plus an operational plume model and SSC limit reset will validate and refine predictions once mining begins. The Panel’s findings on sediment distribution modelling are addressed in section 8.
1260. In response to concerns about inadequate linkage between model results and ecologically meaningful thresholds, Dr MacDiarmid notes that this linkage is provided by optical and primary production modelling, together with experimental literature on sensitivity of reef organisms to suspended sediment and reduced light. She refers to evidence of Professor Cahoon⁵⁸⁰ that STB primary producers are adapted to variable turbidity and that project scale changes in light and production are small relative to natural variability.
1261. In response to concerns about impacts on rocky reef habitats, including nursery areas, Dr MacDiarmid acknowledges that numerous reefs were identified recently by Morrison et al. (2022). She proposes amendments to consent conditions, including mapping all reefs within 3 km of the mining area, requiring the EMMP to specify operational responses to “avoid material harm” to any mapped reefs, and delaying mining within 3 km of the CMA boundary for at least five years, so that reef/nursery effects can be monitored and managed before operations move inshore (i.e. closer to mining site A). The Panel notes that concerns about effects on benthic habitats are addressed in detail in section 10.
1262. In response to concerns about the impact of underwater noise on the well-being of fish species in the STB, Dr MacDiarmid refers to evidence presented to the 2017 hearing, summarises that information and more recent research on the vocalisation and hearing abilities of New Zealand marine fish species, and comments on its relevance to the proposed mining operations in respect to species known to be present within the STB.⁵⁸¹

⁵⁷⁹ Evidence of Dr A. MacDiarmid (marine ecology) for TTRL in response to comments received dated 13 October 2025 at [15(c)]

⁵⁸⁰ Evidence of Dr L Cahoon for TTRL dated 15 December 2016.

⁵⁸¹ Evidence of Dr A. MacDiarmid (marine ecology) for TTRL in response to comments received dated 13 October 2025 at [42].

1263. Comments on the effects from suspended sediment are mostly responded to from a fisheries perspective but Dr MacDiarmid also quotes the conclusions from her previous rebuttal evidence on the impact of the proposed mining operations on commercial fish species:⁵⁸²

A review of the spatial and foraging ecology of the key fauna occurring in the STB identified that for most fish species there should be negligible effects of mining 50 Mt per annum according to standard evaluation criteria. This is principally because the scale of the mined area and the areas of elevated suspended sediment concentrations (SSC) are small compared to the area used by the populations of these species. Consequently, they are likely to be displaced from or experience a decrease in prey abundance or availability over a very small part of their distribution. One non-commercial species, eagle ray, may be affected to a moderate extent by the proposed iron sand recovery activities.

1264. Overall, Dr MacDiarmid opines that in light of the research, the likely movement away from the elevated SSC and underwater noise in the area immediately around the mining operations, and the scale of the affected area compared to the area used by the fish populations, fish in the STB will not be significantly affected by the proposed mining operations and that the concerns raised by commenters will not eventuate.
1265. The Panel observes that the applicant's assessment of effects on fish is framed primarily at the scale of overall population or stock sustainability within the relevant FMA or the STB. The Panel accepts that the applicant's evidence indicates mining-related sediment effects are unlikely to materially affect the overall state of those stocks or fish populations across those areas. However, those conclusions do not resolve uncertainty about the potential for localised redistribution, changes in catchability, or uneven effects at finer spatial scales, particularly where species have high site fidelity or are harvested or gathered from discrete nearshore, intertidal, or reef-associated habitats.
1266. The Panel considers that this particularly applies to the assessment of effects on rock lobster. While the evidence indicates that any displacement or reduction in prey availability is unlikely to affect the overall state of the stock, the Panel also notes that plenary evidence for CRA9 describes fishing patterns that are spatially constrained and strongly associated with discrete reef systems. In that context, effects on offshore reef-associated lobster populations, even if minor at a stock level, may have uneven practical implications for fishing activity at finer spatial scales.
1267. The Minister for Oceans and Fisheries (supported by information prepared by MPI/Fisheries New Zealand material) focused on the use and limits of available fisheries information, including the need to aggregate commercial fishing data for confidentiality reasons and the consequent limits on fine-scale spatial inference. The Minister/MPI also indicated that customary fishing activity is not comprehensively or consistently captured in available datasets. The Panel takes from those limitations that fisheries information framed at QMA/FMA scale cannot, by itself, provide a reliable basis for drawing firm conclusions about effects (or the

⁵⁸² Rebuttal evidence of Dr A MacDiarmid for TTRL dated 23 January 2024 at [53].

absence of effects) experienced at the scale of discrete grounds and patterns of use.

1268. In regard to potential effects on eagle rays, the Panel notes that, while the applicant has demonstrated that eagle rays can tolerate elevated suspended sediment concentrations in nearshore habitats, tolerance to short-term exposure does not resolve uncertainty about the effects of repeated or prolonged exposure, or the implications of habitat modification for a species with relatively high site fidelity.
1269. Mr Taylor's independent review agrees that the available evidence does not demonstrate stock-scale sustainability impacts but concludes that the applicant's high confidence of 'no more than minor' framing is not supported once key uncertainties are taken into account. He notes that several pathways present credible risk of localised changes in fish distribution, habitat function, and catchability, with consequences that may be material for some commercial and recreational fisheries, particularly where flexibility to absorb displacement is constrained.⁵⁸³
1270. The key conclusions of Mr Taylor's review are:
- a. Noise – behaviour – fisheries pathway: on the evidence reviewed, it is plausible that sustained operational underwater noise from mining activities could cause avoidance and redistribution of some finfish over spatial scales of relevance to fisheries, with consequent changes in local catchability and fishing efficiency. The magnitude, duration, and spatial extent of such effects remain uncertain and are not yet expressed in a way that enables firm conclusions for this project.
 - b. SSC exposure – fish response: elevated suspended sediment concentrations can plausibly affect finfish through gill irritation, impaired feeding, growth effects, and avoidance behaviour. However, fisheries-relevant outcomes depend on exposure magnitude and duration, which are not currently characterised with sufficient specificity to allow confident assessment of effect thresholds.
 - c. Optical effects – reef productivity – nursery function: modelled reductions in euphotic depth in the vicinity of Pātea Shoals and Graham Bank raise a credible risk to reef macroalgal productivity and associated nursery habitat function, including the documented juvenile blue cod nursery at Site V. The spatial extent and biological significance of this risk remain uncertain.
 - d. Benthic habitat recovery claims: statements in the application regarding rapid benthic recovery following excavation are not adequately supported by traceable expert evidence in the material reviewed and should not be treated as established.
 - e. Fisheries displacement constraints: where fish redistribution occurs, fisheries impacts will be mediated by Fishstock/QMA boundaries, regulatory closures, and ACE availability (including settlement quota constraints). These constraints

⁵⁸³ Review of information on finfish and fisheries relevant to the Taranaki VTM project, Mr P Taylor dated 12 January 2026 at page 2.

materially affect whether displacement is a practical or legally available mechanism for absorbing effects.

- f. Reliance on conditions: the proposed conditions place significant reliance on baseline characterisation, percentile-based limits, monitoring, and adaptive management. Whether those mechanisms are sufficient to manage the identified risks depends on whether exposure regimes (SSC, optical effects, noise) can in practice be kept below ecologically relevant thresholds and whether triggers are enforceable in a naturally variable environment.
1271. In its response to Mr Taylor's review, the applicant identified that Mr Taylor did not include in his review the NIWA effects report⁵⁸⁴ and 2025 expert evidence on updated published information about the impacts of mining-related underwater noise on New Zealand fish species, effects on primary productivity, impacts on rocky reefs, impacts on fishing, and impacts on and recovery of seafloor communities in the mining areas.⁵⁸⁵
1272. The applicant maintains that, when all of its technical evidence and the proposed conditions are considered, the effects of the proposed mining on finfish are generally no more than minor and do not amount to material harm to finfish or rocky reef habitat, and that the key uncertainties identified by Mr Taylor can be set aside.
1273. The Panel accepts that Mr Taylor did not specifically refer to the NIWA effects report or expert evidence and in its consideration of Mr Taylor's review findings and evaluation conducted its own review of all evidence available. The Panel accepts that the applicant has assembled a substantial body of information on fish communities and fisheries use in the STB. However, given that much of this information is based on fish distribution modelling, the strong focus of the applicant on fished species and the uncertainties on rocky reef habitat (including the presence, composition, and likely impact) identified in section 10, and underwater noise generation identified in section 9, the Panel considers that key aspects of the information relevant to fish, including fish habitat, are either incompletely specified (particularly exposure magnitude and duration for SSC, optical change and noise at sensitive habitats and fishing grounds) or not supported by clearly justified effect thresholds (particularly noise thresholds and effects thresholds for fish habitat).
1274. As a consequence, the Panel considers that the evidence available does not support the level of confidence implied in the applicant's conclusion that effects would be no more than minor and does not constitute best available information for this aspect of the assessment.
1275. In particular, the evidence from commenters and Mr Taylor indicates that material questions remain about the frequency, duration and spatial pattern of SSC elevations and associated light reduction at reefs on the Pātea Shoals and other habitats mapped since the applicant's modelling studies, and about whether

⁵⁸⁴ Assessment of the scale of marine ecological effects of seabed mining in the South Taranaki Bight, Dr A MacDiarmid, Dr D. Thompson and Dr J. Grieve, dated September 2015.

⁵⁸⁵ Responses for TTRL to request for information dated 14 January 2026 for any comments on the Paul Taylor (2026) report dated 19 January 2026 at [2].

percentile plots and limited optical outputs adequately characterise chronic exposure of rocky reefs, including potential fish nursery and forage habitats. The Panel addressed these matters in section 10 and 11.

1276. The Panel therefore finds that there is a credible risk of adverse effects on reef nursery function for species such as blue cod, leatherjacket and other reef-associated fish arising from uncertainty about the exposure regime experienced on discrete reef features and the extent to which reef productivity and habitat function would be altered over the duration of the mining operation. That risk is not fully resolved by the applicant's analysis or by the present SSC-based conditions framework.
1277. The Minister for Oceans and Fisheries and Ministry for Primary Industries/ Fisheries New Zealand's evidence is compelling as it also confirms that fisheries datasets must be spatially aggregated for confidentiality reasons, limiting fine-scale inference and reinforcing the Panel's conclusion that effects at the scale of discrete features cannot presently be determined with precision. The Panel notes that the application has provided limited assessment of impacts on fish from underwater noise generated by the mining activity. Mr Taylor's review shows that anthropogenic noise can cause redistribution over spatial scales relevant to fisheries. In its response to Mr Taylor's review, the applicant provided additional information on underwater noise effects on fish, concluding that:⁵⁸⁶

Based on best practice guidance, behavioural effects are likely to be limited to within 100 m of TTR's activity. This effects zone is considered by TTR to be very small and highly unlikely to adversely affect the behaviour of fish at a measurable level in the vicinity of the activity. The potential to cause avoidance, masking, or redistribution of fish at larger spatial scales is considered very low to negligible. These findings address the primary concerns in Taylor (2026) regarding underwater noise effects on finfish and fisheries.

1278. The Panel acknowledges that the additional information provided by the applicant has addressed some information gaps on underwater noise effects. However, the Panel finds that the limited information on noise sources other than the IMV and crawler, the lack of assessment of sustained (chronic) operational noise generation and redistribution, and the expert disagreement create uncertainty about the impacts of underwater noise on fish.
1279. As a consequence, while the proposed noise limits and engineering controls may reduce the risk of injury, the Panel is not satisfied that the information provided is sufficient to conclude that behaviourally-mediated changes in fish distribution around the project area will necessarily be no more than minor, particularly over the two-decade duration of the activity.
1280. The Panel accepts that mining will cause the removal and disturbance of benthic communities within the excavation footprint, including wormfield habitats that have been identified as both ecologically significant and relevant to fish assemblages.

⁵⁸⁶ Responses for TTRL to request for information dated 14 January 2026 for any comments on the Paul Taylor (2026) report dated 19 January 2026 at [22].

1281. While the applicant, including Dr MacDiarmid, anticipates relatively rapid recolonisation of soft sediment communities in this high energy environment, the Panel has addressed this matter in section 10, and agrees with Mr Taylor and other experts that the evidence base does not support a finding of rapid, full functional recovery for wormfields and associated fish habitat. The Panel therefore finds that there is material uncertainty regarding the duration and ecological significance of habitat loss and modification within the mined footprint for fish communities.
1282. The Panel recognises that the applicant has proposed a conditions framework primarily directed at managing sediment generation, deposition and associated benthic effects, rather than fish-specific effects. In light of the uncertainties identified above and in Mr Taylor's review, the Panel is not satisfied that the conditions as proposed have been demonstrated to:
- a. use trigger values and endpoints that are clearly related to ecologically relevant thresholds for fish, reef productivity and nursery function, particularly in regard to chronic exposure;
 - b. provide enforceable and timely mechanisms to prevent or respond to adverse fish and fisheries outcomes where attribution is contested or exposure approaches the assessed envelope; or
 - c. fully compensate for incomplete specification of exposure regimes in the underlying effects assessments.
1283. Overall, given the available information, the Panel finds that:
- a. The project presents a credible risk of adverse local effects on fish distribution and habitat function, particularly at sensitive reef and nursery habitats and for benthic feeders that have high site fidelity and are resident in habitats in the mining site and the area affected by the suspended sediment plume. Those effects and their likelihood and magnitude are subject to material uncertainty that has not been fully resolved in the application information.
 - b. The project presents a credible risk of adverse effects on fish distribution from underwater noise from mining activities through avoidance and redistribution. The magnitude, duration, and spatial extent of such effects remain uncertain, including whether such effects may occur over spatial scales of relevance to fisheries (including consequent changes in local catchability and fishing efficiency).
 - c. Given the uncertainties in the assessment, the applicant has not established that the current conditions framework is sufficient to ensure that such effects will be avoided or reduced to a level that protect fish from material harm over the duration of the mining activity.
1284. For these reasons, the Panel considers that the information before it does not constitute best available information for determining whether the project would avoid or adequately mitigate adverse effects on fish and fish habitat at the spatial and temporal scales relevant to fish ecology.

14.4 Conditions

1285. The Panel is not satisfied that the risks of adverse effects on fish distribution and habitat function can be reduced to a non-material level through conditions. It also does not consider that additional or amended conditions can be imposed to remedy the deficiencies in the applicant's information.

15 Effects of discharges to air

1286. The combustion of heavy fuel oil to produce energy that powers the IMV (including the crawler) and FSO results in discharges of combustion products to air. This section describes the discharges and addresses their environmental impacts. Section 22 addresses impacts on human health as a result of discharge to air.

15.1 The application

1287. The application proposes that both the IMV and the FSO will primarily operate using heavy fuel oil (and elsewhere refers to Intermediate Fuel Oil 380 which falls into that category). The IMV is stated as also being able to operate on diesel at certain times (such as engine flushing prior to shutdown). The IMV and FSO vessels are stated as having capacity for 35,000 tonnes and 20,000 tonnes of heavy fuel oil respectively. Under normal operations they are stated as consuming up to 7,500 and 1,500 tonnes per month. Annualised, the Panel calculates that this equates to around 90,000 and 18,000 tonnes respectively but does not account for additional fuel use for 'non-normal' operation. The engines will operate to International Maritime Organisation Tier II emission levels, with no exhaust gas treatment systems.
1288. The application was supported by two Tonkin and Taylor reports⁵⁸⁷ that assessed air quality effects arising from two alternative power source options for the IMV that would deliver the estimated 80 MW required for all onboard operations. One option was a series of seven reciprocating engines and the other was a series of four gas turbines. The Panel notes that only the gas turbine option was specified in the Pre-feasibility Study, although that report noted⁵⁸⁸ that other power system options would be investigated, particularly if they could reduce fuel consumption (and therefore operational cost). The application document describes only the reciprocating engine power option.⁵⁸⁹
1289. Tonkin and Taylor Ltd conducted air quality plume dispersion modelling (for each option) and compared results to air quality standards that are aimed at protecting

⁵⁸⁷ Offshore Ironsands Project Air Dispersion Modelling Study - Gas Turbines, Tonkin & Taylor dated 2015; Offshore Ironsands Project Air Dispersion Modelling Study - Reciprocating Engines, Tonkin & Taylor dated 2015.

⁵⁸⁸ Pre-feasibility Study, Siecap dated 25 March 2025 at section 14.2.

⁵⁸⁹ Application dated 15 April 2025, page 18.

public health and therefore considered in section 22. Assumptions underpinning their modelling were a maximum sulphur content in the heavy fuel oil of 4.5% (w/w) and fuel consumption by the IMV (with all engines running) of up to 156,000 tonnes per annum for the reciprocating engine option and 177,000 tonnes per annum for the gas turbine option.

1290. The application document reproduced the results for the reciprocating engine option for the IMV (in Section 5.12.3), adopting these as the maximum emissions modelled for the IMV.

Conditions

1291. Condition 41 requires that all fuel used in the operational vessels must have a sulphur content compliant with the current International Maritime Organisation limit, or no greater than 3.5% (w/w) by weight, whichever is the lesser.

15.2 Comments received, applicant's response to comments, RFI, JWS

1292. Comments on air quality were mostly made by Taranaki Regional Council who raises concerns that air quality effects, particularly sulphur dioxide emissions and related acid deposition, are under-assessed, cumulatively underestimated, and poorly controlled in the application.⁵⁹⁰ With respect to underestimating project emissions, they stated that the applicant (Tonkin and Taylor) had not modelled the emissions generated by the FSO or the CEV and raised the discrepancies with the annual fuel consumption modelled for the IMV and that stated in the application.
1293. Te Kaahui o Rauru express strong concern that the project's air quality effects, alongside other effects, are inadequately assessed and managed, and treats these as part of a wider, unacceptable risk to the marine environment and to Ngaa Rauru Kaitiaki's role as kaitiaki.⁵⁹¹

15.3 Findings

Cumulative effects and data discrepancies

1294. Two sets of results have been provided by Tonkin and Taylor, however the application document refers to, and relies on, the results for the reciprocating engine power source option for the IMV. The Panel therefore considers that these are the most relevant results.
1295. The Panel identifies that the modelled IMV emissions are based on higher sulphur content heavy fuel oil than proposed to be used by the applicant (as controlled by proposed conditions). Further, that the consumption of fuel modelled may not reflect typical or average operational consumption over the course of a year, but may be a realistic consumption rate for certain times during an operational year. This creates

⁵⁹⁰ s53 comments from Taranaki Regional Council

⁵⁹¹ Joint statement of T. Hina and R. Bradley for Te Kaahui O Rauru Trust dated 6 October 2025.

some uncertainty on the accuracy of the emissions modelling for the IMV, but the Panel considers that a conservative (upper limit) approach for IMV emissions has been reported.

1296. However, the Panel agrees with Taranaki Regional Council that the applicant has not assessed the cumulative emissions of the FSO nor the cumulative effect of the CEV (when located near the project area). Any other support vessels (anchor handling vessel or bunkering vessel, for example, which may be operating near the IMV and/or FSO for periods of time) have also not been included in the emissions modelling. The absence of these emission sources creates doubt on what the net effect of emissions may in fact be. We agree with Taranaki Regional Council, that when cumulative emissions are considered, the applicant has likely underestimated emissions from the project vessels. We take this into account when considering the evidence before us.

Ecological effects of sulphur dioxide emission

1297. Taranaki Regional Council notes that:⁵⁹²

The Application contains no assessment of the environmental effects of sulphur dioxide emissions and resulting formation of sulphuric acid.

1298. It describes that combustion of high-sulphur heavy fuel oil will generate substantial quantities of sulphur dioxide, which can be transformed into sulphurous and subsequently sulphuric acid, resulting in direct sulphuric acid input to the ocean surface. The Panel recognises that the effects on this manifest in the water column and not in air but due to it arising from emissions we are presenting it here.

1299. At a sulphur content of 3.5%, the combined fuel consumption of the IMV and FSO is estimated to produce approximately 630 tonnes of SO₂ per month, equivalent to about 965 tonnes of sulphuric acid per month and up to roughly 231,000 tonnes over a 20-year operational life, excluding any additional contribution from the CEV export carrier and other operational vessels.

1300. The Council notes that acidification driven by SO₂, NO_x and CO₂ is a recognised global pressure on marine systems and states that increased acidity can alter seawater carbonate chemistry, degrade life forms that rely on carbonate-based skeletons and shells, and weaken shellfish shells, potentially resulting in greater vulnerability to predation and sediment abrasion, and loss of shellfish community health, diversity, and abundance.

1301. Taranaki Regional Council considers that:⁵⁹³

The contribution to ocean acidification through the VTM project will be a significant local cumulative contribution to a recognised global effect, and potentially a significant and unstudied effect at the local scale.

⁵⁹² s53 comments from Taranaki Regional Council at [43].

⁵⁹³ s53 comments from Taranaki Regional Council at [46].

1302. The Panel accepts that ocean acidification is an important stressor for marine ecosystems and that the potential for localised impact was not assessed by the applicant. In the absence of an assessment, it is unknown whether the amount of sulphuric acid expected to enter the ocean will have an adverse impact on the marine environment in the STB and what the nature of such an effect may be. This represents, in our opinion, a gap in the information and assessment before us. We therefore find that the applicant has not provided the Panel with the best available information on this potential impact.

16 Effects on coastal processes and seabed morphology

16.1 The application

1303. The application is supported by a NIWA report addressing the potential effects on the geomorphic character, erosion and physical drivers and processes along the shore⁵⁹⁴ and several reports of field and modelling studies conducted to inform the assessment, an eCoast report on potential effects on surfing breaks⁵⁹⁵, and an OCEL Consultants report on seabed stability.⁵⁹⁶ Also provided was the 2014 Joint Witness Statement addressing the fate of pits and mounds created in/on the seabed by sand extraction operations and oceanographic measurements and shoreline monitoring.⁵⁹⁷
1304. The application addresses the following potential effects of the proposed mining operation on coastal processes and seabed morphology:
- a. effects on the landforms and geomorphic character of the shore, waves and currents, and sediment processes and coastal stability, including the fate of pits and mounds;
 - b. effects on surfing breaks; and
 - c. seabed stability in terms of implications of tailings on future jack-up deployment.
1305. Depressions (pits or lanes due to sediment extraction) and mounds (de-ored sand returned to the seabed) in/on the seabed can potentially affect wave direction and height as they pass over the modified seabed. Any such changes in the wave field may be propagated shoreward, leading to potential changes in wave conditions nearshore with potential consequential changes in shoreline processes (erosion and accretion) inshore of the operations. Extracting sand from the seabed can also alter the patterns of sand transport across the inner shelf seabed and potentially reduce the supply of sand to the nearshore and beaches. The magnitude of the changes will depend on the scale of the operations, including mound height and pit

⁵⁹⁴ Coastal Stability in the South Taranaki Bight - Phase 2 Potential Effects of Offshore Sand Extraction on Physical Drivers and Coastal Stability (Updated November 2015), T. Hume & et al. dated 2013.

⁵⁹⁵ Potential Effects of Trans-Tasman Resources Mining Operations on Surfing Breaks in the Southern Taranaki Bight, S. Mead, dated 2013.

⁵⁹⁶ Implications of Loose Tailings Seabed Material on Future Jack-up Deployment in the South Taranaki Bight, OCEL.

⁵⁹⁷ Joint Statement of Experts – Bathymetry and Oceanographic Processes dated 20 March 2014.

depth. The duration of effects will depend on how quickly the pits/lanes infill and the mounds diminish in height after extraction ceases.

1306. The NIWA report presents an assessment based on eight hypothetical configurations of the seabed representing the possible states of the seabed during the project operations. The worst case scenario consisted of an 8 to 9 m mound at the southwest end of the operational area and a 9 to 10 m pit at the northeast end. The other seven configurations represented lesser levels of disturbance at intermediate stages in the project operations.⁵⁹⁸
1307. The NIWA report concludes that:
- a. The natural landforms and geomorphic character of the beaches is unlikely to change due to sand extraction as wave modelling indicates the extent of the modification will be minor and will not alter the existing geomorphic character which under natural conditions exhibits a large degree of temporal and spatial variation in wave characteristics.
 - b. Public access to the marine environment will not be adversely affected, as the mining operation is not expected to promote coastal erosion. However, continual cycles of cut and fill on the beaches due to natural events will hinder access from time to time as they have in the past.
 - c. There will be no adverse effects from deposition of substances to the foreshore and seabed because any fine sediment potentially reaching the shore will be quickly winnowed from the beach sediment by wave action and transported offshore, not build-up on the beach.
 - d. Extraction will not adversely affect currents because, while pits and mounds will produce a localised effect on currents, they are not expected to impact prevailing or ambient currents and flow characteristics. Modelling suggests that sand extraction will not have significant effects on sand supply to the beaches and will not promote beach erosion.
 - e. Extraction will not adversely affect waves because wave modelling shows that the differences associated with the bathymetry changes are considerably less than the natural range of variability in baseline (no extraction) values.
 - f. Extraction will not adversely affect sand supply through longshore transport.
 - g. Effects on the risk of accelerated coastal erosion and accretion along the region's coastline and modification to natural hazard processes will not be significant because of the naturally highly variable processes of erosion and accretion under natural conditions.
1308. Modelling the fate of the pits and mounds over time found that at 50 m water depth it will take around 500 years for waves and currents to reduce the pit volume by 90% (around 300 years for 50% reduction). At the same depth, it will take around

⁵⁹⁸ Coastal Stability in the South Taranaki Bight - Phase 2 Potential Effects of Offshore Sand Extraction on Physical Drivers and Coastal Stability (Updated November 2015), T. Hume & et al. dated 2013 at section 7.5.

350 years for 90% of the mound to be deflated (150 years for 50% deflation). Infilling and deflation will be faster at 35 m water depth: 100 years for 90% infilling of the pit (50 years for 50% infilling), and 20 years for 90% deflation of the mound (10 years for 50% deflation).

1309. The Panel notes that the worst case scenario considered in the NIWA report (8 to 9 m mound) is no longer a realistic scenario as Condition 26 limits the height of mounds to 4 m (plus 1 m due to allowable accuracy of recording).
1310. The eCoast report modelled effects of a worst case seabed modification from mining on ten surfing breaks identified as potentially being impacted. The report concludes that impacts on surfing break Waverley is likely to be insignificant and that the mining operation will have no impacts on the other breaks in the area. The eCoast report does not specify the worst case used. In the absence of that specification, the Panel has treated the NIWA worst case configuration (8 to 9 m mounds) as a conservative proxy when considering the eCoast conclusions, noting that mound heights would in practice be constrained by Condition 26.
1311. The OCEL report assesses how a 0–10 m layer of loose re-deposited iron-sand tailings over previously mined areas might affect future jack-up drilling rigs and fixed platform foundations in the mining area. It calculates that spudcans would penetrate about 6 m into loose tailings but notes actual penetration to the spudcan tip is likely slightly more than 4 m and that this is still within the operating expectations.
1312. Although tailings are initially loose, OCEL notes that over time natural consolidation (enhanced by high specific gravity) and wave action in this high-energy swell environment will densify the layer. The slow spudcan penetration consolidates sand beneath the footing and the resulting dense, high-capacity zone under the spudcan is considered not particularly susceptible to seismic liquefaction.
1313. The report concludes that geotechnical investigation work will be required at the site of any proposed jack-up deployment, irrespective of substrate composition, and therefore the previous mining operation would not change any requirements for potential future deployments.

Conditions

1314. Condition 26 stipulates a maximum height of mounds remaining at the beginning of each lane of 4 m, allowing an additional 1 m to reflect recording accuracy.
1315. Condition 28 sets limits on the scale of pits, requiring that all pits remaining at the end of each mining lane must have a maximum depth of no more than 10 m and an average depth of no more than 5 m below the pre-mined seabed level.
1316. Condition 29 specifies that pits, other than those at the end of each mining lane, are to be backfilled using de-ored sediments and that, other than at the commencement of each mining lane, all de-ored sediment is backfilled into the mining lanes.

1317. Condition 87 specifies the preparation of an Operational Assessment Report no less than 3 months before mining and every twelve months thereafter, which must include bathymetry measurements, covering areas in which removal of seabed material is planned and areas in which pits and mounds have been created.
1318. Mound heights and pit depths obtained from bathymetry measurements described under Condition 87 are reported in the Quarterly Operational Report (Condition 103).
1319. Condition 98 requires the Consent Holder to undertake bathymetric surveys annually around the boundaries of the Kupe Operator's exclusion zones (existing or future), and representative points around the Kupe Well Head Platform and along the pipeline and umbilical route, to determine any migration of the mound and pit bathymetry.

16.2 Comments received, applicant's response to comments, JWS

1320. The following parties provided specific comments on coastal processes or seabed morphology:
- a. Taranaki Offshore Partnership (Dr McComb);
 - b. South Taranaki Underwater Club;
 - c. JERA (also provided Fugro report); and
 - d. Whanganui Manawatu Sea Fishing Club and others.
1321. The key coastal process and seabed morphology issues raised in the comments are:
- a. the scale, persistence and uncertainty of pit and mound deformation and its effects on waves, currents and seabed morphology;
 - b. the adequacy of the applicant's models and assumptions for coastal processes;
 - c. geotechnical stability; and
 - d. impacts on navigation safety.
1322. The applicant's response to comments is primarily set out in the evidence of Dr Iain MacDonald.⁵⁹⁹
1323. To ensure the Panel had an accurate understanding of the fate of tailings backfill, expert conferencing on this topic was directed. The conference was attended by the following experts:

⁵⁹⁹ Evidence of Dr I. MacDonald on behalf of TTRL in Response to Comments Received date 13 October 2025.

- a. Gary Teear on behalf of TTRL; and
- b. Carl Erbrich on behalf of JERA.

16.3 Findings

Changes in seabed morphology

1324. Dr McComb considers that mounds created by mining are likely to be larger than estimated by the applicant, mostly because the applicant's assessment ignores sediment 'bulking'.⁶⁰⁰
1325. The Panel notes that Dr McComb's assessment addresses mounds up to 8-9 m height. The proposed conditions, however, limit the height of mounds to 4 m (with a 1 m recording accuracy margin). The applicant's modelling also considered an 8–9 m mound scenario as a worst case. Taken together, the evidence addresses mound heights above those that would be enabled by the consent, and therefore provides a conservative basis for assessing seabed morphology under the proposed conditions.
1326. Dr McComb considers that infilling and deflation rates for the parts of the project area with shallower water depths will be at least 5 times longer than predicted. In the deeper parts of the project area, he considers that it is highly probable that natural remediation will not be effective, and changes to the morphology will be essentially permanent (i.e., persist beyond 1,000 years). He considers that these discrepancies derive from the NIWA model providing results that are inconsistent with regional observations and producing unrealistic over prediction of the rates of mound deflation and pit infilling. Dr McComb describes that the scientific literature accepts that even well-tuned sediment transport model predictions can be wrong in either over-prediction or under-prediction by a factor of 5 or more.⁶⁰¹
1327. In his response, Dr MacDonald notes that his predicted timeframes of pit infilling and mound deflation align with those of Dr McComb⁶⁰². Dr MacDonald states that:

I interpret the predictions as indicating that pit infilling will generally occur over decades at shallower depths (around 20 m) in the STB, and over centuries at greater depths (around 45 m). A similar pattern is observed for mound deflation, although occurring over slightly shorter timescales.⁶⁰³

and

I am firmly of the view that it is the order of magnitude of the timescales that holds the greatest relevance, rather than any single specific prediction at any given location. In that regard, I consider the presented predictions for pit infilling and mound deflation to be fit for

⁶⁰⁰ Evidence of Dr P. McComb for Taranaki Offshore Partnership dated 3 October 2025 at [13].

⁶⁰¹ Evidence of Dr P. McComb for Taranaki Offshore Partnership dated 3 October 2025 at [75-76].

⁶⁰² Evidence of Dr I. MacDonald on behalf of TTRL in Response to Comments Received date 13 October 2025 at [19].

⁶⁰³ Evidence of Dr I. MacDonald on behalf of TTRL in Response to Comments Received date 13 October 2025 at [18].

purpose, as they provide an appropriate basis for assessing the long-term fate of these features.⁶⁰⁴

1328. Applying a factor of five to the 5 m height mound deflation time predictions of Dr MacDonald results in an indicative time to 90% deflation (T_{90} metric) of 80 years in shallow waters and 710 years in deeper waters. Pits are limited in conditions by their maximum and average depth, meaning that the worst case scenario of Dr MacDonald's assessment may apply. Applying the same approach to the pit infilling timeframes used for assessment results in an indicative T_{90} metric of 355 years in shallower waters and 1,795 years in deeper waters.
1329. Given the evidence from both experts, we consider that these values are indicative only but an appropriate basis for assessing the long-term fate of pits and mounds. We therefore find that seabed morphology will be significantly changed over durations well exceeding the consent term and that, for practical environmental management purposes, these changes can be treated as effectively permanent.

Pit migration

1330. Dr McComb notes that for a previous application, the applicant identified that pit migration of 10 m per year was a potential outcome but that this estimate was based solely on a literature review without any analytical or numerical evidence based on the local environment.⁶⁰⁵ He notes that the current application provides no further empirical, analytical or numerical justification for this possibility, nor considers the potential effects of pit migration beyond the boundaries of the project area.⁶⁰⁶
1331. In response, Dr MacDonald notes that "it is not necessarily correct to assume that they will yield more reliable predictions than the rates derived from our literature"⁶⁰⁷, that the rate of pit migration is estimated to be around 10-15 m per year based on published values and that the direction of migration is largely in the direction of residual sediment transport, which for the STB is towards the southeast.⁶⁰⁸ He describes that under the proposed monitoring and management framework, bathymetric surveys will be conducted on a six-monthly basis and considers:⁶⁰⁹

these bathymetric surveys to represent the most robust and accurate means of calculating the rates of pit migration, and for that matter infilling, and mound deflation and the sharing of this monitoring information and surveys with the Kupe Operator and the EPA will ensure that the seabed morphology, and its changes over time, within the mining area will be well documented

⁶⁰⁴ Evidence of Dr I. MacDonald on behalf of TTRL in Response to Comments Received date 13 October 2025 at [19].

⁶⁰⁵ Evidence of Dr P. McComb for Taranaki Offshore Partnership dated 3 October 2025 at [29].

⁶⁰⁶ Evidence of Dr P. McComb for Taranaki Offshore Partnership dated 3 October 2025 at [30].

⁶⁰⁷ Evidence of Dr I. MacDonald on behalf of TTRL in Response to Comments Received date 13 October 2025 at [23].

⁶⁰⁸ Evidence of Dr I. MacDonald on behalf of TTRL in Response to Comments Received date 13 October 2025 at [24].

⁶⁰⁹ Evidence of Dr I. MacDonald on behalf of TTRL in Response to Comments Received date 13 October 2025 at [25].

1332. We agree that the bathymetric surveys will provide measurements and documentation of changes in seabed morphology. We also note that these changes are driven by natural processes and on the evidence, are not amenable to operational control.
1333. On the evidence available, the Panel considers that pit migration has the potential to change seabed morphology over an area well beyond the mining area over decades and centuries after mining has discontinued. The applicant has not assessed this process in any detail and has not investigated potential implications for benthic habitats in the vicinity of the mining area. This represents, in our opinion, a substantial gap in the information and assessment before us. Based on the information that is before us, we cannot determine, with the necessary confidence, the nature and extent of any adverse impact associated with pit migration.

Resuspension of fine sediment from mounds

1334. South Taranaki Underwater Club raises concerns that the resuspension of fine sediment originating from the permanently present mounds has not been considered in sediment distribution modelling.
1335. In response, the applicant notes that SSC will be monitored continuously at specified sites.⁶¹⁰
1336. We agree that resuspension of sediment from the mounds will contribute to the overall release of sediment from the mining operation. We have considered this in our findings in section 8, specifically in our evaluation of uncertainties arising from the modelling of sediment resuspension.

Effects of the project on waves and currents

1337. Dr McComb considers that the models used to predict effects of the project on waves are fit for purpose, and the results are sensible for the far field coastal impact use case.⁶¹¹ However, he notes that the modelling results are entirely subject to the key assumptions regarding the size of pits and mounds, and the uniformity of the lanes, and that a mound of 8-9 m height will have a profound effect on the local hydrodynamics in water of 30-40 m depth.⁶¹²
1338. Dr McComb also notes that the effects of the pits and mounds on currents have not been assessed in the application and could be significant. For example, he estimates that mounds could locally increase the ocean current speeds by 25-30%.⁶¹³
1339. In response, Dr MacDonald highlights that Dr McComb's concerns regarding effects on currents and waves largely stem from the scale of the operation's residual features (pit depth and mound height) within and adjacent to the mining area and

⁶¹⁰ Applicant's response to comments from parties with existing interests, page 24.

⁶¹¹ Evidence of Dr P. McComb for Taranaki Offshore Partnership dated 3 October 2025 at [37].

⁶¹² Evidence of Dr P. McComb for Taranaki Offshore Partnership dated 3 October 2025 at [36].

⁶¹³ Evidence of Dr P. McComb for Taranaki Offshore Partnership dated 3 October 2025 at [15].

that the applicant proposes to limit mound height to 4 m at all times and average pit depth to 5 m.

1340. We agree with Dr MacDonald that Dr McComb's concerns are largely related to the height of mounds reaching 8-9 m and that this is not a realistic scenario. We acknowledge that the applicant's assessment included scenarios of mound heights up to 9 m, which would have overpredicted the likely impact of the project on currents and waves and therefore provides a conservative basis for assessing effects in the context of the current conditions. We also note that the NIWA report assessed effects of the project on currents.⁶¹⁴
1341. While we agree that the applicant's assessment contains some uncertainties, the assessment has appropriately engaged with those uncertainties for the purposes of the far-field coastal impact questions addressed. We are satisfied that the project is not expected to produce changes in prevailing currents or wave climate that are detectable against natural variability, and we therefore do not consider navigation safety would be adversely affected.

Fate of tailings backfill, including risk of flow liquefaction

1342. The Panel has considered the qualitative assessment in the Fugro report, commissioned by JERA, the OCEL report, Dr McComb's comments, and the Joint Witness Statement.
1343. All experts agree that mining will change the physical state and geotechnical condition of the seabed by replacing naturally dense, heavily consolidated sands with a layer of processed tailings that will likely be coarser (because fines have been removed) and less dense (because the heavy mineral sands have been removed).
1344. Fugro's assessment concludes that wave-induced liquefaction is unlikely under ambient (i.e. typical) conditions but quite likely under storm conditions, even for a one-year return period storm.⁶¹⁵ Under storm waves with a one-year return period, liquefaction of the backfill is predicted to occur in the upper ~3 m; under 10-year and 100-year storms, liquefaction of the full backfill thickness is anticipated.
1345. Flow liquefaction implies an almost complete loss of strength where the soil can transition to a state where it may 'flow' like a viscous fluid down slopes.⁶¹⁶ The Fugro report describes that:⁶¹⁷

The sudden decrease in strength associated with flow liquefaction may be so large that essential static shear stresses (e.g. those required to sustain a sloping seabed, or to support the static weight of a structure) can no longer be supported. In this case, catastrophic failure of seabed slopes and collapse of structures and foundations can be

⁶¹⁴ Coastal Stability in the South Taranaki Bight - Phase 2 Potential Effects of Offshore Sand Extraction on Physical Drivers and Coastal Stability (Updated November 2015), T. Hume & et al. dated 2013.

⁶¹⁵ Qualitative Assessment on Coexistence of Mining and OWF Development, South Taranaki OWF, Fugro dated 16 September 2025, page 14 (appended to the comments from JERA Nex BP Parkwind)

⁶¹⁶ Qualitative Assessment on Coexistence of Mining and OWF Development, South Taranaki OWF, Fugro dated 16 September 2025, page 18 (appended to the comments from JERA Nex BP Parkwind)

⁶¹⁷ Qualitative Assessment on Coexistence of Mining and OWF Development, South Taranaki OWF, Fugro dated 16 September 2025, page 8 (appended to the comments from JERA Nex BP Parkwind)

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anticipated. Identification of the potential for any flow liquefaction-prone material is therefore a critical task.

1346. The Fugro report further notes that:⁶¹⁸

Given the very loose state of the backfill, there is a strong likelihood that should liquefaction occur, it will manifest as flow liquefaction where the material will have the potential to flow long distances, similar to a viscous fluid with very low strength. The seabed gradients at the site are very gentle (less than 2 degrees) but are considered sufficient to accelerate the flow mass such that a debris flow run-out event may occur.

1347. The topography of the site is such that a runout event is most likely to travel in either a westerly or south-westerly direction.⁶¹⁹ During expert conferencing Mr Erbrich, one author of the Fugro report, noted that no run out modelling to predict the length of the flow path has been conducted, hence the length of the flow paths in the figures of the Fugro report are speculative and for illustrative purposes only.⁶²⁰

1348. The OCEL report for the applicant considers the implications of loose tailings for future jack-up deployment and concludes that, after site-specific borehole investigation, jack-ups can safely operate because spudcans will penetrate deeply and densify the tailings beneath them. That report does not, however, explicitly evaluate the susceptibility of the broader tailings layer to flow liquefaction at the scale of the mined field, nor the consequences of large-scale runout for other infrastructure. The Panel therefore places limited weight on OCEL's broader inference that loose tailings "do not have any significant implications" for future use of the area, insofar as flow liquefaction and runout are concerned.

1349. Mr Erbrich and Mr Teear agree that:⁶²¹

the material will initially be loose, but do not know how loose or how readily it will densify when subject to metocean or seismic loading.

1350. They also agree that the backfill fate is currently not sufficiently well understood because there are no tailings samples, particle-size distributions or testing, and that it is based on assumptions.⁶²² Mr Teear considers this is the best that can be achieved presently.⁶²³ Mr Erbrich agrees and considers that the lack of tailing samples is a major limitation of all work conducted.⁶²⁴

1351. In relation to consequences if instability occurs, Mr Erbrich and Mr Teear agree that:⁶²⁵

⁶¹⁸ Qualitative Assessment on Coexistence of Mining and OWF Development, South Taranaki OWF, Fugro dated 16 September 2025, page i (appended to the comments from JERA Nex BP Parkwind)

⁶¹⁹ Qualitative Assessment on Coexistence of Mining and OWF Development, South Taranaki OWF, Fugro dated 16 September 2025, page i (appended to the comments from JERA Nex BP Parkwind)

⁶²⁰ Joint Statement of Expert Witnesses - Fate of Tailings Backfill dated 18 November 2025 at [38].

⁶²¹ Joint Statement of Expert Witnesses - Fate of Tailings Backfill dated 18 November 2025 at [36].

⁶²² Joint Statement of Expert Witnesses - Fate of Tailings Backfill dated 18 November 2025 at [16-17]

⁶²³ Joint Statement of Expert Witnesses - Fate of Tailings Backfill dated 18 November 2025 at [16]

⁶²⁴ Joint Statement of Expert Witnesses - Fate of Tailings Backfill dated 18 November 2025 at [17]

⁶²⁵ Joint Statement of Expert Witnesses - Fate of Tailings Backfill dated 18 November 2025 at [52]

flow liquefaction could have catastrophic consequences for jack-ups and any infrastructure along a slope failure path. Cyclic mobility liquefaction may still pose a risk to jack-ups but not slopes. If the soil were to densify back to, or close to, in situ conditions, it is unlikely to pose a risk

1352. In regard to mitigation, monitoring and proposed conditions, Mr Erbrich and Mr Teear:
- a. recommend the establishment and implementation of a 'no mining exclusion zones' on and adjacent to the steepest slopes (Mr Teear with the proviso that only where densification has not been proven).⁶²⁶ The Panel notes that the mining exclusion zone in the Fugro report focusses on reducing the risk of liquefaction flow towards a potential offshore wind farm site, not on reducing the risk of liquefaction flow in general;
 - b. recommend that jack-ups should not be placed on backfill unless it is confirmed first that it has densified sufficiently to avoid flow liquefaction, or general undrained shear failure (monotonic or cyclic) that results in bearing capacity less than the previously applied pre-load;⁶²⁷ and
 - c. note that in respect of existing Kupe infrastructure, if future jack-up operations may be required (e.g. for plugging and abandoning of wells), exclusion zones sufficient to encompass a jack-up footprint should be enacted until sufficient densification is confirmed.⁶²⁸
1353. We note that both experts participating in expert conferencing considered the fate of tailings backfill in the context of specific seabed uses with Mr Teear considering the deployment of jack-ups and Mr Erbrich the use of the area for offshore windfarm development. However, their assessments and expert opinions expressed during conferencing were not restricted to these uses but instead form subsets of the broader geotechnical risk posed from the tailings backfill.
1354. The Panel accepts the experts' shared view that, in the absence of site specific tailings testing, the fate of the backfill is not yet sufficiently well understood to make confident predictions about the likelihood or consequences of flow liquefaction.
1355. The Panel therefore finds that the fate of the tailings backfill, including the risk of flow liquefaction and related runout, is materially uncertain. On the evidence available, the Panel considers that there is a real risk that if flow liquefaction and runout were to occur, the consequences could be catastrophic to the habitats / uses down gradient of the site and/or existing interests within the area to be mined. Given that uncertainty and the potential severity of consequences, the Panel favours caution and environmental protection.
1356. The applicant has not assessed the potential effects of flow liquefaction on benthic habitats in any detail and has not investigated potential implications for benthic habitats in the vicinity of the mining area. This represents, in our opinion, a

⁶²⁶ Joint Statement of Expert Witnesses - Fate of Tailings Backfill dated 18 November 2025 at [54]

⁶²⁷ Joint Statement of Expert Witnesses - Fate of Tailings Backfill dated 18 November 2025 at [56]

⁶²⁸ Joint Statement of Expert Witnesses - Fate of Tailings Backfill dated 18 November 2025 at [59]

substantial gap in the information and assessment before us. On the basis of the information that is before us, we cannot determine with any confidence the risk of, and the nature and extent of any adverse impact associated with flow liquefaction.

1357. Potential liquefaction and runout, were it to occur, would be expected to be triggered by storms and seismic events. The evidence does not demonstrate that the occurrence or timing of such individual events, can be reliably foreseen, that the associated risk can be predicted with sufficient precision, or that the risk could be mitigated or managed operationally. Accordingly, the risk would remain driven by natural processes outside the applicant's control and may persist over timescales extending well beyond the duration of any marine consent that we can grant for the project.
1358. The Panel recognises that engineering controls and operational constraints can reduce the specific risk to future jack-up deployments. However, those measures do not remove the underlying uncertainties regarding the density state, liquefaction susceptibility and runout behaviour of the tailings as a whole which depend on long-term storm and seismic loading rather than project operations.
1359. Given the significant uncertainties and the lack of options for mitigating or managing the risks of flow liquefaction from loose tailings and noting that triggering storm or seismic events are outside the applicant's control, the Panel is not satisfied that those risks can be reduced to a non-material level through conditions. In these circumstances, the need to favour caution and environmental protection led the Panel to conclude that mining could not occur without generating an unacceptable risk of material harm.

Other potential effects

1360. The Panel is satisfied that, as concluded in the NIWA report,⁶²⁹ the project is unlikely to change the natural landforms and geomorphic character of the beaches or promote coastal erosion. For the same reasons, it is unlikely to restrict public access to the marine environment, result in the deposition of substances to the foreshore and seabed, adversely affect sand supply through longshore transport, or increase the risk of accelerated coastal erosion and accretion along the region's coastline.
1361. In this regard, we find that the project will not measurably increase the natural hazard risk facing the coastline or the CMA that is close to the coastline. We therefore find that any change to the natural hazard risk in these areas would be insignificant.

⁶²⁹ Coastal Stability in the South Taranaki Bight - Phase 2 Potential Effects of Offshore Sand Extraction on Physical Drivers and Coastal Stability (Updated November 2015), T. Hume & et al. dated 2013 at section 7.

16.4 Conditions

1362. Mound height and pit depth are measured on a six-month basis. Given the predicted speed of mound deflation and pit refilling, we consider the six-monthly frequency appropriate for assessing compliance with Conditions 26 and 28.
1363. However, the conditions do not explicitly require bathymetry to be measured prior to mining. While Condition 87 requires bathymetry measurements in areas where mining is planned, it is possible that the mining schedule changes. If mining were to occur in an area without prior bathymetry measurements, assessment of compliance with Conditions 26 and 28 may not be able to be demonstrated. The lack of a condition ensuring bathymetry is measured before mining at any location is therefore a material gap in the effects management framework.

17 Effects on natural character, seascape and visual amenity

17.1 The application

1364. The assessment of the seascape and natural character was undertaken by Boffa Miskell in 2013 and updated in 2015. The report uses the definition of natural character developed by the Ministry for the Environment in 2002:

Natural character is the term used to describe the natural elements of all coastal environments. The degree or level of natural character within an environment depends on:

- 1) The extent to which the natural elements, patterns and processes occur;
- 2) The nature and extent of modifications to the ecosystems and landscape/seascape.

The degree of natural character is highest where there is least modification.

The effect of different types of modification upon natural character varies with context and may be perceived differently by different parts of the community.

1365. The report relies on Policy 13(2) of the NZCPS for further definition of natural character:

Natural character is not the same as natural features and landscapes or amenity values and may include such matters such as:

- (a) natural elements, processes and patterns;
- (b) biophysical, ecological, geological and geomorphological aspects;
- (c) natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;
- (d) the natural movement of water and sediment;
- (e) the natural darkness of the night sky;
- (f) places or areas that are wild or scenic;
- (g) a range of natural character from pristine to modified; and
- (h) experiential attributes, including the sounds and smell of the sea, and their context and setting.

1366. Seascape is not defined in any policy documents, however the report describes seascape as follows.⁶³⁰

While seascape is not defined in the NZCPS, the common interpretation of seascape is that it is a view that incorporates a large expanse of the sea. Notwithstanding this, both the NZCPS (Policy 13) and Natural England consider seascape considerations to involve more than perceived and visually experienced associations with the sea and can incorporate natural and cultural/social associations.

1367. Twenty seascape character areas were identified in the coastal environment between Manaia and Whanganui (discussed in section 6.7 and shown in Figure 12 below). They are based on the 2004 Inventory of Regional and Locally Significant Coastal Areas prepared by the Taranaki Regional Council, and the Landscape Character Areas defined in the 1996 Whanganui District Landscape and Ecology Report. Boffa Miskell considers that the overall ratings for these areas and sites would be in the moderate to high range particularly with regard to amenity, recreation and scientific/ecological considerations. Access to the Whanganui seascape character areas in general is assessed as being in the good to excellent category.⁶³¹

⁶³⁰ Seascape, Natural Character and Visual Effects, Boffa Miskell, updated December 2015 at [3.16]

⁶³¹ Seascape, Natural Character and Visual Effects, Boffa Miskell, updated December 2015 at [5.7]

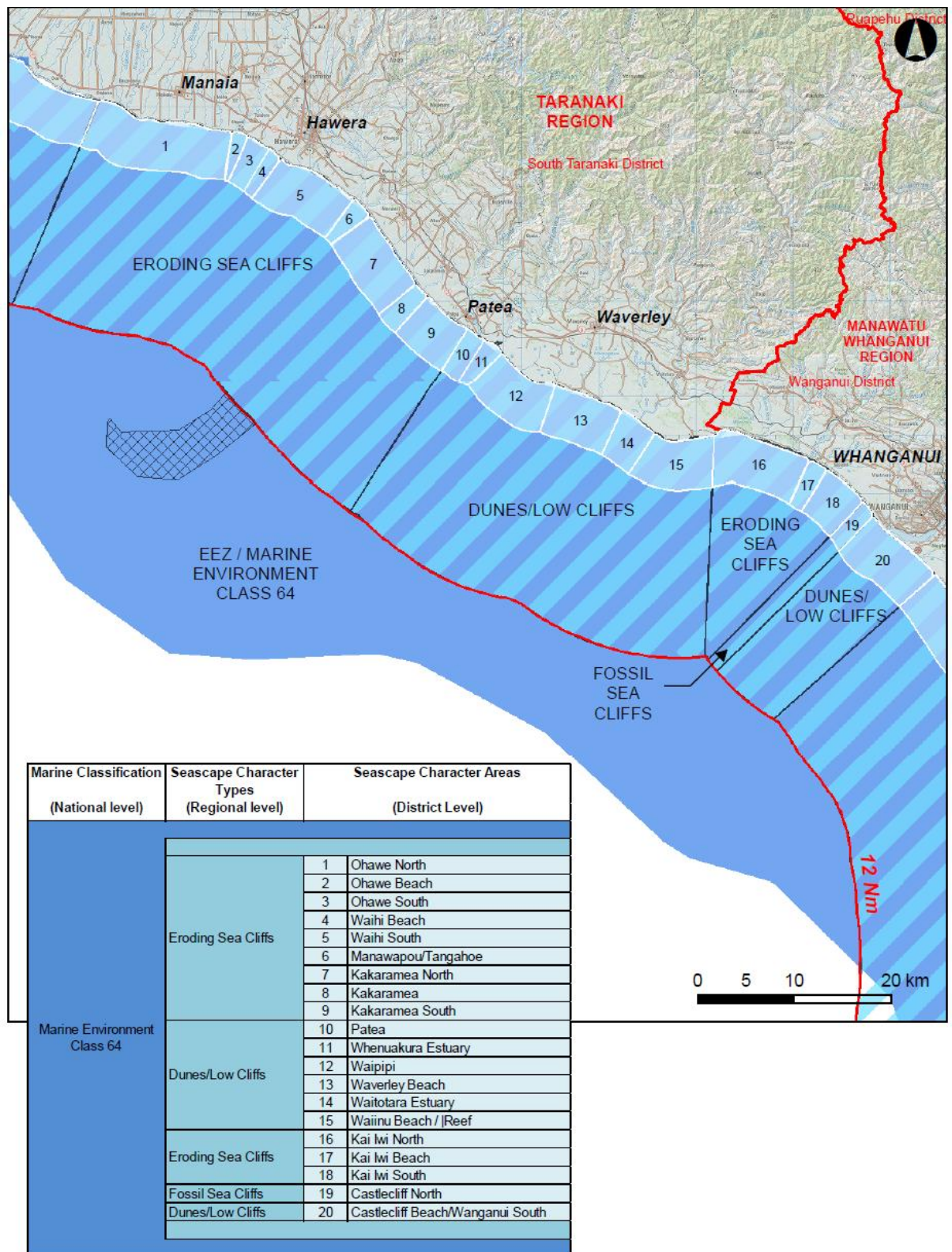


Figure 12: Seascape character areas (source: *Seascape, Natural Character and Visual Effects*, Boffa Miskell, updated December 2015)

1368. The natural sediment plumes that are a particular feature in all of the identified character types and areas in Figure 12 are said to be distinctive features that contribute to the high visual, recreational and amenity values of the STB seascape.

The report describes suspended sediment concentration measurements taken from six sites, every 15 minutes from 7 and 12 March 2013. The measurement sites were located at Ohawe, Manawapou, Pātea, Waitotara, Kai Iwi and Whanganui and ranged between 508 metres and 1,450 metres offshore. The measurements show that the appearance, pattern and extent of the naturally derived suspended sediment concentration plumes vary considerably within and between sites on a daily basis and over time. The suspended sediment levels ranged between 1.9 and 119.4 mg/L.⁶³² These measurements were taken during a period that was unusually dry, with low river flows and therefore low river sediment inputs to the coast.

1369. Boffa Miskell categorises the project's effects on seascape, natural character and visual amenity as:
- a. visual effects from specific viewpoints and viewing audiences;
 - b. effects on natural features and natural landscapes (being defined and/or special or significant landscapes/seascapes and features); and
 - c. effects on natural elements, natural patterns and natural processes (the natural character of the coastal environment).
1370. Starting with the visual effects, the report acknowledges that the visibility of the IMV will be high from marine areas within 10-15 km of the vessel itself. The assessment considers that the surface marine activities will not appear visually intrusive from the recreation and amenity areas identified by the Taranaki Regional Council. Overall, the visibility of vessels is unlikely to be perceived as visually intrusive however and will likely be seen as an 'appropriate' working seascape activity. The visual effects are considered to be low.⁶³³
1371. The assessment acknowledges that there will be an increase in suspended sediment concentrations as a result of the project, but considers that these levels are relatively low and will for the most part not be visually apparent from land-based viewpoints.
1372. Effects of the sediment plume are assessed as being relatively insignificant. A discernible difference in surface water colour will be apparent for 35-40 km east of the mining site. Closer inshore, it will become similar to the water colour naturally experienced. While the size and extent of the impact is significant, the low level of use in the impacted area suggests that the effect on recreation amenity values will be less than that. Ultimately, a moderate to high impact on amenity is predicted within 3 to 5 km of the mining. The surface water sediment plume will only be evident during the mining activity and therefore such an impact is reversible and temporary. The greatest impact will be when viewed from aircraft, however given the limited

⁶³² Seascape, Natural Character and Visual Effects, Boffa Miskell, updated December 2015 at [5.11]

⁶³³ Seascape, Natural Character and Visual Effects, Boffa Miskell, updated December 2015 at [7.24 and 7.25]

audience, the transient nature of the impact and the presence of other plumes in the STB, the effect is considered as moderate to low.⁶³⁴

1373. In terms of visible cumulative effects, the Boffa Miskell report considers that the mining-derived sediment would not add appreciably to the natural or background levels within the inshore and near-shore marine areas. As there are currently no visible sediment plumes offshore under most conditions, there will be increased visual effects. From the coastline cumulative effects are not likely to be particularly visible, but they may be from some marine areas and the air. The assessment considers that cumulative effects are not likely to be perceived as being significant or adverse.⁶³⁵
1374. Turning to the effects on outstanding natural features and landscapes, Boffa Miskell considers that the project will have the following effects:⁶³⁶
- a. Whenuakura Estuary – little, if any, effect;
 - b. North and South Traps - Given the location of the traps it is unlikely there will be any adverse effects on these values or the ‘outstandingness’ of these features. While there may be variations in suspended sediment plume concentrations from the project, these are likely to be relatively minor and will not adversely affect the special features and values of the traps;
 - c. Waverley Beach – no adverse effects;
 - d. Waitotara Estuary – no adverse effects; and
 - e. Waiinu Reef - no adverse effects.
1375. When considered in the context of NZCPS Policy 15, the assessment considers that significant effects are avoided on the identified outstanding natural features, landscapes and seascapes in the STB, and all other effects are avoided, remedied or mitigated thereby achieving the policy. The assessment points to the design and siting of the project, reducing sediment discharges and minimising the re-deposition of de-ored sands to previously disturbed areas as avoiding or minimising adverse effects. It considers that the plume related effects are not likely to be significant in the inshore and near-shore marine areas.⁶³⁷
1376. There are a number of aspects to natural character effects, and we have set out the Boffa Miskell assessment on each one. In terms of bathymetry, there are likely to be reasonably extensive changes to seabed morphology where mining is located with mounds up to nine metres and pits down to 10 m depth. The Boffa Miskell report relies on heights modelled by NIWA. The estimated timeframe for the seabed to return to a stable state post mining is 50-100 years.⁶³⁸ The report considers that

⁶³⁴ Seascape, Natural Character and Visual Effects, Boffa Miskell, updated December 2015 at [8.27]

⁶³⁵ Seascape, Natural Character and Visual Effects, Boffa Miskell, updated December 2015 at [8.28]

⁶³⁶ Seascape, Natural Character and Visual Effects, Boffa Miskell, updated December 2015 at [9.3-9.7]

⁶³⁷ Seascape, Natural Character and Visual Effects, Boffa Miskell, updated December 2015 at [9.3-9.9]

⁶³⁸ Seascape, Natural Character and Visual Effects, Boffa Miskell, updated December 2015 at [10.4]

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effects within the site will be significant, while elsewhere there will be no adverse effects. The Panel notes that the worst case scenario considered in the NIWA report is no longer a realistic scenario as Condition 26 limits the height of mounds to 4 m (plus 1 m due to allowable accuracy of recording).

1377. In terms of shoreline stability, while changes to wave climate in parts of the STB will occur as a consequence of the project the report considers such changes are expected to have little to no impact on beach state and geomorphic character. The report draws on investigations carried out by NIWA which suggest that the project is unlikely to have adverse effects on coastal beach profiles, or the overall stability of the shoreline beach profiles between Hāwera and Whanganui.
1378. The report considers there will be impacts on the darkness of the night sky, but these effects will be relatively minor and confined. Measures are proposed to minimise light spill from the vessels. The report considers that experiential responses will vary, the context and setting of the STB seascape will not be compromised or adversely affected.
1379. We have replicated the Boffa Miskell summary of the scale of effects in Table 17.

Visual Effects from Offshore Vessels	During the day	Very low
	At night	Low
Natural Features Landscapes/Seascapes	Seascape	Low
	Outstanding natural features	Low
	Amenity values	Negligible
	Visual amenity	Very low
Visual Effects of Sediment Plumes	Coastal locations	Negligible
	Marine locations	Moderate / high
	Aircraft	Moderate / low
	Cumulative effects	Low
Natural character	Elements, patterns and processes	Moderate
	Biophysical/geomorphological	High/Very High

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	Landforms, reefs/surf breaks	Low
	Movement of water/sediment	Negligible
	Darkness of night sky	Low
	Wild and scenic values	Negligible
	Pristine/modified range	Very low
	Experiential attributes	Negligible

Table 17: Summary of effects on visual, seascapes and natural character (*source: Seascape, Natural Character and Visual Effects, Boffa Miskell, updated December 2015*)

1380. The Regional Coastal Plan for Taranaki became operative in 2023 but the Boffa Miskell report does not assess this statutory planning instrument. The Panel notes that the Regional Coastal Plan identifies many values that can contribute to natural character. It also identifies outstanding natural landscapes and features, areas of outstanding natural character and significant biodiversity areas. As described in section 6.7, while most of the areas of Outstanding Natural Character are located close to the coastline, Project Reef and the North and South Traps are identified as areas of outstanding natural character. The North and South Traps are also identified to be an outstanding natural landscape and feature. A significant portion of the South Taranaki coastline is identified as a significant mammal and seabird area.

17.2 Comments received and applicant's response to comments

1381. EDS observed that evidence-based bottom lines including natural character values, where identified by the evidence, such as habitat requirements for threatened species, may be determinative based on the threshold in s 85(3) of the FTAA. JERA raised concerns about instability of the seabed as a result of the project which is an aspect of natural character. A number of commenters expressed concern about the effect on features or organisms which make up natural character. For example the comments from Wanganui Manawatu Sea Fishing Club and others and the South Taranaki Underwater Club expressed concern about the impact on important dive spots such as the Traps which are valued for their natural character.
1382. The applicant's response did not address natural character expressly.

Conditions

1383. There are no conditions that expressly seek to address natural character, although those conditions (such as the SSC limits and the limits imposed on the trench and mound height) which seek to protect the life supporting capacity of the STB and limit the impact of the sediment plume will manage impacts that could degrade the level of natural character.

17.3 Findings

1384. The measurements of suspended sediment concentrations contained in the Boffa Miskell report are from only two days in 2013 and therefore it is not known how representative these are for the range of weather and tidal conditions that the STB experiences. Having said that, the assertion of sediment plumes being derived from largely erosion of the coastal edge and fluvial processes is reasonable.
1385. The Panel notes that some of the references to material in the Boffa Miskell assessment is dated, for example references to the provisions of the Taranaki Regional Coastal Plan 1997 which is no longer relevant as it was superseded in 2023. The Panel understands that little has physically changed in the project area since 2013, and we have been able to gain some detail from the commenters about pertinent matters (especially recreation and several biophysical matters that contribute to considerations such as natural character) and our own review of the Regional Coastal Plan for Taranaki 2023. It would have been more useful had the applicant completed a full update prior to making its application, however.
1386. The consequence of this is that it causes the Panel to approach the applicant's report with caution, and in particular notes the absence of an assessment against Project Reef which is identified as an area of outstanding natural character in the Operative Regional Coastal Plan.
1387. Having said that, the Panel consider that the characterisation of the existing environment from the Boffa Miskell assessment as updated in 2015 can largely be relied upon. The Panel note that the Taranaki Regional Policy Statement is still the 2010 version and therefore the identification of the outstanding natural features and/or landscapes derived from that document is still valid. The work completed by Boffa Miskell is, in our opinion, sound and presents a useful snapshot of the seascapes, level of natural character and that exist within and adjacent to the Site and those areas that will be affected by the project. The Panel therefore accept the 'significance rankings' applied to the various visual amenity, seascape and natural values as assessed in the Boffa Miskell report and as outlined in Table 17 above.
1388. When all relevant matters are considered, the Panel finds that the project will significantly affect the level of natural character within the Site and in parts of the CMA. This includes some of the identified areas of outstanding natural character. Our reasons for reaching this finding are founded in the sections of this decision where we have assessed the project's geomorphological, benthic habitat and water column impacts. Impact on the existing level of natural character also occurs as a

consequence of what will be a notable adverse visual amenity effect on water clarity (both within the EEZ and CMA), particularly at locations for recreation and which are deemed to be ecologically and culturally important. In this regard, it is very clear to us that not only will the project area be impacted by the proposal for a duration that exceeds the consents sought, but many of the impacts will be felt within the CMA. These impacts will be notable and will limit the ecosystems that rely on these components of the environment.

1389. Further, we find that the visual amenity of those boating within three to five kms of the mining activity will be significantly adversely affected, while more than minor effects will be experienced by those flying over the area of mining. Both of these visual effects arise as a consequence of the project's sediment plume although we are of the opinion that the impact of those flying over the mining area will be limited in number and duration.
1390. We agree with the applicant that while the size of the proposed project vessels will be noticeable, we do not consider them to be out of character with the vessels that transit close to and through the site of the proposed mining. The Panel finds that there will be material harm on the visual amenity to those who are on the sea within 3 to 5 kms of the mining when they are within the EEZ. Where these effects extend into the CMA, we conclude that they will be more than minor and could be significant. The most notable adverse visual amenity effect within the CMA is on water clarity, which is predicted to be very notable at locations for recreation, and which are deemed to be ecologically and culturally important.
1391. While the seascape will be impacted by the project, we find that the outstanding natural features will persist; albeit in a degraded state. As a consequence, while impacts will arise we find that the outstanding natural landscapes will not be permanently impacted by the project.
1392. In this regard, the Panel find that there will be no material harm to the seascape outside of the CMA. In terms of the seascape within the CMA we find that despite the seascape being affected by the mining proposed, the natural features of note (being the reefs that are identified as being outstanding within the Taranaki Regional Coastal Plan) will persist.
1393. The Panel consider that there are no measures that can effectively avoid, remedy or mitigate all of the project's natural character, visual amenity and seascape impacts and effects. In this regard, our finding is that while it will be possible to impose conditions to reduce aspects of these effects and impacts, there are no measures that can address all of these impacts. This is notable for those effects and impacts that we have concluded will be significantly adverse and/or induce material harm. Again, the rationale for these conclusions is set out in our discussions of the project's geomorphological, water column, and benthic impacts.

18 Changes in carbon flux to, and release from, the seabed

18.1 Application

1394. TTRL's substantive application⁶³⁹ identified a potential reduction in benthic primary production (and therefore carbon flux to the seabed) of up to 40% in the plume-affected area to the east of the extraction area (Pātea Shoals/Graham Bank). The application did not separately quantify, or otherwise directly address, potential release of seabed-stored carbon from disturbance of the seabed and subsoil.

18.2 Comments received and applicant's response

1395. Comments from the Parliamentary Commissioner for the Environment noted the potential for the mining activity to release CO₂ stored in the marine sediment and referenced a NIWA report (Nodder *et al* (2023)) which investigated that issue "in a general sense".⁶⁴⁰ The Parliamentary Commissioner urged the Panel to address the extent to which the release of carbon contributes to New Zealand's emissions. Climate Justice Taranaki also relied on Nodder *et al* (2023), highlighting that the report:

...revealed that more than two billion tons of carbon is stored in the seabed around NZ from shallow harbours to the EEZ. When disturbed, such as by trawling, the CO₂ is released, compromising the ocean's capacity as a carbon sink which helps to moderate climate extremes.

1396. Noting the prohibition in s 59(5)(b) EEZ Act on marine consent authorities having regard to the effects on climate change of discharging greenhouse gases into the air, the Panel sought submissions and evidence on (a) the relevance of carbon release and carbon flux/sequestration effects, and (b) the extent to which any such effects can be taken into account in this decision.

1397. TTRL submitted that:⁶⁴¹

- a. To the extent that releasing seabed-stored carbon or reducing carbon flux to the seabed results in a discharge of greenhouse gases into the air, the Panel is required not to take the effects of such discharge into account.
- b. In all other respects, any effect on the climate of releasing seabed-stored carbon or reducing carbon flux to the seabed would constitute an effect on the environment within the meaning of s 59(2)(a) of the EEZ Act, and on that basis would be required to be taken into account.

1398. TTRL also submitted that:

⁶³⁹ Page 168

⁶⁴⁰ Nodder, S. et al. (2023). Organic carbon stocks and potential vulnerability in marine sediments around Aotearoa New Zealand. NIWA report 2023162WN, p.118.

⁶⁴¹ Legal submissions for legal issues hearing at 21-22.

- a. the science in this area is still developing and subject to much uncertainty and debate;
 - b. work of the sort that might be required to quantify effects of this sort has not been done anywhere in the world other than one experimental location in the Baltic Sea (which is not comparable to the current proposal) and otherwise via a theoretical global model; and
 - c. many of the data necessary to allow even a first-order estimate of release of carbon from the project are lacking.
1399. The Panel requested that TTRL explain the basis for the 40% change in carbon flux referred to in the substantive application, and provide any additional information reasonably available to enable the Panel to assess (quantitatively or qualitatively) effects on carbon flux and seabed carbon release, including if relevant the studies referenced in (b).⁶⁴² TTRL presented statements from Dr Sebastiaan van de Velde (which focussed on carbon release by seabed disturbance) and Dr Matthew Pinkerton (which focussed on reduced carbon flux to the seabed) in response to this request.
1400. Dr van der Velde explained the mechanisms by which the seafloor sequesters carbon, and how anthropogenic disturbance of the seafloor can disrupt these processes, reducing the amount of carbon dioxide sequestered. His evidence was that current estimates of the impact of seafloor disturbance focus on bottom trawling and dredging, which are less disruptive than the proposed mining activities, and come with inherent uncertainties, but that all studies indicate that seafloor disturbance impacts are 'non-trivial'. This project's shallow water depth implies that any impacts on seafloor carbon sequestration will rapidly (on the timescale of a year) propagate to the atmosphere. Current data is insufficient to robustly quantify impacts of the proposed sand extraction activities on ocean carbon sequestration. A better assessment would require a detailed biochemical characterisation of the site prior to disturbance, experimental assessment of the impact of induced resuspension on organic carbon remineralisation and seafloor alkalinity generation, and the development of a seafloor model to allow estimation of longer-term effects.
1401. Dr Pinkerton advised that the reference to an 'up to 40%' reduction in benthic primary production" in the Impact Assessment derived from modelling work by Professor Cahoon (2015). That work concluded that while much of the SMD remains only marginally affected, the plume-impacted area immediately east of the proposed mining location could experience reductions in carbon flux of up to 40%.⁶⁴³ The sediment plume produced by mining is predicted to reduce light in the water columns (reducing phytoplankton growth) and reduce light to the seabed (reducing

⁶⁴² Request for information under s 67(2) of the FTAA dated 28 November 2025

⁶⁴³ Carbon flux to the seabed refers to the delivery of organic carbon through three main pathways: deposition of marine snow (biological debris primarily from phytoplankton in the water column), growth of microphytobenthos (MPB) on or within sediments, and growth of macroalgae. A fraction of this carbon flux is sequestered in seabed sediments. Although the proportion of carbon flux that is ultimately sequestered in the South Taranaki Bight is not well known, it is not expected to differ substantially from other shelf-sea systems.

MPB and macroalgal growth). This reduced light will therefore reduce carbon flux to the seabed and is likely to reduce carbon sequestration proportionately.

1402. The amount of shading from the plume and consequent changes to primary production, carbon flux to the seabed and carbon sequestration are variable, depending on the weather and currents. On average, the changes are highest east of the mining site and decrease with distance from the mining. Dr Pinkerton refers to graphs showing 'worst case scenario' average modelling for water column light, which indicates change in phytoplankton primary production, and average change in seabed light, which indicates change in benthic primary production. The reduction in carbon flux to the seabed (and consequent reduction in seabed carbon sequestration) is projected to be greater than 40% in the plume area immediately east of the mining site, but will decrease further away to near zero in the wider STB.
1403. By averaging over the SMD, Dr Pinkerton estimates the overall effect of mining on primary production, carbon flux to the seabed and carbon sequestration. This showed that over the SMD organic carbon flux to the seabed is likely to be reduced on average by 7.7% (mining at Location A) and 5.6% (mining at Location B).⁶⁴⁴ Primary production by macroalgae was not included in these estimates because no information exists on its biomass or productivity.
1404. Dr Pinkerton estimated that the project will reduce marine carbon sequestration by about 5-11 kt C/y (thousand tonnes per year). His evidence is that this is equivalent to releasing an additional 0.03-0.05% of New Zealand's annual gross carbon dioxide emissions per year. This estimate does not include the effect of mining on benthic macroalgae.

18.3 Findings

1405. Relying on Dr van der Velde and Dr Pinkerton's evidence, the Panel finds that the project:
- a. is likely to cause the release of a non-trivial but unquantified (and likely unquantifiable) amount of seabed-stored carbon. The release of seabed-stored carbon into seawater may result in changes in organic carbon remineralisation and seafloor alkalinity to an unknown degree. The released carbon will rapidly propagate to the atmosphere. The discharge of greenhouse gases into the air is not a matter that the Panel can take into account as part of the application; and
 - b. will reduce marine carbon sequestration by about 5-11 kt C/y (thousand tonnes per year), which is equivalent to releasing an additional 0.03 - 0.05% of New Zealand's annual gross carbon dioxide emissions per year (excluding the effect of mining on benthic macroalgae). This constitutes an adverse impact of the project which the Panel has taken into account in its s 85 FTAA assessment.

⁶⁴⁴ He notes that the values from this analysis are slightly more accurate than the estimates given in the JWS (Primary Production) at paragraph 41(b).

19 Cumulative effects

1406. Section 59(2)(a) of the EEZ Act requires the Panel to take into account the adverse effects of allowing the activity on the environment and/or existing interests. This includes cumulative effects. In addition, s 6(1)(d) of the EEZ Act which defines effect includes any cumulative effect that arises over time or in combination with other effects.
1407. Cumulative effects from the project arise because large-scale sediment disturbance is proposed for 20 years in a marine environment that is subject to multiple pressures, including terrestrially derived sediment and climate-change-related stressors such as increasing sea surface temperatures, marine heatwaves, and changing storm regimes. Furthermore, the impact of suspended sediment on benthic habitats will continue after the consent term due to resuspension of sediment from the mounds that are predicted to take decades to centuries to deflate.
1408. Dr Anderson describes that:⁶⁴⁵
- Multiple stressors may act additively or synergistically, potentially impeding recovery of slow-growing, long-lived benthic species and causing chronic, long-term effects, including threshold or tipping point impacts leading to lasting loss of biodiversity and ecosystem function.
1409. The Panel has therefore considered not only the additive contribution of the mining plume and noise to background conditions, but also how long-duration changes in light, turbidity and acoustic environment may interact with existing and emerging stressors over time and space.
1410. For optical effects and primary production, the mining plume will result in persistent increases in suspended sediment concentrations and reductions in light across large parts of the STB, with particularly pronounced changes at rocky reefs and other sensitive locations, such as The Crack and Graham Bank. While domain-wide averages indicate modest percentage changes, at the scale of these habitats the cumulative reduction in seabed light and energy supply over many years is predicted to be substantial. Material harm within the CMA is expected, as are significant adverse effects on key habitats and species within the CMA.
1411. In relation to rocky reefs, cumulative effects arise from the combination of long-term light reduction and ongoing sediment deposition on macroalgae and associated communities, acting together with climate-change-related stressors that the Panel considers are likely to exacerbate over the next decades. Over the 20 years of mining, the generation of suspended sediment is predicted by the applicant to promote sediment deposition and chronically reduce light reaching the seabed, adversely impacting macroalgae primary production on impacted rocky reefs. On the evidence available, the Panel considers it likely that these changes will affect

⁶⁴⁵ Evidence of Dr T. Anderson for KASM and Greenpeace dated 6 October 2025 at [36].

macroalgal growth, condition and depth distribution and increase vulnerability to other stressors such as rising temperatures and marine heatwaves. The Panel considers that there is a risk of cumulative effects progressively eroding ecological function across rocky reef habitats, especially for sensitive taxa.

1412. For fish and the wider food web, experts advise that pelagic and mesopelagic prey species are unlikely to be substantially affected at population scale because they are mobile and widely distributed, but that specialised benthic feeders with high site fidelity and nursery grounds within the plume-affected area are more vulnerable. Cumulatively, reduced benthic primary production and habitat quality at rocky reefs, combined with long-term turbidity changes, avoidance due to underwater noise and localised exclusion from the mining area, will add to existing pressures on reef-associated and benthic-feeding fish. The Panel considers that this may have potential consequences on customary, recreational and commercial fisheries that depend on those habitats and species.
1413. For marine mammals, underwater noise and suspended sediment generated from the mining activity can cumulatively reduce foraging opportunities, increase physiological stress and affect health and reproduction, particularly for vulnerable life stages. The STB has been identified as an IMMA supporting a diverse assemblage including multiple threatened species. The Panel considers these interacting pressures are of particular concern for Māui dolphins, blue whales and other threatened species that are already at elevated risk. Even small additional impacts may be ecologically significant. Material harm is expected within the EEZ, and significant adverse effects are expected within the CMA.
1414. With respect to the applicant's overall assessment, the Panel considers that although cumulative effects are acknowledged in principle, the assessment remains heavily reliant on narrow, effect-specific metrics and domain-scale summaries. Based on the evidence available, the Panel considers that while cumulative effects are unlikely to differ in nature from 'individual' effects, the cumulative impact of multiple stressors over an extended period can lead to potentially non-linear interactions of impact that exacerbate the magnitude of impact and are not adequately captured by the applicant's current approach.
1415. Overall, the Panel considers that these limitations risk obscuring significant local and long-term cumulative effects at sensitive habitats and for sensitive species. Overall, given the project's duration, the chronic nature of plume and noise exposure, and the interaction of impacts from the project and climate change, the Panel is not satisfied on the information before it, that cumulative effects on rocky reef habitats, fish, marine mammals and associated existing interests have been robustly assessed and appropriately addressed (including through conditions) for the purposes of the Panel's consideration under s 59 EEZ Act. These findings are carried forward into the Panel's assessment under cl 6 of Sch 10 FTAA, and the proportionality test under s 85(3) FTAA.

20 Effects on existing interests

1416. Section 59(2)(a) and (b) require the Panel to take into account the effects on existing interests of a s 20 activity (other than s 20(2)(ba)). This section records the Panel's consideration of effects on existing interests.

20.1 Treaty and tikanga-based interests

Overview

1417. This section records the Panel's consideration of the evidence and its effects related findings on Treaty settlement, tikanga-based and interests asserted under the MACA Act and assessed as existing interests, dealing first with settlement-based interests other than fishing, followed by findings on Māori commercial and customary fishing interests. Where the same evidence bears on Treaty settlement obligations, the Panel records its effects findings here. The distinct question of consistency with Treaty settlement obligations under the FTAA is addressed separately in section 32.

Applicant Consultation with Tangata Whenua record, information gaps, and implications for effects assessment

1418. The statutory decision criteria do not require the Panel to make a general finding on the adequacy of consultation. However, the Panel addresses the evidence concerning consultation and engagement between the applicant and iwi, hapū, and other Māori entities insofar as that evidence informs:
- a. the quality and completeness of the information before the Panel;
 - b. the extent of residual uncertainty;
 - c. the utility of proposed conditions and post-consent mechanisms that rely on post-consent engagement or co-design; and
 - d. whether the Panel can be satisfied that Treaty settlement and tikanga-based interests have been appropriately identified and can realistically be protected in the context of this application.

1419. That is, the Panel does not assess consultation as an end in itself, but as a matter bearing directly on information adequacy, effects assessment, and the practical operation of settlement and tikanga-based instruments.

Consultation record and overall pattern

1420. The applicant submits that it has undertaken engagement with iwi and Māori entities over a long period in connection with earlier statutory processes for the project and says it reasonably relied on those outcomes when preparing the fast-track

application. That engagement is said to have included the provision of technical information, meetings and correspondence with iwi representatives and opportunities for feedback on project design and potential effects⁶⁴⁶. TTRL submits that this earlier engagement remains relevant to the present application, given the continuity of the proposal and the overlap in issues considered across those processes and notes that, at lodgement, it received only confirmations of receipt and/or existing positions, with “no requests to re-engage”. The applicant says it reasonably relied on that engagement when preparing the fast-track application and did not consider it necessary or proportionate to repeat those processes in full.⁶⁴⁷

1421. In relation to the present application, the applicant refers to targeted pre-lodgement correspondence with affected iwi and Māori entities, advising of the intention to lodge under the FTAA and inviting comment on the proposal. TTRL submits that this correspondence, taken together with the history of engagement, was sufficient in the circumstances to meet any consultation expectations applicable to the application⁶⁴⁸.
1422. In contrast, iwi and hapū evidence consistently records that engagement for the present application was not regarded as tikanga-consistent or sufficient to enable meaningful iwi-led assessment. Common themes in that evidence include that:
 - a. engagement limited to written correspondence shortly before lodgement;⁶⁴⁹
 - b. absence of kanohi ki te kanohi engagement for the present application;⁶⁵⁰
 - c. limited direct engagement with hapū;⁶⁵¹ and
 - d. insufficient information to enable fine-scale cultural mapping or agreement on baselines and indicators.⁶⁵²
1423. Iwi and hapū commenters link these engagement concerns directly to practical consequences: a limited ability to undertake fine-scale cultural mapping, develop agreed cultural baselines and indicators, or contribute meaningfully to the design of conditions intended to protect cultural values and existing interests.⁶⁵³

⁶⁴⁶ Tokatūmoana Kevin Walden, on behalf of Trans-Tasman Resources Limited, 16 December 2016, at [12]–[18], [31]–[33], describing long-standing engagement through earlier statutory processes, including provision of information, meetings, correspondence and opportunities for iwi feedback.

⁶⁴⁷ Taranaki VTM Project Fast-track Approvals Application, Trans-Tasman Resources Ltd, December 2024, at Section 3.4.8–3.4.9, stating that earlier engagement was relied upon for the fast-track application and was considered sufficient given continuity of the proposal and issues.

⁶⁴⁸ Taranaki VTM Project Fast-track Approvals Application, Trans-Tasman Resources Ltd, December 2024, at Section 3.4.7, describing pre-lodgement correspondence with iwi and Māori entities advising of the intention to lodge under the Fast-track Approvals Act and inviting comment.

⁶⁴⁹ Taranaki VTM Application Conference – Day 3 Transcript, Taranaki Iwi (speaker: Damon Rītai), p 92

⁶⁵⁰ Taranaki VTM Application Conference – Day 3 Transcript, Ōkahu-Inuāwai hapū of Ngāruahine (speaker: John Hooker), p 42

⁶⁵¹ Taranaki VTM Application Conference – Day 3 Transcript, Ōkahu-Inuāwai hapū of Ngāruahine (speaker: John Hooker), p 42

⁶⁵² Taranaki VTM Application Conference – Day 2 Transcript, Te Kāhui o Rauru / Ngā Rauru Kītahitanga, p 6

⁶⁵³ Taranaki VTM Application Conference – Day 3 Transcript, evidence of Ngāti Hāua / Ngāruahine (Sarah Mako; Rere-no-a-Rangi Pope), p. 80

1424. The implications of these concerns are taken into account where they bear on information sufficiency, residual uncertainty, and the Panel's ability to rely on conditions frameworks.

Ngāti Ruanui

1425. Ngāti Ruanui provided substantial and detailed evidence on consultation by the applicant. The iwi has an established and enduring relationship with its rohe moana and exercises kaitiakitanga informed by whakapapa, tikanga, and Treaty settlement acknowledgements. In evidence Dr Young for Ngāti Ruanui recorded the iwi was not opposed in principle to mineral exploration or extraction but expressed clear expectations about information and outcomes and ultimately considered that the present proposal posed unacceptable risks given the level of uncertainty and the information available.⁶⁵⁴
1426. Ngāti Ruanui's evidence records repeated requests for access to underlying scientific information and for meaningful engagement prior to being asked to endorse conditions or participate in co-design processes.⁶⁵⁵
1427. Evidence from Dr Young explains that, notwithstanding Ngāti Ruanui's willingness and capacity to engage, the iwi was unable to complete a cultural impact assessment for the present application. This was because unresolved uncertainty about the applicant's assessment of effects meant that the iwi could not validate or test the information necessary to support such an assessment.⁶⁵⁶
1428. The Panel also records evidence from Ngāti Ruanui that proposed confidentiality arrangements would have constrained Ngāti Ruanui representatives' ability to consult internally with iwi members and governance bodies in accordance with tikanga. The Panel treats these matters not as procedural failings in themselves, but as relevant to the quality and completeness of information available to it on tikanga-based and Treaty settlement interests.
1429. The applicant responded to Ngāti Ruanui's consultation evidence by acknowledging Ngāti Ruanui's status as mana whenua and recording multiple attempts to engage over an extended period, including offers of hui, provision of information, and funding of legal costs. The applicant's evidence does not assert that Ngāti Ruanui disengaged in principle from consultation but does characterise the process as one in which engagement was repeatedly sought and not reciprocated. In particular, the applicant records periods of non-response to requests for hui and follow-up correspondence and describes Ngāti Ruanui as declining to progress engagement unless certain conditions were met, including access to underlying scientific information without confidentiality restrictions. The applicant records that where

⁶⁵⁴ Evidence of Graham Young for Ngāti Ruanui, statements that Ngāti Ruanui is not opposed in principle but requires precaution where effects are uncertain at [3]

⁶⁵⁵ Day 1 Conference transcript, Ngāti Ruanui submissions on inability to validate effects without full information, requests for access to technical material at [15]–[16]

⁶⁵⁶ Affidavit of G J Young, 1 October 2025 at [3].

parties would not sign the confidentiality agreement, sensitive information was not released.⁶⁵⁷

1430. In those circumstances, the applicant says it took reasonable alternative steps to identify and address Māori cultural issues including commissioning an independent cultural values assessment focused on Ngāti Ruanui after the cultural impact assessment was not progressed.⁶⁵⁸ Other steps included relying on advice from Māori experts engaged by the applicant, and proposing conditions that provide for post-consent engagement, monitoring, and co-design through kaitiakitanga and reference group mechanisms.⁶⁵⁹
1431. The Panel notes that it has considered the applicant's cultural evidence,⁶⁶⁰ including the evidence of Mr Buddy Mikaere in response to Minute 25 (1 December 2025), which adopts and attaches his earlier evidence dated 17 December 2016.⁶⁶¹ That evidence records the applicant's position that cultural effects can be managed through condition-based mechanisms, including monitoring, engagement and reference group arrangements, particularly in circumstances where iwi-led assessment and co-design have not produced agreed outcomes.⁶⁶²
1432. The Panel has also considered the cultural values assessment prepared on behalf of the applicant by Mr Tahu Pōtiki (August 2016). The assessment similarly records constraints arising from the absence of a Ngāti Ruanui-authored cultural impact assessment and limited direct input, while supporting monitoring and communication-based conditions (including Memorandum of Understanding-style arrangements) as a means of recognising mana moana and managing cultural risk.⁶⁶³
1433. The applicant relies on this approach in support of its position that Treaty settlement interests and tikanga-based interests can be appropriately recognised and protected through proposed mitigation, monitoring, and engagement mechanisms, and that any remaining information gaps could be addressed through conditions following approval.⁶⁶⁴

⁶⁵⁷ Tokatūmoana Kevin Walden for TTRL dated 16 December 2016, at [57]–[64], recording periods of non-response and Ngāti Ruanui's requirement for access to underlying scientific information without confidentiality restrictions, and the applicant's position that those conditions could not be fully met.

⁶⁵⁸ Evidence of Tokatūmoana Kevin Walden for TTRL dated 16 December 2016, at [12], [14]–[16], [50]–[64], [73]

⁶⁵⁹ Evidence of Buddy Mikaere for TTRL dated 1 December 2025, at [28]–[34], describing the commissioning of cultural values assessments, reliance on Māori expert advice, and proposed conditions providing for post-consent engagement and monitoring.

⁶⁶⁰ Memorandum of Counsel for TTRL in response to matters arising from expert conferencing and noise peer review, 21 November 2025, pp. 2, 5; Minute 25 of the Expert Panel: Treaty and Cultural Expert Conferencing and Joint Witness Statement, 25 November 2025, pp. 1, 5–6 (including the Panel's response and direction for the applicant to confirm whether Mr Mikaere continues to hold, and adopts, his 17 December 2016 cultural evidence for these proceedings).

⁶⁶¹ Evidence of Buddy Mikaere for TTRL in response to Minute 25 of the Expert Panel dated 1 December 2025, at [5] (Appendix B attachment) and [8] (adoption/continued relevance).

⁶⁶² Cultural Values Assessment and Analysis, Tahu Pōtiki, August 2016.

⁶⁶³ Cultural Values Assessment and Analysis, Tahu Pōtiki, August 2016, at section 2.3(c)–(g) and 3.3.

⁶⁶⁴ Taranaki VTM Project Fast-track Approvals Application, Trans-Tasman Resources Ltd, December 2024, at Section 8.3.18–8.3.20, setting out the applicant's position that Treaty settlement and tikanga-based

Tangata Kaitiaki and customary interests

1434. The Panel also records evidence emphasising the statutory role of Tangata Kaitiaki in authorising customary non-commercial fisheries within gazetted customary management areas.
1435. Tangata Kaitiaki hold a statutory role under the Fisheries Act 1996 and associated regulations in authorising and managing customary non-commercial fishing within gazetted customary management areas. Their functions are exercised in accordance with tikanga and whakapapa and include authorising customary harvest, applying management tools, and protecting customary fisheries within defined rohe moana.⁶⁶⁵
1436. Te Ohu Kaimoana emphasised that direct engagement with Tangata Kaitiaki would have assisted in identifying fine-scale customary fishing locations, seasonal use patterns, and the way customary non-commercial fishing is exercised in practice. That evidence was directed not to compliance with consultation requirements, but to the adequacy of the information available to assess and manage potential effects on customary fisheries at a spatial and cultural scale relevant to customary practice.⁶⁶⁶
1437. The Panel notes that the application refers to information being shared through the Te Taihauāuru Iwi Forum Fisheries Plan and related forum processes. The application itself records that the Forum Report notes it is not the role of the Forum to speak on behalf of all iwi, and that each iwi should have the right to comment; it also records that Ngāti Ruanui did not endorse the Forum Report or its findings. The Forum Report is expressly framed as a regional, collective instrument intended to support iwi collaboration, build capacity, and assist kaitiaki in fisheries management at a FMA scale⁶⁶⁷. It is not intended to substitute for direct engagement on specific proposals. The Panel does not regard reliance on the existence of the Forum Report, or participation in forum-level processes, as equivalent to engagement with Tangata Kaitiaki in their statutory and tikanga-based roles for the purposes of this application.
1438. The evidence before the Panel does not demonstrate direct, application-specific engagement with the Tangata Kaitiaki who hold statutory authority for the affected customary management areas in relation to this proposal. In particular, the application does not record engagement with Tangata Kaitiaki for the purpose of

interests can be addressed through mitigation, monitoring, engagement conditions and post-consent processes.

⁶⁶⁵ Fisheries Act 1996, Part 9; Fisheries (Kaimoana Customary Fishing) Regulations 1998, regs 3–6 and 27–32, establishing the statutory role and functions of Tangata Kaitiaki/Tangata Tiaki in managing customary non-commercial fishing.

⁶⁶⁶ Response to the Taranaki VTM Project – Fast Track Approvals Application, Te Mātārae (Chief Executive), Te Ohu Kaimoana Trustee Ltd, September 2025 at p [31]

⁶⁶⁷ Te Taihauāuru Iwi Forum Fisheries Plan 2012–2017, Te Taihauāuru Iwi Fisheries Forum, 2012, at pp 4–6, describing the purpose of the Plan as a regional, collective framework to support iwi fisheries management and kaitiaki capability, and stating that it provides a basis for consultation rather than replacing direct engagement.

understanding how customary non-commercial fishing is authorised, managed, and exercised within the relevant rohe moana.⁶⁶⁸

1439. This conclusion is reinforced by the acknowledged absence of reliable, fine-scale information describing the extent, location, and frequency of customary non-commercial fishing activity in the STB. As previously discussed, the applicant's evidence accepts that information on customary fishing is limited and largely derived from coarse spatial reporting and voluntary disclosures.⁶⁶⁹ While the Panel does not assume that engagement with Tangata Kaitiaki would necessarily have resolved those information gaps, direct engagement may have assisted in improving the Panel's understanding of customary practice at a scale relevant to the assessment of effects.
1440. These matters are relevant to the Panel's assessment of information sufficiency and to the weight that can be placed on proposed conditions and post-consent processes intended to protect customary non-commercial fishing interests.

The implications of the Supreme Court's decision

1441. The Panel refers to the Supreme Court's guidance explaining how Māori existing interests are to be approached in this context. In its judgments on the 2017 Decision Making Committee decision, the Supreme Court emphasised that a broad and generous construction of Treaty of Waitangi clauses was required⁶⁷⁰ and that decision makers are to take into account the effects of the proposed activity on existing interests in a manner that recognises and respects the Crown's obligation to give effect to the principles of the Treaty.⁶⁷¹
1442. The Court held that s 12(c) provided a strong indication for decision-makers to take into account the effects of the proposed activity on existing interests in a manner that recognises and respects the Crown's obligation to give effect to the principles of the Treaty.⁶⁷² As noted in section 3.4, the Court also held that it followed that tikanga-based customary rights and interests may constitute "existing interests" for the purposes of the s 59(2)(a) EEZ Act criterion, including kaitiakitanga and rights claimed, but not yet granted, under the MACA Act, with the nature and extent of any such interests being matters of evidence.⁶⁷³

⁶⁶⁸ Taranaki VTM Project Fast-track Approvals Application, Trans-Tasman Resources Limited, December 2024, at Section 3.4 and Appendix 8, which do not record application-specific engagement with Tangata Kaitiaki exercising statutory authority over affected customary management areas.

⁶⁶⁹ Taranaki VTM Project Fast-track Approvals Application, Trans-Tasman Resources Limited, December 2024, at Section 7.6 and Section 8.3.6, acknowledging the absence of comprehensive, fine-scale data on customary non-commercial fishing activity and reliance on coarse or voluntary reporting.

⁶⁷⁰ *Trans-Tasman Resources Limited v Taranaki-Whanganui Conservation Board* [2021] NZSC 127 at [150]–[151] per William Young and Ellen France JJ, [237] per Glazebrook J, [296] per Williams J and [332] per Winkelmann CJ.

⁶⁷¹ At [149] per William Young and Ellen France JJ, [237] per Glazebrook J, [296] per Williams J and [332] per Winkelmann CJ.

⁶⁷² *Trans-Tasman Resources Limited v Taranaki-Whanganui Conservation Board* [2021] NZSC 127 at [149]

⁶⁷³ At [154]–[155] per William Young and Ellen France JJ, [237] per Glazebrook J, [296]–[297] per Williams J and [332] per Winkelmann CJ.

1443. There is no provision in the FTAA saying that the Treaty of Waitangi is not relevant to the Panel's assessment or excluding tikanga-based rights and interests from the purview of the definition of existing interest in s 59. The applicant noted that the High Court in *Ngāti Kūku* said that decision-makers "are not required to consider the principles of the Treaty".⁶⁷⁴ However, that statement is part of the Court's recital of the relevant clauses applicable to RMA approvals. It is not a finding about what the scheme of the FTAA requires in the context of approvals sought under the EEZ Act.
1444. The Panel considers that, given the nature of the asserted existing interests and the extent to which the applicant's proposed conditions depend on post-consent co-design, meaningful engagement with affected iwi and hapū was a necessary pre-condition to the Panel being able to place material weight on those mechanisms. That obligation arose from the evidential requirements of effects assessment and the Panel's need to be satisfied that the proposed management and governance settings are workable in practice, rather than from any standalone statutory requirement to consult. The applicant's pre-lodgement communications (in the context of the record described above) prior to lodging the present application did not resolve the information gaps and trust deficits identified in the evidence, and the Panel cannot assume these will be cured post-consent.
1445. The evidence before the Panel supports the following:
- a. for Ngāti Ruanui and other directly affected iwi and hapū, the applicant's engagement for this application was materially deficient and has contributed to information gaps and residual uncertainty that are relevant to the Panel's assessment including the Panel's ability to rely on post-consent co-design mechanisms where no agreement exists on the record;
 - b. for fisheries settlement interests, the risk that customary and settlement values may be undermined without adequate engagement is evident, although the full scale of effects depends on scientific and management evidence beyond the consultation record; and
 - c. for more distant iwi and hapū, the evidence is insufficient to assess consultation experience, which itself constitutes an information gap.
1446. In light of these findings, when the Panel considers conditions, it places limited weight on conditions that assume post-consent agreement on baselines, indicators, thresholds, or governance arrangements where
- a. no such agreement exists on the record; and
 - b. iwi opposition remains strong.
1447. The Panel therefore does not treat post-consent processes as a substitute for information that would ordinarily be available before consent is granted.

⁶⁷⁴ *Ngāti Kūku* at [64]

Tikanga, MACA Act, and settlement-based interests (other than fishing)

1448. Tikanga-based relationships with the moana and its resources are existing interests expressed through whakapapa relationships, kaitiakitanga responsibilities, and the continuing capacity to exercise manaakitanga and maintain relationships with place, species, and customary grounds. As explained in evidence, such interests “derive from mana” and are “not easily amenable to being sliced and diced”, notwithstanding the need for statutory frameworks to separate issues for analytical purposes.⁶⁷⁵ The Panel has regard to this evidence in informing its approach to assessing effects on existing interests including the practical exercise of tikanga in circumstances of uncertainty.
1449. The Panel records that the iwi whose rohe moana adjoins or overlaps the project area have long-established relationships with this coastal and offshore environment.⁶⁷⁶ Those relationships are evidenced through whakapapa, historical use, settlement acknowledgements, and the continuing exercise of kaitiakitanga responsibilities. That context informs the nature of the interests asserted.⁶⁷⁷
1450. Tikanga-based effects are advanced as arising through multiple pathways, including effects on mauri and the integrity of the moana and seabed⁶⁷⁸; impacts on the ability to safely gather, prepare, and consume kai moana; disruption of customary supply systems and associated cultural practices;⁶⁷⁹ constraints on the practical exercise of kaitiakitanga (including the ability to set and apply tikanga-led responses such as rāhui); and relational impacts where activity is perceived to further undermine rangatiratanga and stewardship responsibilities.⁶⁸⁰
1451. The Panel, with reference to sections 7.2 and 32, finds that tikanga-based interests may be adversely affected even where effects might be characterised elsewhere as small when expressed through aggregate ecological or fisheries metrics.⁶⁸¹ Those findings recognise that such metrics do not fully capture place-based relationships, cultural acceptability, or the practical exercise of tikanga responsibilities, particularly in circumstances of cumulative change, uncertainty, or limits on the effectiveness of conditions.
1452. The Panel also records the historical context of raupatu and cumulative dispossession (as discussed further below in relation to the evidence of Ngāti

⁶⁷⁵ Legal Issues Hearing (26 November 2025), transcript (EPA edits), J Inns, evidence on the relationship between tikanga-based “existing interests” and Treaty settlement obligations (including that iwi and hapū interests “derive from their mana” and are “not easily amenable to being sliced and diced”).

⁶⁷⁶ Taranaki VTM Application Conference – Day 1 (transcript), H Maruera (Ngāti Ruanui) at pp [9]–[10]

⁶⁷⁷ Ngāti Ruanui Claims Settlement Act 2003, Schedule 6 (Statutory acknowledgement for Te Moananui a Kupe o Ngāti Ruanui) at [71]; Ngāa Rauru Kīahi Deed of Settlement – Schedules (Cultural Redress Schedule), Statements of Association (coastal marine area) at [110]

⁶⁷⁸ Day 3 transcript (Āraukūkū) at [15].

⁶⁷⁹ Day 2 transcript, Te Ohu Kaimoana at [20]–[21]

⁶⁸⁰ Day 2 transcript, Ngā Rauru Kīahi at [10]

⁶⁸¹ Including with reference to MIN25 1067, Minister for Oceans and Fisheries, letter responding to Minute 32 (dated 18 December 2025), statement that iwi fishing under reg 50 are not required to report catches to Fisheries New Zealand.

Ruanui).⁶⁸² That context informs how tikanga-based impacts are framed and experienced by affected iwi.

1453. The Panel further notes iwi evidence situating tikanga-based effects within a history of progressive loss of access to coastal resources and environmental degradation.⁶⁸³ This evidence provides additional context for iwi concerns about further offshore extraction. That context informs the way in which potential effects are experienced and assessed by iwi, including sensitivity to additional offshore disturbance in circumstances of cumulative change.

MACA Act applications: status and relevance

1454. There are several applications under the MACA Act in relation to the coastal and marine area adjacent to the project area. These include applications by Te Kāhui o Rauru; Te Korowai o Ngāruahine; Ngāruahine; Ngāti Ruanui; Ngā Rauru Kītahi, Whanganui iwi and Ngati Mutunga.
1455. The interests asserted by these applications are capable of constituting relevant existing interests for the purposes of the EEZ Act, including kaitiakitanga and rights claimed, but not yet granted, under the MACA Act.⁶⁸⁴ Questions as to their nature and extent are evidential matters.⁶⁸⁵
1456. In assessing effects on those interests, the Panel has regard to the evidence as to the location, character, and practical exercise of the interests in this case. The record describes tikanga-based authority as actively exercised and spatially defined, including through rāhui and customary management practice. For example, the MACA Act material refers to a rāhui extending along approximately 70 kilometres of the Taranaki coastline, explained as enabling iwi and hapū “to manage customary fisheries according to their tikanga”.⁶⁸⁶ This evidence informs the Panel’s assessment of effects on those interests.

Settlement-based interests (other than fishing)

1457. Treaty settlement instruments protecting coastal and marine interests (other than fishing) are relevant existing interests where the instruments is intended to operate in a durable and practical way for settlement beneficiaries. Effects capable of materially undermining the operation of those instruments are not limited to direct

⁶⁸² See also Te Tōpuni Ngārahu Trust (Ngā iwi o Taranaki collective), Day 3 Transcript, at [72]. Te Korowai o Ngāruahine Trust, Day 3 Transcript, at [49].

⁶⁸³ Parihaka Papakāinga (evidence presented through conference kōrero on behalf of Climate Justice), Day 1 Transcript, p 44 (referring to people being pushed inland by colonial forces and land being taken, and tying this to enduring identity and connection as “sea people”).

⁶⁸⁴ *Trans-Tasman Resources Limited V Taranaki-Whanganui Conservation Board*, [2022] NZSC 63 [19 May 2022] at [154]

⁶⁸⁵ The Panel does not determine whether the MACA Act statutory tests for customary marine title or protected customary rights are met, and nothing in this decision recognises, prejudices, or affects any MACA application, noting that interests asserted in MACA Act applications may nevertheless be considered as evidence of interests capable of constituting existing interests for the purposes of the EEZ Act effects assessment.

⁶⁸⁶ Te Kāhui o Taranaki (on behalf of Taranaki Iwi), Application for Recognition of Customary Interests (CMT and PCR) under the MACA Act, 30–31 March 2017, pp. [13]–[17], [27].

physical interference. They include effects that materially undermine the practical utility and permanence of settlement redress through uncertainty, displacement, or reduced ability to exercise relationships with place.

1458. The Panel records that the relevant Treaty settlements were intended to restore, in part, iwi capacity to maintain and exercise relationships with the coastal and marine environment through enduring institutional, participatory and cultural instruments that are capable of operating in practice over time. Those instruments are forward-looking and are directed to supporting ongoing and meaningful engagement in the protection, management and use of coastal and marine taonga.

Specific evidence of the iwi, hapū and other Māori entities about the effects on existing interests other than fishing

1459. Although the Panel has carefully considered all of the material provided to it, it will be sufficient to illustrate the basis for our findings by addressing in some detail the evidence and submissions received from Ngāti Ruanui and summarising the material received from the other Iwi and Hapu commenters (in Appendix F).

Ngāti Ruanui

1460. Ngāti Ruanui is a large Taranaki iwi, comprising 16 hapū and having more than 12,000 registered Uri (descendants). The iwi has an unbroken connection to the whenua and moana of South Taranaki that goes back more than 700 years. The takiwā (tribal region) of Ngāti Ruanui is bounded by the Whenuakura River in the South and the Waingongoro River in the North. It extends inland to the east to the Matemateonga Ranges and seaward into the STB.⁶⁸⁷ The evidence identifies Ngāti Ruanui as an iwi with mana whenua and mana moana interests that are geographically close to the project area. The western boundary of its claim under the MACA Act abuts the project area.⁶⁸⁸
1461. Te Tiriti o Waitangi/the Treaty of Waitangi was not taken to South Taranaki for signing, and Ngāti Ruanui did not sign. During the 1840s, Ngāti Ruanui and its hapu continued to manage their affairs and developed economically, building flour mills and selling wheat, potatoes and pigs.⁶⁸⁹
1462. Ngāti Ruanui was renowned for its opposition to land sales. Government officials who travelled to the area in the 1850s reported that nothing would induce Ngāti Ruanui to sell its land. From 1859, Māori in central and south Taranaki became increasingly opposed to further land sales, with southern tribes joining the “non-selling” faction and the Kīngitanga declaring “no-sale” areas that included south Taranaki.⁶⁹⁰ The Crown nonetheless proceeded with the Waitara purchase and, in

⁶⁸⁷ Ngati Ruanui Customary Interests and Marine and Coastal Usage, V. O’Malley dated October 2024 at [4]

⁶⁸⁸ CIV-2017-485-282 Ngati Ruanui MACA Act Application. Under the MACA Act the extent of any application extends only to 12 nautical miles.

⁶⁸⁹ Ngati Ruanui Customary Interests and Marine and Coastal Usage, V. O’Malley dated October 2024 at [25]

⁶⁹⁰ Ngati Ruanui Customary Interests and Marine and Coastal Usage, V. O’Malley dated October 2024 at [27]-[35]

1860, brought troops into Taranaki in support of it, precipitating the outbreak of the first Taranaki War.

1463. Following the wars, the Crown confiscated large areas of Taranaki land. By proclamation on 2 September 1865, Governor Grey expanded the confiscation area, with the total boundary extending from Parininihi in the north to the Whanganui River in the south. In late 1865 and early 1866, Crown forces conducted “bush-scouring” expeditions in south Taranaki: over a five-week campaign, Chute’s forces destroyed at least seven fortified pā and 21 kāinga (villages) in South Taranaki⁶⁹¹. Most were Ngāti Ruanui. A further campaign took place later in 1866, including engagements against Ngāti Ruanui and their allies and the destruction of additional villages.⁶⁹²
1464. Ngāti Ruanui was deprived of most of its land. The land that remained was largely confined to Crown-granted reserves and Compensation Court awards, most of which were subsequently alienated through Crown purchase. Ngāti Ruanui retained some coastal reserves and continued to exercise customary fishing practices.⁶⁹³
1465. The Waitangi Tribunal heard claims regarding the Taranaki Raupatu (confiscation) between 1990 and 1995 and reported in 1996. Ngāti Ruanui signed a deed of settlement with the Crown in 2001; the Ngāti Ruanui Claims Settlement Act was enacted in 2003. The iwi received commercial redress of \$41 million, cultural redress and an apology from the Crown. The settlement included statutory acknowledgements recognising Ngāti Ruanui’s relationship with the coastal and marine environment including the entire coastline of that takiwā.⁶⁹⁴
1466. Ngāti Ruanui emphasised that its raupatu history and its experience of Crown conflict remain central to how it understands and exercises kaitiakitanga in relation to its whenua and moana. The settlement of the Ngāti Ruanui’s kaitiaki role is treated by the iwi as a taonga and an ongoing commitment by the Crown. As Ms Inns said at the Hāwera conference:⁶⁹⁵
- ... the recounting of the Ruanui history and particularly the history of raupatu, of persecution, of imprisonment that went on in this region, those are all part of the settlement. Those are all part of the commitment that the Crown made....
1467. In this context, the Crown’s apology is also particularly important to the iwi. As Ngāti Ruanui told the Panel: “In 2003 we were gifted and also offered an apology by the Crown. Now we carry that strongly to this time.”⁶⁹⁶

⁶⁹¹ Waitangi Tribunal, *The Taranaki Report: Kaupapa Tuatahi* at [98]

⁶⁹² Ngāti Ruanui Customary Interests and Marine and Coastal Usage, *V. O’Malley* dated October 2024 at [69]

⁶⁹³ Affidavit of H. Maruera dated 1 October 2025 at [4].

⁶⁹⁴ Ngāti Ruanui Claims Settlement Act 2003, s 88 and Schedule 6 (Statutory acknowledgement for Te Moananui A Kupe O Ngāti Ruanui)

⁶⁹⁵ Day 1 Transcript of conference Justine Inns Legal Counsel for Ngāti Ruanui

⁶⁹⁶ Day 1 Transcript of conference Haimona Maruera Tumu W’akaae (Chair) of the Te Runanga o Ngāti Ruanui Trust

1468. Today, as a Treaty partner, Ngāti Ruanui exercises its rangātiratanga and seeks to protect its rights and interests in the coastal and marine environments.⁶⁹⁷ The iwi does this by exercising its duties to minimise negative impacts on the coastal and marine environments and aquatic life forms, marine birds and mammals; acknowledge and protect traditional knowledge systems; protect customary fisheries; and acknowledge mahinga kai through local planning documents.
1469. Ngāti Ruanui explained that kaitiakitanga requires it to err on the side of caution where there are risks to the environment; the iwi drew parallels between tikanga-based decision-making and precautionary approaches recognised in law and the approach that the Supreme Court has recognised as relevant in considering applications involving uncertainty and environmental risk.⁶⁹⁸
1470. Mr Haimona Maruera, Tumu W’akaae (Chair) of the Te Runanga o Ngāti Ruanui Trust, told us Ngāti Ruanui’s relationship with the environment is based on whakapapa. The environment is not something separate; the iwi is related to it, and it is part of the people. Ngāti Ruanui does not oppose all development or resource use. Ngāti Ruanui has supported development, even mineral extraction, when the environment and the iwi’s relationship with it is not threatened.⁶⁹⁹
1471. The sea is a source of mahinga kai for the hapu and descendants of Ngāti Ruanui. The mouth of the Pātea River is where their descendants launch their fishing boats. They catch mostly snapper, blue cod, lemonfish, and kahawai. The coastal and marine environment supports a range of interconnected ecosystems relied on for customary harvest. It includes coastal wetlands, estuaries, and sand dunes, encompassing the foreshore and seabed extending to the 200 nautical mile EEZ and Extended Continental Shelf (**ECS**). Ngāti Ruanui believe that it is not only the physical landscape that is being affected by the project, but also the historic heritage, collective meanings, memories, and identities that the landscape holds for their cultural values. It is said the wairuatanga and whakapapa will be impacted upon by allowing activities that are significantly detrimental and move substantially away from accepted and appropriate use of the ocean.⁷⁰⁰
1472. Mauri is negatively impacted by discharges to the oceans. Ngāti Ruanui considers discharges to Tahuaroa (the ocean) to be culturally unacceptable. The iwi regards this as a cultural responsibility notwithstanding differing western scientific views. Ngāti Ruanui characterised seabed mining as a form of confiscation, a phenomenon that the iwi associates with its raupatu history. In Ngāti Ruanui’s view activities associated with the project would have subsequent impacts on their customary areas, cultural landscape and taonga species (among other impacts).
1473. Mr Maruera said the moana is rich with other marine taonga, including a seafood resource used by tangata whenua and by recreational fishers. It is a habitat for

⁶⁹⁷ Ngāti Ruanui Claims Settlement Act 2003, sch 11, pt 1 (Statement of Association: Ngā Taonga a Tāne rāua ko Tangaroa), p 81 referenced in Affidavit of Haimona Christopher Marcus Maruera dated 1 October 2025 at [2]

⁶⁹⁸ Affidavit of G J Young, 1 October 2025 at [3].

⁶⁹⁹ Affidavit of H. Maruera dated 1 October 2025 at [5] and [13]

⁷⁰⁰ Affidavit of H. Maruera dated 1 October 2025 at [6]

marine flora and fauna, ranging from simple bottom dwelling organisms (benthic biota) and phytoplankton, through sponges and plants like seaweed, and up to 13 different cetacean species, including internationally endangered blue whale and nationally critical or endangered Southern right whale, killer whale and Māui dolphin.

1474. The resources found within Te Manganui a Kupe (the great ocean of Kupe) have, since time immemorial, provided the people of Ngāti Ruanui with a constant supply of food resources. The hidden reefs provided koura, paua, kina, pupu, papaka, pipi, tuatua⁷⁰¹, and many other species of reef inhabitants. Apuka, moki, kanae, mako, and patiki swim freely between the many reefs that can be found stretching out into the spiritual waters of Te Moananui a Kupe and along the Ngāti Ruanui coastline. Ngāti Ruanui expressed concern about the ability of reef systems to cope with the effects of sediment plume⁷⁰².
1475. Ngāti Ruanui stated that most of the marine bird species that inhabit the area are threatened with, or at risk of, extinction, including species of albatrosses, penguins, and herons. As well, more than one-quarter of the marine mammal species are threatened with extinction, including the New Zealand sea lion and species of dolphins and whales. Endangered or critically endangered species have been identified within the STB: blue whales, humpback whales, killer whales, sperm whales, Maui dolphins and blue penguins. These creatures are taonga (treasures) to Ngāti Ruanui. Given their fragile state, Ngāti Ruanui stated that seabed mining would have catastrophic consequences for those taonga species.⁷⁰³
1476. Ngāti Ruanui also says many demersal (bottom associated) fish species support the iwi's customary fishing rights. Leatherjackets (at depths of 20-50 metres along the whole STB), golden mackerel, eagle rays and blue cod are known to Ngāti Ruanui and customary fishers to occur within the proposed exploration area and sandy habitats. Barracouta, carpet sharks, gurnard, school shark, spiny dogfish, anchovy, snapper, rig, trevally, and tarakihi are commonly caught throughout the STB.⁷⁰⁴
1477. Rock lobsters spend most of the year associated with subtidal reefs. According to Ngāti Ruanui traditional knowledge, however, in winter and summer larger (>1.5 kg) rock lobsters move offshore to depths more than 25 metres to feed on shellfish such as cockles or Tuccetona species scallops and horse mussels. Customary fishing targets rock lobsters on these shellfish beds during winter and summer seasons. Rock lobster is also recognised as a Taonga Species under the Ngāti Ruanui Treaty settlement reflecting its importance to the iwi for customary fishing.⁷⁰⁵

⁷⁰¹ Affidavit of H. dated 1 October 2025 at [11]. Those species are also "Taonga Species" as defined in the Fisheries Protocol established under the Ngāti Ruanui Deed of Settlement, cl 9.6 (prohibition on taking certain species for commercial purposes within the Fisheries Protocol Area, including pipi, pupu and kina), and cl 9.6.2 (Minister's consultation obligations), pp 83–84.

⁷⁰² Affidavit of H. Maruera dated 1 October 2025 at [8]

⁷⁰³ Affidavit of H. Maruera dated 1 October 2025 at [24] and [36]

⁷⁰⁴ Affidavit of H. Maruera dated 1 October 2025 at [14]

⁷⁰⁵ Affidavit of H. Maruera dated 1 October 2025 at [14] and Ngāti Ruanui Fisheries Protocol, Attachment C (Taonga Fish Species (Ministry of Fisheries) table: "Kōura / Rock lobster (*Jasus edwardsii*)", p. 71.

1478. Ngāti Ruanui is concerned that seabed mining will impact adversely on customary fishers and that there will be subsequent loss of customary practices through fish displacement. The iwi identifies that displaced fishing effort will shift into other areas, which may increase the risk of localised depletion, and, in Ngāti Ruanui's view, raises concerns about stock sustainability. Further, local fishers may need to purchase a new vessel to fish in less efficient grounds that are further away, requiring increased fuel costs.⁷⁰⁶
1479. Ngāti Ruanui and local fishers have developed detailed knowledge of their fishing grounds, often built up over many years. Local traditional knowledge about the environment and fish catch confirms that corals, live and dead scallop and cockle beds, orange and brown sponge weeds or algae, kelp forests, tube worm fields, and horse mussels are found within the STB.⁷⁰⁷
1480. The iwi refers to research relating to sensitive habitat, conducted by the Cawthron Institute in 2016, that indicated the presence of five threatened invertebrate species and four threatened coral *Madrepora oculata* within the proposed exploration area and surrounds. Also in 2016, the Taranaki Regional Council identified 66 sensitive sites along the Taranaki coast, many of which are to the east and southeast of the applicant's proposed marine consent and marine discharge consent areas.⁷⁰⁸
1481. Ngāti Ruanui continues to assert customary ownership and associated rights over the affected marine and coastal environment. Its application for customary marine title and customary rights under the MACA Act is currently in the High Court and Crown engagement processes. The coastal marine area covered by the application abuts the eastern boundary of TTRL's mining area at the 12 nautical mile limit allowed under the MACA Act and is within the anticipated sediment plume.
1482. Mr Maruera stated that:
- Kaitiakitanga is an inherited responsibility of those who hold mana whenua to ensure that the mauri of the natural resources of their takiwa is healthy and strong, and the life-supporting capacity of these ecosystems is preserved. Kaitiakitanga is central to the protection of the natural environment and is fundamental to on-going existence of Ngāti Ruanui. Furthermore, Ngāti Ruanui as kaitiaki must protect and preserve the natural environment for future generations. In practice, it is preferred that our ability to oppose is given weight in the assessment of the application. We should in fact be the decision maker on these matters and that will continue to be an aspiration for Ngāti Ruanui. As kaitiaki we have an obligation to protect the moana.
1483. Referring to the proposed conditions that would give Ngāti Ruanui a monitoring role as part of a kaitiakitanga reference group, Mr Maruera said:
- We would get a closer look at how much damage to the environment has already occurred, but we wouldn't be able to stop it. That isn't kaitiakitanga. It doesn't address any of the actual effects that harm our moana and breach our tikanga.

⁷⁰⁶ Affidavit of H. Maruera dated 1 October 2025 at [14] –[15]

⁷⁰⁷ Affidavit of H. Maruera dated 1 October 2025 at [15]

⁷⁰⁸ Affidavit of H. Maruera dated 1 October 2025 at [15]

Findings on tikanga, MACA Act, and settlement-based interests

1484. The Panel finds that tikanga-based relationships with the moana and its resources are materially adversely affected by the project, including effects on mauri, disruption of customary supply systems, and constraints on the practical exercise of kaitiakitanga (including tikanga-led management responses such as rāhui and the protection of taonga species including Māui dolphins and blue whales). These findings are based on the evidence and assessment set out earlier in this decision.
1485. Having regard to the matters in s 60(2) of the EEZ Act and referring to the Panel's findings in sections 7.2 and 32, the Panel finds that these interests are materially place-based and rohe-based and are not readily substitutable. The Panel does not accept that the general availability of alternative fishing grounds, or reliance on aggregate ecological or fisheries metrics, adequately addresses impacts and effects on tikanga-based interests exercised through particular places, relationships, and responsibilities.
1486. The findings above are also relevant to the assessment of tikanga-based customary rights and interests identified within MACA Act applications⁷⁰⁹ and to Treaty settlement-based interests including where those regimes recognise and protect the practical exercise of tikanga, kaitiakitanga and relationships with place.⁷¹⁰

Māori commercial fishing interests (settlement quota and ACE)

1487. As outlined earlier in this decision, the Māori Fisheries Settlement established enduring commercial fishing interests through settlement quota and associated institutional arrangements. For present purposes, the relevant feature of those arrangements is that settlement-derived fishing interests were intended to operate in a durable and intergenerational way and are subject to structural constraints that limit divestment or reconfiguration outside the settlement framework.
1488. The applicant's position is that the project would have no more than minor effects on Māori commercial fishing interests.⁷¹¹ The applicant submits that Māori commercial and customary fishing interests can be adequately assessed and managed by reference to commercial catch and effort data and wider stock-level indicators, including on the basis that the project is offshore and that any effects would be localised. The applicant relies on that position in submitting that settlement-derived fishing interests can absorb displacement or uncertainty without material loss to their practical utility. The applicant also relies on proposed

⁷⁰⁹ Te Kāhui o Taranaki Response to Minute 12, section on rāhui and temporary closures, setting out the Western Taranaki temporary closure under s 186A, its species coverage and rationale.

⁷¹⁰ Taranaki Iwi Documents Schedule (Treaty settlement), Fisheries Protocol, referenced in Te Kāhui o Taranaki Response to Minute 12 (pages 56 and 60 of the schedule), linking the protocol to customary fisheries management and the Western Taranaki closure.

⁷¹¹ Application dated 15 April 2025, section 5.13 (Commercial fishing, cultural values and related effects), including 5.13.2 (Commercial Fishing Effects).

monitoring and response limits to manage any fisheries-related risks during operations.⁷¹²

1489. The Panel records this position as the applicant's case. The Panel's assessment of that position is addressed in the findings below.
1490. The Panel also records Te Ohu Kaimoana and iwi evidence that Māori commercial and customary fishing interests are not exercised solely as economic activities, but form part of an integrated cultural and social system through which tikanga, manaakitanga and whanaungatanga are expressed. That evidence is illustrated by pātaka arrangements, under which authorised representatives and Tangata Kaitiaki utilise commercial fishing operations to support customary supply for marae and whānau purposes, including tangihanga and hui.

Māori customary fishing interests

1491. The Panel does not accept the applicant's position that Māori customary fishing interests can be adequately assessed, managed, or mitigated by reference to commercial catch and effort data or wider stock-level indicators alone. Customary fishing interests are exercised through tikanga-based practice and customary authorisations and are not fully captured by commercial catch and effort datasets. The evidence shows that commercial datasets are designed to track stock status and harvest at a quota management scale, not the location, timing, or cultural significance of customary harvest at particular places.
1492. The Panel accepts iwi and Ministry for Primary Industries evidence that there is no comprehensive quantitative dataset that reliably records where customary fishing occurs, how often it occurs, or the cultural importance of specific grounds, species, or seasons. As a result, the absence of recorded customary catch data does not indicate an absence of customary fishing interest or value. It also means that effects on customary fishing cannot be reliably inferred from commercial fisheries data alone.⁷¹³
1493. Iwi evidence describes customary fishing as embedded within rohe-specific knowledge of grounds, seasons, species, and practices developed and maintained over generations. The Panel accepts that customary fishing is closely connected to cultural identity, intergenerational knowledge transfer, and the exercise of tikanga. The Panel accepts that loss of confidence in, or access to, particular customary grounds therefore has consequences extending beyond changes in harvest volumes, including loss of confidence in particular places, impacts on cultural

⁷¹² Application dated 15 April 2025, section 5.13 (Commercial fishing, cultural values and related effects), including 5.13.2 (Commercial Fishing Effects).

⁷¹³ Te Ohu Kaimoana comments on the Taranaki VTM project, paras 44–47, describing the number, scope and operation of pātaka across the South Taranaki Bight and the proposed deepwater pātaka pilot. MIN25 1067, Minister for Oceans and Fisheries, letter responding to Minute 32 (dated 18 December 2025), statement that iwi fishing under reg 50 are not required to report catches to Fisheries New Zealand.

continuity and the ability to pass on associated knowledge including tikanga and matauranga, to future generations.

Findings on Māori fishing existing interests

1494. The Panel finds that Māori commercial and customary fishing existing interests will be materially adversely affected by localised displacement, operational exclusion, and loss of practical access and certainty arising from the project's mining footprint and the broader footprint of plume-related effects.
1495. In reaching that conclusion, the Panel has had regard to the structure of Māori fisheries settlement interests, including the non-substitutable nature of settlement-derived rights and interests, the practical constraints on rearranging fishing activity within the Māori fisheries settlement settings, and the way customary outcomes are often supported in practice through access to commercial fishing (including through pātaka arrangements).
1496. The Panel does not accept the applicant's premise that affected fishing can simply shift elsewhere without material constraint or loss. The evidence demonstrates that displacement is constrained by a combination of (among other things) seabed type and habitat, existing closures and regulatory settings, QMA and method realities, operational limits and cost, and health and safety issues where effort is compressed onto fewer workable grounds. These constraints operate to compress effort, increase congestion and conflict risk, and reduce reliability of access within narrow weather windows.
1497. The Panel also accepts that the project has the potential to tighten those constraints further. Credible pathways exist for localised changes in fish distribution and catchability arising from sustained operational noise, plume-related turbidity and optical effects (including light attenuation), and changes in habitat function. As addressed in section 19, the Panel has found that long-duration turbidity and light reduction, together with sediment deposition on sensitive habitats (including reefs), may cumulatively erode habitat function and affect fish and the wider food web in ways that can have consequences for customary and commercial fisheries that depend on those habitats and species. Those ecology findings reinforce the Panel's conclusion that 'follow the fish' assumptions are not neutral from a fishing perspective.
1498. The Panel further does not accept the applicant's position that Māori commercial fishing interests created through the fisheries settlement can readily absorb localised displacement or uncertainty on the basis that overall stock abundance and quota availability would be maintained at a wider scale. The Panel finds that the practical utility of settlement quota and ACE depends on continued access to particular grounds and established operational arrangements. Reduced access, displacement, or uncertainty affecting those grounds diminishes the practical value of settlement quota even where aggregate stock abundance is maintained. In this respect, settlement quota cannot readily be reconfigured or redeployed to offset localised constraints.

1499. The Panel records that aspects of the proposed conditions framework assume the availability of post-consent engagement, baseline characterisation and co-design in relation to Māori customary fishing. In light of (a) the acknowledged limits in fine-scale customary information, (b) the limited direct engagement with iwi and tangata kaitiaki prior to lodgement (as addressed in the Panel's consultation findings), and (c) the extent to which the proposed conditions place risk-management weight on post consent processes rather than enforceable exposure controls, the Panel has limited confidence that those mechanisms would reliably or promptly address the information gaps and risks identified above, particularly in circumstances of uncertainty and potential cumulative effects. The Panel therefore places limited weight on conditions that assume post-consent agreement on fundamental parameters (baselines, indicators, thresholds, or governance arrangements) where no such agreement exists on the record.
1500. For these reasons, the Panel does not accept the applicant's submission that Māori customary fishing effects can be adequately characterised, mitigated, or dismissed by reference to offshore location or aggregate fisheries data. Instead, the Panel finds that the project's localised exclusion and plume-related effects create a credible risk of material adverse effects on Māori commercial and customary fishing existing interests, particularly where the ability to absorb displacement is constrained by regulatory, spatial and operational factors.

20.2 Commercial fishing interests

1501. There are relevant commercial fishing existing interests that are not held through Treaty settlement instruments, including the interests of commercial permit holders and fleets operating under the QMA Evidence from commercial operators describes that, in addition to quota and ACE property rights, commercial fishing interests include the practical ability of permit holders and fleets to fish particular grounds using particular methods, within available weather windows, in a way that remains commercially viable and operationally safe.⁷¹⁴ These interests are exercised through repeated use of known productive areas, established fine-scale fishing patterns, and access corridors that cannot readily be replicated elsewhere.⁷¹⁵
1502. As set out earlier in Part V, the Panel has found that the project presents credible pathways for adverse local effects on fish distribution and habitat function, particularly at sensitive reef and nursery habitats and for benthic feeders that have high site fidelity and are resident in habitats in the mining site and the area affected by the suspended sediment plume. There is also the potential for adverse effects

⁷¹⁴ Seafood New Zealand, Seafood New Zealand comments on TTR's application under the FTAA 2024 p 13, Talley's Group Ltd, Comments by Talley's Group Ltd on the Taranaki VTM Project (3 October 2025). Sealord Group Ltd, Submission on the notice of application by Trans-Tasman Resources Limited and invitation to comment under the Fast track Approvals Act 2024 (6 October 2025). Te Ohu Kaimoana, RFI bundle – 14 November 2025, Moana New Zealand feedback describing SNA 8 trawl operations, Māori ownership and role in settlement fisheries

⁷¹⁵ Brooks Seafood Ltd & Awaroa Fisheries Ltd, Submission on Taranaki VTM Project, undated (received 2025) at sections "Effects on Existing Interests" and "Economic Effects" and Leon Lawrence, "Statement to the Taranaki VTM Expert Panel", 15 November 2025 at pp 1–2

on fish distribution from underwater noise from mining activities through avoidance and redistribution.

1503. In assessing the practical implications of exclusion and displacement, the Panel has also reviewed the considerations reflected in Fisheries New Zealand's "undue adverse effects on fishing" framework.⁷¹⁶ Those considerations focus on location-specific exclusion, feasibility of relocation, increased cost, and cumulative spatial constraint. They support the Panel's finding that a localised activity can have adverse effects on commercial fishing interests.
1504. The Panel finds that the project will adversely affect commercial fishing interests through localised exclusion, displacement of fishing effort, increased operating cost and risk, and uncertainty that alters fishing behaviour and market participation. These effects arise not only from the physical mining footprint, but from changes in fish distribution, changes in fish habitat, safety considerations, and uncertainty associated with fish distribution and operational activity.
1505. The Panel does not accept the proposition that commercial fishing effects are answered by the availability of fishing opportunity elsewhere within a wider management area. The relevant question is whether like-for-like fishing can realistically occur elsewhere without material loss of practical utility. From the evidence presented, substitutability is constrained by seabed characteristics, method-specific requirements, existing spatial closures, congestion on remaining grounds, and the cumulative compression of available fishing space.
1506. Evidence from commercial operators demonstrates that the area adversely affected by the project is not marginal to fishing activity. Fishers described reliance on repeat use of particular grounds because of seabed conditions, safety considerations, and predictable catchability.⁷¹⁷ In the Hāwera conference, Mr Ali Brooks described the area as "one of the most important fishing grounds on the west coast", and explained that loss of access would not be offset by nominal availability elsewhere.⁷¹⁸ The Panel accepts that evidence as demonstrating that displacement effects are real and consequential for some fisheries and operators.
1507. The Panel finds that the consequences of displacement are not evenly distributed. They fall most heavily on fisheries and fleets that are method-dependent and ground-dependent, and on operators with limited alternative options due to regulatory settings, vessel capability, and cost constraints. The evidence shows that increased steaming time, reduced trip efficiency, crowding and conflict on alternative grounds, and loss of fishing opportunity within short weather windows are all foreseeable consequences of displacement in this context.⁷¹⁹

⁷¹⁶ <https://www.mpi.govt.nz/dmsdocument/3574-The-undue-adverse-effects-test-on-fishing>.

⁷¹⁷ Fathom Consulting, Commercial Fisheries in the Vicinity of TTR's Proposed Mining Site (prepared for Seafood New Zealand, 2025), p 14 (description of 'rolling ground', undulating seabed and constraints on trawling).

⁷¹⁸ Brooks Seafood Ltd & Awaroa Fisheries Ltd, Submission on Taranaki VTM Project, undated (received 2025) at sections 'Effects on Existing Interests' and 'Economic Effects'

⁷¹⁹ Conference Transcript, Day 2, evidence of A. Brooks, October 2025 at relevant passages on displacement and efficiency.

1508. As discussed above, the Panel also finds that commercial fishing effects cannot be assessed solely by reference to stock sustainability at a regional or FMA scale. A fishery may remain sustainable in aggregate terms while becoming materially more difficult, risky, or costly to operate in practice. Accordingly, localised changes in access, catchability, or confidence can produce adverse effects on commercial fishing interests even where TACCs and stock status are unchanged.
1509. On the information available, the Panel is not satisfied that effects on fish distribution and fish habitat can be avoided or managed so as to avoid adverse effects on commercial fishing interests in practice.

20.3 Aquaculture interests

The application

1510. The applicant considers existing aquaculture interests in Section 3.4.5 of the application. It states that there are no existing aquaculture activities in the STB. However, in adverse weather conditions, when it is not safe for operational vessels to remain in the project area, Admiralty Bay within Te Tau Ihu (top of the South Island region) has been identified as the likely place of shelter. They identify that Admiralty Bay currently hosts longline mussel farms. Mussel farming in Admiralty Bay contributes to the wider Marlborough Sounds aquaculture industry which is reported as having annual exports to value of \$276 million.⁷²⁰
1511. Section 5.13.3 and 5.13.4 of the application provide TTRL's assessment of potential impacts on existing aquaculture interests. The scope of those effects is limited to biosecurity risk – the introduction of harmful marine organisms. As such, managing effects of the project on existing aquaculture interests in Admiralty Bay turns on to managing biosecurity risks.
1512. The application states that the natural spread of any harmful marine organisms potentially introduced from project vessels from the project area to Admiralty Bay is considered unlikely based on distance and the nature of the habitat between the two locations. Therefore, the primary risk of introducing harmful marine organisms to Admiralty Bay is directly from project vessels entering (and sheltering) in Admiralty Bay.
1513. Mr Forrest (Cawthron Institute) is stated as having assisted TTRL in its assessment of the potential biosecurity effects of the project.⁷²¹ The Panel notes that no technical report⁷²² from Mr Forrest is included in the current application material. For completeness, the Panel has reviewed evidence provided by Mr Forrest for the 2016 application to the EPA. In that evidence, Mr Forrest stated that TTRL's proposed consent conditions (discussed below) will "exceed the requirements of border standards".⁷²³ He concluded that TTRL's operations will have a negligible

⁷²⁰ Impact Assessment, page 242.

⁷²¹ Impact Assessment, page 242.

⁷²² The Panel understands that this may have been a letter not a report.

⁷²³ Evidence of B Forrest for TTR, 15 December 2016, paragraph 3b.

biosecurity risk to aquaculture in New Zealand, and that proposed conditions will manage biosecurity risk of the project “to an acceptable level in the context of other sources of biosecurity risk in New Zealand”.⁷²⁴

1514. The Panel notes that the Barlow Report (2015) addresses biosecurity risk but is not referenced in relation to biosecurity or aquaculture effects in the Impact Assessment. Nonetheless, the Barlow Report sets out the regulations that manage vessel ballast water and biofouling in New Zealand (as relevant in 2015 when published). The report asserts that the project vessels will comply with all relevant marine management regimes.
1515. In terms of consultation on potential aquaculture impacts, the application identifies that there are eight iwi groups represented under the Te Tau Ihu Settlement Bill. Of those TTRL state that only Ngāti Koata have applied for customary marine title and protected customary rights through a recognition agreement with the Crown over Admiralty Bay. TTRL advised the Panel that it actively consulted with Ngāti Koata and states that it has incorporated their recommendations into the proposed conditions. TTRL also stated that it has consulted with the Ministry for Primary Industries on Biosecurity matters and will continue to engage with them during the course of the project (as set out in the conditions).⁷²⁵

Conditions

1516. The proposed conditions that manage biosecurity risks of the project, including biosecurity risks on aquaculture interests in Admiralty Bay, are conditions 31, 42, 43, 44, 45, 46 and 70. While unrelated to biosecurity, the Panel considers that as worded, Condition 30 may also provide a degree of protection for marine farms in Admiralty Bay (i.e. from mooring failure or loss of position that may result in collision with mussel farms) however unlikely that outcome may be in an otherwise sheltered bay.
1517. Condition 31 provides an overarching obligation for the consent holder to mitigate, and where practicable, avoid adverse biosecurity effects resulting from project vessels, and have effective procedures in place. Conditions 42-44 relate to meeting existing regulations and associated record keeping. Conditions 45 and 46 manage activities in Admiralty Bay, including in accordance with Ngāti Koata’s requirements.
1518. A key outcome of those conditions is that no discharge of ballast water, or maintenance of vessels, is permitted while in Admiralty Bay (except in emergency circumstances). This aims to prevent the release of any harmful marine organisms contained in the ballast water. Condition 70 requires TTRL to prepare a Biosecurity Management Plan for each vessel certified by the EPA in consultation with the Ministry for Primary Industries and Aquaculture New Zealand to ensure overseas vessels undertake acceptable measures for biofouling to minimise the transfer of invasive aquatic species.

⁷²⁴ Evidence of B Forrest for TTR, 15 December 2016, paragraphs 5-6.

⁷²⁵ Impact Assessment, page 334.

1519. Overall, TTRL conclude that the proposed conditions “will ensure that any potential biosecurity effects that may result from the Project are negligible”.⁷²⁶

Comments received and applicant’s responses

1520. The Minister for Biosecurity confirmed that he has “not identified any immediate biosecurity issues” for the project.
1521. Te Ohu Kaimoana commented that the potential remains for indirect impacts, particularly through biosecurity risks such as the introduction of pathogens or invasive species, which could affect shellfish and finfish farms in Admiralty Bay.⁷²⁷ Te Ohu Kaimoana states that there are other iwi with aquaculture and customary non-commercial interests in Admiralty Bay who have not been engaged as part of this process. For instance, Te Ohu Kaimoana advised that Ngāti Rārua has an existing mussel farm within Admiralty Bay, which was not considered within the TTRL’s engagement process.
1522. Te Ohu Kaimoana considered that broader engagement was needed with Marlborough’s Iwi Aquaculture Organisations⁷²⁸ to confirm that TTRL’s proposal would not negatively impact Māori aquaculture interests in the Marlborough region including future interests that may arise from the New Zealand King Salmon Blue Endeavour project which has triggered a new aquaculture settlement obligation that, we were advised, is presently being negotiated.⁷²⁹
1523. TTRL did not provide a response to Te Ohu Kaimoana on this issue, other than in legal submissions where they stated that “the concerns raised are not supported by evidence establishing harm or effects arising from TTRL’s proposed activities”.⁷³⁰

Findings

1524. Te Ohu Kaimoana has not provided any evidence to support their concerns of residual effects on shellfish and finfish farms in (or near) Admiralty Bay from the project. It follows, therefore, that the Panel agrees with TTRL’s legal submissions on that matter.
1525. We acknowledge that while TTRL has consulted with and accommodated requests from Ngāti Koata with respect to sheltering vessels in Admiralty Bay, we find that the applicant has not considered input from all relevant Iwi Aquaculture Organisations in the Marlborough region. However, we do not see this current lack of consultation as determinative based on our findings that the proposed consent conditions, with some amendments, would provide appropriate measures to avoid or mitigate biosecurity risks on all aquaculture interests in Admiralty Bay.

⁷²⁶ Application dated 15 April 2025, page 245.

⁷²⁷ Comments by Te Ohu Kaimoana, paragraphs 66.

⁷²⁸ Listed as Ngāti Koata, Ngāti Kuia; Ngāti Rārua; Ngāti Toa Rangatira; Rangitāne o Wairau and Te Ātiawa o Te Waka-a-Māui.

⁷²⁹ Comments by Te Ohu Kaimoana, paragraphs 69 – 72. Interests will depend on whether iwi take a space or financial settlement.

⁷³⁰ Legal submission by TTRL, 13 October, paragraph 55-56.

1526. We briefly outline our findings in relation to the conditions as follows:

- a. Conditions 31, 42, 43, 44 and 70, are clear and reasonable. No changes are required. Were we minded to grant the applications, we would accept these conditions as proposed to us.
- b. Condition 45 requires greater certainty on where, on the approach to Admiralty Bay, the restriction of ballast discharge applies to avoid ambiguity. Those coordinates should be determined in consultation with Aquaculture New Zealand and representatives of Marlborough's Iwi Aquaculture Organisations (being Ngāti Koata, Ngāti Kuia; Ngāti Rārua; Ngāti Toa Rangatira; Rangitāne o Wairau and Te Ātiawa o Te Waka-a-Māui). The condition should also provide for an annual review of that boundary to account for any changes in aquaculture activity in and near the entrance of Admiralty Bay that may be at risk of HMOs released in project vessel ballast water. The exception clause at the end of Condition 45 needs to be removed, else further justified.
- c. The Panel also considers that the notification requirement in Condition 46b, as currently framed, may be impracticable in some circumstances. A fixed requirement of "no later than five working days" may not allow vessels to seek safe shelter at short notice where weather or swell conditions deteriorate rapidly. The Panel considers that five days' prior notice is appropriate where practicable. Where it is not practicable, notification should be provided to Ngāti Koata as soon as reasonably practicable.

1527. In summary, the Panel is satisfied that impacts on aquaculture interests can be effectively managed through a combination of compliance with other relevant marine management regimes and the suite of conditions proposed by TTRL, amended as set out above. With such amendments, we consider that the impacts of the project on the existing aquaculture interests in Admiralty Bay and biosecurity risks in general will be acceptable.

20.4 Recreation and tourism interests

The application

1528. The primary documents that assess any potential effects on recreation and tourism are the 2015 assessment undertaken by Rob Greenaway & Associates⁷³¹ and the SIA undertaken by Croydon Consultants Ltd.⁷³² Arising from a community meeting with boating, surfing, underwater and board riding clubs in August 2013, the following potential effects of the proposal were identified by the attendees:

- a. turbidity effects (underwater visibility and smothering of biota) and the location of the sediment plume and sediment effects on onshore and offshore reef systems;

⁷³¹ Recreation and Tourism Assessment of Effects, Rob Greenaway & Associates, 24 November 2015.

⁷³² Social Impact Assessment, Croydon Consultants Ltd, January 2016.

- b. resuspension of returned sand during storm events or other wave action and the potential for long-term turbidity issues;
 - c. recolonisation rates for biota in the mined area;
 - d. toxicity of returned sand and effects on biota throughout the study area;
 - e. changes to coastal wave patterns affecting surfing opportunities;
 - f. 'sand budget' effects on the replenishment of beaches and sand bars (also an issue for surfing);
 - g. exclusive use of the marine area in the mining area and interference with navigation routes for recreation craft;
 - h. effects on the environmental ('clean green') reputation of New Zealand;
 - i. risk of accidents with ships and subsequent marine pollution; and
 - j. how effects will be monitored.
1529. The SIA similarly considered that the main recreation activities potentially affected by the project are fishing, diving, surfing, beach-based activities (such as swimming, walking, surfcasting and passive enjoyment of beaches) and coastal walks.⁷³³
1530. The Recreation and Tourism Assessment report took each of the potential effects and evaluated the likely level of effect. Starting with water clarity, the consequence is on decreased visual amenity, natural character and the quality of the diving experience particularly at the North and South Traps. The scale of adverse effects was stated as:⁷³⁴
- a. minor in the inshore marine setting where most recreational activity occurs due to the very low scale of effect and high level of background suspended sediment;
 - b. minor in the important diving setting of the Traps due to a persistent but small scale change in water clarity, which will be most apparent only when the mining activity is occurring in the eastern part of the mining area. This could increase to a moderate scale of effect in water clarity at the Traps during the rare periods of extreme water clarity (>10 m horizontal visibility on the bottom for four days per year). Similar effects are also likely at the less important diving setting on the Graham Bank; and
 - c. minor on the offshore surface recreation experience in the STB (fishing, sailing and other boating) due to the scale of the offshore setting, the relatively low

⁷³³ Social Impact Assessment, Croydon Consultants Ltd, January 2016, section 5.6

⁷³⁴ Recreation and Tourism Assessment of Effects, Rob Greenaway & Associates, 24 November 2015, section 3.2.1.

level of activity in the plume area and the transient characteristic of the experience.

1531. The SIA similarly considered that in the coastal waters between the extraction area and the shore, there is unlikely to be an effect on shore-based fishing and food gathering. In terms of offshore fishing and diving, there is the potential for a moderate adverse effect offshore, particularly at distances greater than 8 km, where sediment levels and deposition are predicted to increase.⁷³⁵
1532. Effects on benthic and pelagic ecology are of interest to fishers and divers, for harvesting seafood as well as scenic diving. The scale of adverse effects was stated as:⁷³⁶
- a. minor in the mining area due to very low levels of use of the area and other locations being available, although site-specific effects on benthic marine organisms will be greater; and
 - b. minor outside the mining area due to the low scale of adverse effects on marine ecosystems.
1533. Concerns were expressed about the effect of the project on the sand budget and therefore waves. The technical assessments indicate a weak connection between sands at the mining site and the supply of sediment at the shoreline. The potential effect on surfing and inshore recreation which relies on natural beach replenishment processes is considered by the applicant to be only minor, if any.⁷³⁷
1534. The proposed exclusion zone in the mining site will apply to the area occupied by the mining ships, their anchoring systems and the crawler, while the remainder of the mining site will be available. For this reason, the applicant considers the potential effects of exclusion to be very minor.⁷³⁸ The SIA similarly considered that the proposed extraction area is unlikely to displace recreational diving but may displace a small amount of recreational fishing. Most evidence indicates that recreational fishing occurs well away from the extraction area and therefore the effects are likely to be minor.⁷³⁹
1535. The Recreation and Tourism Assessment considers that there is very little potential for adverse effects on New Zealand's tourism brand as the mining activity has limited adverse environmental effects and occurs well away from internationally and nationally important tourism settings.⁷⁴⁰

⁷³⁵ Social Impact Assessment, Croydon Consultants Ltd, January 2016, section 5.6.1.

⁷³⁶ Recreation and Tourism Assessment of Effects, Rob Greenaway & Associates, 24 November 2015, section 3.2.2.

⁷³⁷ Recreation and Tourism Assessment of Effects, Rob Greenaway & Associates, 24 November 2015, section 3.2.3.

⁷³⁸ Recreation and Tourism Assessment of Effects, Rob Greenaway & Associates, 24 November 2015, section 3.2.4.

⁷³⁹ Social Impact Assessment, Croydon Consultants Ltd, January 2016, section 5.6.1.

⁷⁴⁰ Recreation and Tourism Assessment of Effects, Rob Greenaway & Associates, 24 November 2015, section 3.2.5.

Comments received and applicant response

1536. A number of commenters addressed recreation, particularly diving and recreational fishing. Whanganui District Council observed that the recreation and tourism data is out of date and considered that this deficiency (when combined with others it identifies) means the Panel cannot adequately and reliably fulfil its duty to weigh up the project's regional or national benefits against environmental effects. The comments note that there are significant omissions and inaccuracies in the SIA including:
- a. that the Whanganui River Mouth is a major and safer access point for recreational fishers and divers, particularly as it offers more reliable launching conditions than other sites such as Pātea;
 - b. lack of recreational boat activity data including competition records, voluntary surveys, and direct observations. The Sea Fishing Club reports that on a good day, 250–300 boats and up to 900 people use the marine area and the omission of this information results in a substantial underestimation of recreational activity; and
 - c. the applicant's claim that "very little recreational fishing occurs more than 20 km offshore along the entire west coast of the North Island" is not correct as evidenced by the Sea Fishing Club's submission which provides detailed evidence of high-use of offshore areas.
1537. The comments from Whanganui District Council emphasised the importance of recreational fishing, boating, and diving to the social fabric and wellbeing of its region and the reliance of some vulnerable community members on coastal resources for food. The Council therefore considered that any 'minor' or 'moderate' adverse effects on visual amenity, coastal processes, or fish habitats would be highly significant.
1538. The Ohawe Boat and Angling Club noted high quality dive sites that are uncharted, including 4 Mile Reef which has over 40 dive sites, the islands, Linda, The Cave, The Plates, Mark Oz, Boulders (which is especially valuable as it can be dived most times of the day). Some of these areas were marked on a plan that is attached to the comments.
1539. The comments from Opunake Boat and Underwater Club Inc explained that it has a membership of approximately 120 persons and 85 craft that recreationally fish the area north of the proposed mining area. The main concerns expressed in the comments were not so much in relation to recreation (although clearly related) but more about the damage to the ecosystems near the site and effects on sea life including whales, Māui dolphins and sea floor dwelling species.
1540. Comments from Wanganui-Manawatu Sea Fishing Club, Pātea and Districts Boating Club, Waitōtara Pātea Fishing Club, Progress Castlecliff and Coastguard

Whanganui noted the physical characteristics of the STB and its suitability for recreation as follows:⁷⁴¹

South Taranaki Bight (STB) is a distinctive and highly valued region for recreational fishing and diving in Aotearoa New Zealand, offering a rare combination of ecological richness, and geological uniqueness. The area is characterised by a broad, shallow continental shelf that extends well offshore, creating an accessible marine environment for small vessels and recreational users.

South Taranaki's shallow seabed supports a rich mix of benthic habitats, sandy flats, rocky outcrops, and reef systems, that provide ideal conditions for marine life. Shaped by ancient volcanic and sedimentary processes, the seafloor features undulating contours, low ridges, and patchy reefs that enhance biodiversity and support both recreational fishing and diving.

Its exposed west coast location, shaped by the Tasman Sea, creates dynamic ocean conditions that attract experienced fishers, divers, and boaters seeking both challenge and reward. The region benefits from the mixing of warm subtropical and cooler temperate currents, which enhances nutrient availability and supports seasonal fish migrations. Local fishers and divers often report dynamic surface activity, including baitfish schools, bird workups, and gamefish sightings particularly during the warmer months.

The region's frequently rough sea conditions, driven by prevailing winds, swells, and weather systems can act as a natural buffer against overuse, limiting access during certain periods and helping to reduce pressure on sensitive marine habitats. This intermittent inaccessibility contributes to the resilience of local ecosystems and supports the long-term sustainability of recreational use.

1541. The commenters identified key recreational activities as fishing, scuba diving, boating and navigation, beach use and swimming, environmental observation and informal monitoring⁷⁴². Fishing competitions are the backbone of both fishing clubs. The comments expressed concern that any reduction in fish abundance, habitat degradation and restricted access pose a serious threat to these competitions.⁷⁴³ The comments include detailed material on the ability to access the open ocean under different weather conditions and sea states.
1542. The areas where the commenters disagree with the applicant is:
- a. its failure to recognise Whanganui as a main public access and activity point for marine recreation;
 - b. underestimating the extent and variability of offshore recreational use, recreational fishers report fishing over 50 km offshore. Technological advances results in better accessibility and easier to travel further offshore;

⁷⁴¹ Comments from Wanganui-Manawatu Sea Fishing Club, Pātea and Districts Boating Club, Waitōtara Pātea Fishing Club, Progress Castlecliff and Coastguard Whanganui, 5 October 2025, page 6.

⁷⁴² Comments from Wanganui-Manawatu Sea Fishing Club, Pātea and Districts Boating Club, Waitōtara Pātea Fishing Club, Progress Castlecliff and Coastguard Whanganui, 5 October 2025, page 7.

⁷⁴³ Comments from Wanganui-Manawatu Sea Fishing Club, Pātea and Districts Boating Club, Waitōtara Pātea Fishing Club, Progress Castlecliff and Coastguard Whanganui, 5 October 2025, page 8.

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- c. the assessments commissioned by the applicant do not cover the actual sites used by recreational communities, nor the full range of species important to fishers and divers;
 - d. outdated community profile that does not recognise that since 2013 there have been new discoveries of reefs and the assessment may not reflect present-day values, concerns, or usage patterns; and
 - e. lack of any robust estimates or analysis of the number of recreational fishing boats operating off the South Taranaki–Whanganui coast each year.
1543. The comments from the fishing clubs and others helpfully identified key recreational grounds and their known characteristics and included the mapped location of each area. The comments outlined four main concerns, being:
- a. Ecological impact: The project threatens rocky reef habitats that support species such as crayfish, blue cod, tarakihi, hapuka, and bryozoan coral. These reefs are well known to local fishers and divers as critical breeding and feeding grounds.
 - b. Sediment plume effects: Mining-generated sediment plumes risk smothering reef systems, degrading water clarity, and disrupting fish behaviour. Divers rely on visibility for safety and enjoyment, and fishers report reduced catch rates in turbid conditions.
 - c. Community exclusion: Recreational users have been excluded from monitoring, decision-making, and impact assessments. The applicant's reliance on speculative recovery models and outdated community profiles fails to reflect current realities and undermines trust.
 - d. Direct conflict and undermining of local stewardship: Our communities are actively restoring catchments, reducing sediment runoff, and protecting sensitive marine areas like Project Reef through voluntary stewardship. These efforts stand in stark contrast to the scale and intensity of the proposed mining activity.
1544. Other concerns expressed included underwater noise and its impact on human health, discharges of metal and chemicals and exclusion from areas.
1545. The South Taranaki Underwater Club made extensive and detailed comments, particularly with reference to submissions made to the previous TTRL applications. The main messages were that the fishing and diving grounds in the STB are extensive and the potential effects of the application on those. The comments expressed concern that the application documentation is deficient, and key reports are missing and/or have been withheld. The comments advised that there is a lot of local data that can be drawn on to better characterise the site. The applicant has not shared all of the recent information and in a few areas, seems to have mischaracterised the benthic ecology that is present.

1546. The applicant's response to the commenters on recreation and tourism was as follows:
- a. It maintained that the effects on recreational users will be minor due to the distance of the project area from the majority of recreational users, and minor effects on marine ecology and coastal processes;⁷⁴⁴
 - b. The recreational assessment of effects prepared by Rob Greenaway & Associates (2015) has assessed the dispersion of fishing across the STB and confirmed most of the recreational fishing occurs within 20 km offshore. The assessment does acknowledge however that recreational offshore fishing does, less frequently, occur at distances greater than 20 km offshore and has considered this in the assessment of effects;⁷⁴⁵
 - c. Neither the FTAA nor the EEZ Act refer to matters of social well-being as a relevant consideration for the application;⁷⁴⁶
 - d. Any effects on recreational users within the project setting are considered to be very minor with any effects on recreational settings further afield assessed to be no more than minor by Rob Greenaway & Associates (2015), with the exception of moderate effects on the Traps during rare periods of extreme water clarity. The assessment of effects undertaken by Rob Greenaway & Associates (2015) is robust and based on quantitative and qualitative data;⁷⁴⁷
 - e. The definitions of environment and sustainable management under the EEZ Act apply for this application. They do not include considerations of social or cultural well-being (unlike the RMA, which does). There is no evidence that the economic value of recreational marine activity will be affected by the project;⁷⁴⁸
 - f. Agree that frequent challenging weather and sea states in the STB limits access by recreational fishers and divers;⁷⁴⁹
 - g. Underwater noise from the proposed activities is predicted to be well below recognised thresholds for hearing damage to divers. As long as noise remains below levels associated with discomfort or hearing risk, recreational amenity is generally unaffected;⁷⁵⁰
 - h. The applicant's evidence is robust in terms of effects on marine ecology, geomorphology and water clarity;⁷⁵¹ and

⁷⁴⁴ Applicant's response to comments – local and administering authorities, page 15.

⁷⁴⁵ Applicant's response to comments - the existing interests, page 13.

⁷⁴⁶ Applicant's response to comments - the existing interests, page 14.

⁷⁴⁷ Applicant's response to comments - the existing interests, page 14.

⁷⁴⁸ Applicant's response to comments - the existing interests, page 14.

⁷⁴⁹ Applicant's response to comments - the existing interests, page 14.

⁷⁵⁰ Applicant's response to comments - the existing interests, page 15.

⁷⁵¹ Applicant's response to comments - the existing interests, page 14-16.

- i. The level of expected recreation and tourism effects means limited conditions are needed. Some conditions are proposed (such as conditions 81 and 82) to enable community relations to be established / maintained.⁷⁵²

Conditions

1547. There are limited references to conditions that are directly relevant to recreation. Condition 47(o) requires the collection of recreational fishing data as part of the pre-commencement monitoring, while Condition 54(o) requires that this monitoring continues while mining is operational. Condition 81 requires information to be shared which could benefit those looking to recreate in the STB, while Condition 82 requires community meetings to share information.
1548. The Panel accepts, however, that there are a number of proposed conditions, such as the SSC limits (Conditions 5 and 6), the underwater noise controls (Conditions 11 to 18) and the very general conditions that are designed to protect 'effects on existing interests' (Conditions 30 to 32) that offer a degree of protection. Many of these conditions have been discussed in the preceding sections of this decision. We do not reiterate that discussion.

Findings

1549. The Panel notes that the information used in the applicant to catalogue current recreation and tourism is very dated and question the accuracy and representativeness of data from 2013 (and earlier). While this provides a useful historic snapshot, it appears from the comments that the data, which is at least 12 years old, is not accurate and is not complete. The Panel notes that this data was not updated or extended when this application was lodged. While this is not necessarily a fatal flaw, it does cause the Panel to approach the applicant's report with caution. As we have noted, the applicant proposes to collect additional data of its pre-commencement and operational data gathering exercises which would go some way to providing the information that is currently missing. We note, however, that we cannot seek to gather information needed for us to make a substantive decision via a condition of consent. We come back to this matter when we discuss the conditions more broadly.
1550. Despite the reservations about the age and therefore accuracy of the data, the Panel considers that the work completed by Rob Greenaway & Associates is sound and presents a compelling snapshot of the recreational use of the STB, or the portion of which that could be impacted by the project. Considerable additional information was provided by commenters to update and extend this information to the present day. The Panel appreciate the effort that went into the comments from parties, particularly the boating and fishing clubs and others who provided such valuable information, and the obvious effort they took to compile and present this information.

⁷⁵² Applicant's response to comments - the existing interests, page 17.

1551. The Panel is also satisfied that with the information that was presented by the commenters (which the Panel accepts as being a legitimate and valuable data source), the Panel has sufficient information to understand the recreation and tourism values that exist within the STB. Had the commenters not provided the detail they did, we would not have had sufficient information to characterise the recreation and tourism values present.
1552. The Panel accept all but one of the 'significance rankings' applied to the various recreation and tourism values that were offered in the Recreation and Tourism Assessment. Based on the comments offered by the commenters, the significance of fishing beyond the 20 km extent is also, in our opinion, regionally, rather than locally significant. The sheer weight of evidence provided by the commenters leads the Panel to this conclusion. In this regard, it seems entirely artificial to contend that a 20 km line is a demarcator of significance when the actual users provide evidence to suggest otherwise. As a consequence, the Panel find that the STB (including the site) is regionally significant for recreational fishing, but that the other recreational values of note exist away from the site, and within the CMA. While such uses are not directly impacted by the project, there are an array of adverse effects that have the potential to impact on them.
1553. The Panel recognises the various values associated with recreation within the STB and thus appreciate the value that the community place on this existing interest. By default, that means the Panel understands that this interest is of considerable importance to, and that it makes a number of notable contributions to, those who recreate within the STB.
1554. Much hangs on the applicant's suspended sediment plume analysis, its assessment of marine ecology effects, noise effects and its geomorphology effects analysis. We have made a number of findings that relate to these matters. While we find that the surf breaks in the STB will not be impacted by the project, the same is not true for recreational fishing and the diving experiences within the CMA. We find that the key dive sites will be materially impacted and significantly adversely effected by the reduced clarity for much longer periods than occurs normally.
1555. We find that the visual amenity of those fishing close to (within 3 to 5 km) the site will be materially impacted by the project, and that significant adverse effects could arise when the plume extends into the CMA. We note, however, that this impact is mitigated, to a degree, but the ability of recreational fishers to move to locales that are not impacted. It seems reasonable to conclude that the applicant's conditions will enable, to some degree at least, recreational users to move to such locations.
1556. The Panel finds that the project will adversely affect recreational fishing interests through localised exclusion, displacement of fish, increased operating cost and risk, and uncertainty that alters fishing behaviour. These effects arise not only from the physical mining footprint, but from changes in fish distribution, changes in fish habitat, safety considerations, and uncertainty associated with fish distribution and operational activity.

1557. Unlike, however, the customary fishing interests, we are satisfied that this impact is offset, to some degree at least, by the recreational users being able to move to areas of the EEZ or CMA that are not impacted.
1558. The Panel accepts the 'functional exclusive use' and the 'clean green' tourism reputation effects assessments offered by the Recreational and Tourism Assessment on behalf of the applicant. They are logical and compelling, albeit concisely addressed in the Recreational and Tourism Assessment. The Panel does not accept the contention by the commenters that the mining operation will exclude those seeking to recreate in the Rolling Grounds fishing spot (or any other spots that are outside of the project area); although it does accept that the experience will be diminished by the presence of the activity and the vessels associated with it. While the project does not exclude those seeking to recreate in the Rolling Grounds generally, we accept that an exclusion area sought by the applicant will exclude recreation vessels (one nautical mile around the IMV). This is discussed further in section 20.6 under effects on navigation and vessel traffic.
1559. While the Recreational and Tourism Assessment report provides sufficient evidence to suggest that engagement occurred with the recreation and tourism interests prior to 2016, inadequate engagement has occurred since. While this is not fatal to the advancement of the project, it is a concern with respect to the measures proposed by the applicant in the conditions of consent. The Panel agrees with the commenters that to gather robust recreation and tourism data as part of the monitoring programmes proposed, a trusting and open relationship between the applicant and the recreation and tourism interests will be needed. The applicant's efforts from the last nine years suggests that this will be challenging. But the Panel does not consider it to be impossible, or something that suggests that the proposed mechanism is not workable or substantively inappropriate. It follows that conditions which enable effective, transparent and informed engagement between the applicant and the recreation and tourism interests are needed.
1560. The baseline recreation and tourism data gathering is appropriate, and important to confirm that the recreation and tourism environment (as it exists just prior to the commencement of mining) is well defined before mining commences. That would allow effects recorded in this decision to be measured, and any departure from those effects (in type and magnitude) to generate an immediate cessation to mining until the cause of the impact is determined and measures are developed, certified and implemented to ensure that no recurrence occurs.
1561. Overall, the Panel finds that the project will materially impact and significantly adversely affect recreational diving in the STB. Given our findings on effects on the water column, no conditions are available to address this effect or to reduce it. The reefs are fixed. While other notable recreation impacts and effects will occur, the ability of recreational users to recreate to other locales reduces the magnitude of those effects to the point where they are, in our opinion, broadly acceptable.

20.5 Oil and gas interests

The application

1562. TTRL's mineral mining permit (MMP 55581) contains clauses 11 to 17 that provide for the interaction between the project and Kupe Joint Venture Parties New Zealand. The application considers that the interests of Origin Energy Resources (Kupe) Limited as operators of the Kupe field have been considered through consultation and additional measures included in the proposed consent conditions.⁷⁵³

Comments received and applicant's response to comments

1563. Three comments were received that addressed effects on existing oil and gas interests. Climate Justice Taranaki expressed concern about the potential for any major additional activities such as seabed mining to result in further leakage from the Kupe field. It considers that a thorough risk assessment of the leaky well, related infrastructure and activities of the current Kupe operator, Beach Energy, is required.
1564. JERA expressed concern about the instability of sediment and the effect of that on the existing Kupe subsea infrastructure.⁷⁵⁴ JERA provided Figure 13 which shows the risks of liquefaction and their probable flow paths in proximity to the Kupe platform, wells and gas pipeline. Higher probability flow failure paths are indicated with red dashed lines while less likely flow paths are denoted with green dashed lines. Due to the very shallow seabed gradients at potential initiation points, it appears that only a low-probability flow path propagating northeast and then southwest, could potentially run into the existing Kupe platform. However, to the south a number of wells and associated flowlines are located in line with the red high-probability flow paths. The comments consider that in order to properly quantify the risk and impact on the Kupe project offshore infrastructure, detailed quantitative runout modelling would be required for debris flows originating from the mining area along these critical flow paths.
1565. The report noted that the lengths of the flow paths in this figure are speculative and for illustrative purposes only as no run out modelling to predict the length of the flow path has been conducted.⁷⁵⁵

⁷⁵³ Application dated 15 April 2025, section 5.13.7.1

⁷⁵⁴ Comments from JERA Nex BP Parkwind, section 2.3.2.2

⁷⁵⁵ Joint Statement of Expert Witnesses - Fate of Tailings Backfill dated 18 November 2025 at [38]

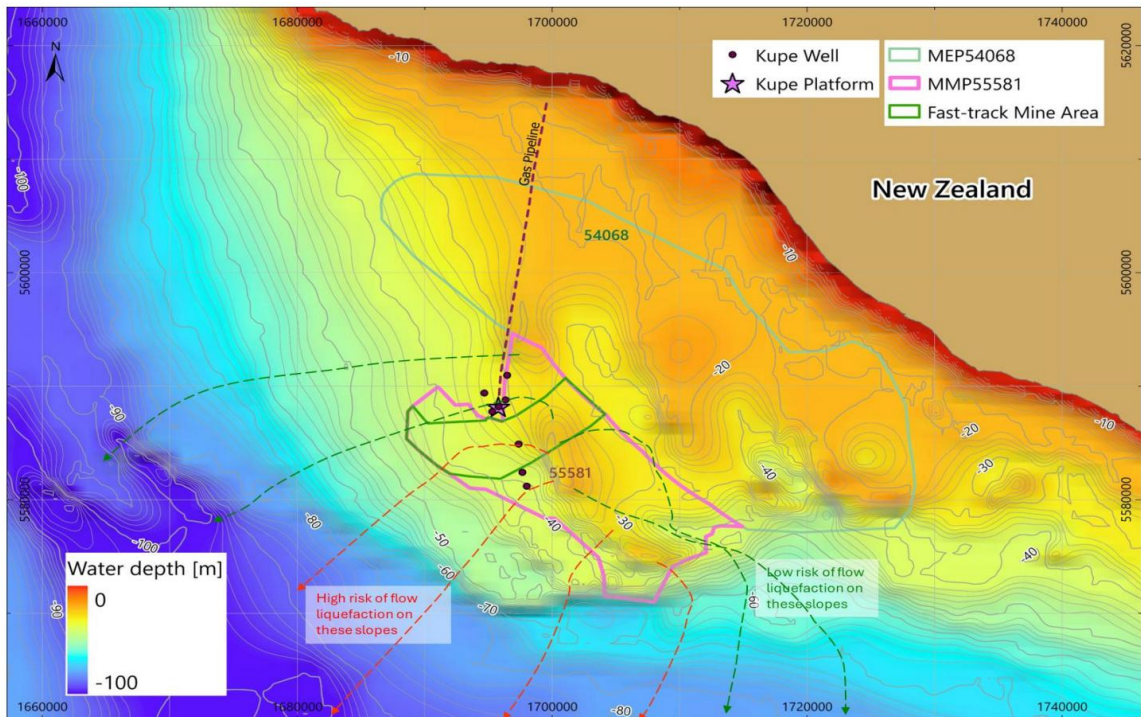


Figure 13: Liquefaction flow paths and proximity to the Kupe wells and platform (source: comments from JERA Nex BP Parkwind).

1566. The comments from Beach Energy raises a number of concerns. Given it explicitly stated that the comments were made on a commercial-in-confidence basis given the sensitive nature of the subject matter, the Panel sought and obtained the consent of Beach Energy to include the following summary.
1567. The comments from Beach Energy raise several concerns, including the absence of any contact from TTRL as part of the assessment process under the FTA. The comments note that the discussion of the Kupe JV parties in the Substantive Application documents is at least seven years out of date and has not been updated by a contemporary assessment. The application refers to Origin Energy throughout as the operator of the Kupe Assets, which has not been the position since 2018 when Origin Energy sold the Kupe Assets (as part of the wider sale of its group subsidiary, Lattice Energy) to Beach Energy. The concerns raised in the comments from Beach Energy include:
- a. potential for collision with the Kupe Well Head Platform – this would have the most significant consequences, including structure failure of the jacket and conductors and hydrocarbon loss of containment from the Kupe Assets;
 - b. risks to the integrity of existing seabed infrastructure from changes to seabed topography:
 - i. the proposed removal and later deposition of seabed material as part of TTRL's proposed operations will create pits and mounds in the

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seabed (noting that the proposed 11 m maximum excavation is approximately 30% of the total water depth in parts of the proposed area of operations). This may impact the metocean conditions.

- ii. potential stress on future pipelines on the seabed if the discharged material is unconsolidated and prone to settling;
 - iii. loss of seabed support i.e. undermining;
 - iv. effects around Kupe South 4, which is a plugged and abandoned well in the middle of TTRL's application area;
 - v. risks associated with the use of jack-up rigs for future exploration drilling in the parts of the Kupe licence area that overlap with TTRL's application area;
- c. potential for reduced visibility which would limit the ability for Beach to inspect, maintain and repair Kupe Assets; and
- d. adverse impacts to future development in the Kupe Licence Area - interference with future surveys and infrastructure that Beach may undertake to access the resources it is entitled to access under the Kupe Licence. Interference may occur due to the physical presence of TTRL's vessels and anchors, as well as the noise and other impacts of TTRL's operations which would impact survey data quality.
1568. Beach Energy also addressed the existence of a Risk Management Agreement that was originally made between TTRL and Origin Energy. Beach Energy's position is that, if the application is granted under the FTAA, then as a minimum the conditions set out in the Risk Management Agreement must be included in the marine consents. Beach Energy notes that those conditions have largely been included in the draft conditions included with the Substantive Application (being proposed Conditions 25, 30, 32, 47, 48, 60, 67, 68, 69, 87, 90 to 105 and 107). Other concerns with the conditions include:
- a. the quantum and availability of the proposed public liability insurance in proposed Condition 107 which should be adjusted to a 2025 value;
 - b. the need for assurances of TTRL's insurance arrangements;
 - c. the need for a parent company guarantee or performance bond, ensuring liabilities are met even in the event of insolvency or an insurance dispute;
 - d. the Panel's decision needs to expressly record reliance on volunteered Augier conditions to ensure enforceability;
 - e. the importance of implementing the "Management Plans" referred to in the Risk Management Agreement;

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- f. liaise with Beach Energy to develop a refreshed Safety Case that takes into account Beach Energy's current and future operations under the Health and Safety at Work (Petroleum Exploration and Extraction) Regulations 2016;
 - g. liaise with Beach Energy to develop a Simultaneous Operations Plan, Collision (Loss of Position) Contingency Management Plan, establish appropriate exclusion zones around all Kupe Licence infrastructure, including wells that have been plugged and abandoned; and
 - h. undertake a joint risk assessment to assess the risks to the Kupe JV and identify required preventative and mitigating controls to protect Kupe JV assets.
1569. Beach Energy requests that the Panel require independent peer review of seabed modelling and ongoing monitoring conditions (with Kupe JV input) as prerequisites to any consent.
1570. The response from TTRL focused more on any effects that the loose nature of the tailings might have on future activities rather than existing activities. Dr Iain MacDonald did not address liquefaction directly, but did discuss pit migration which is related to instability of tailings. He considered that the rate of pit migration is estimated to be around 10-15 m per year. With the direction of migration in the direction of residual sediment transport, which for the STB is towards the southeast. He observed that the residual sediment transport direction and therefore, the pit migration direction, depends on the relative occurrence and magnitude of NE and SE winds.
1571. Conditions 87 and 98 require bathymetric surveys on a six-monthly basis which are intended to detect any changes in the bathymetry of the pit and associated mounds, including potential migration, infilling, or deflation. He noted that the sharing of this monitoring information and surveys with the Kupe Operator will ensure that the seabed morphology, and its changes over time, within the mining area will be well documented.

Conditions

1572. The conditions proposed by TTRL address effects on Kupe in the following ways:
- a. requirement to manage all activities covered by the consent to not result in any adverse effects on the Operator of the Kupe Petroleum Mining License #38146 Kupe assets and Infrastructure (Conditions 32 and 102);
 - b. undertake pre-commencement monitoring around the Kupe Well Head Platform and along the pipeline and umbilical route (Condition 48);
 - c. the Kupe Operator must be represented in the Technical Review Group (Condition 60);
 - d. the Collision (Loss of Position) Contingency Management Plan must:

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- i. be prepared in consultation with the Kupe Operator (Condition 67);
 - ii. address how the IMV will be operated to 'sit out' severe environmental conditions such that the risk of collision between the Consent Holder's assets and the Kupe assets is as low as reasonably practicable (Condition 67(d));
 - iii. the procedure for ensuring that, when the IMV is operating in any position where a station keeping failure may result in a potential collision of the IMV or its dragged mooring system with the Kupe assets (Condition 67(g));
 - iv. the detailed emergency response procedure to ensure the risk of collision between the Consent Holder's assets and the Kupe assets is 'As Low As Reasonably Practicable' (Condition 67(k));
- e. preparation of a Simultaneous Operations Plan in accordance with the requirements of IMCA M 203 Guidance on Simultaneous Operations following consultation with the Kupe Operator. This sets out the procedures when two or more vessels are operating in the same general area and in close proximity to each other (Condition 69);
- f. requirements to provide the Kupe Operator with various documents (e.g. Conditions 87, 92 and 93) and appoint independent reviewers (e.g. Condition 91);
- g. undertake an assessment of the visibility limits at the Kupe Platform and at the inshore border of the project area identified in Schedule 1 (Condition 94);
- h. activities within the 'Kupe Platform Safety Zone' must not occur without prior approval in accordance with the Simultaneous Operations Plan (Condition 97);
- i. undertake bathymetric surveys annually around the boundaries of the Kupe Operator's exclusion zones (existing or future), and representative points around the Kupe Well Head Platform and along the pipeline and umbilical route, to determine any migration of the mound and pit bathymetry (Condition 98);
- j. ensure that the Kupe Operator retains all rights to explore and develop assets within the Petroleum Mining Licence area #38146 to the extent provided for in that permit where it overlaps with the project area identified in Schedule 1 (Condition 99);
- k. all operations proposed by the Kupe Operator within the area of Petroleum Mining Licence #38416 have precedence over the Consent Holder's operations provided that the Kupe Operator gives at least twelve (12) months' notice its intentions (Condition 100);
- l. maintain a 500 m protection zone around all wellheads (except Kupe South 4 wellhead where the size of the protection zone will be sufficient to ensure that

the Consent Holder's activities do not result in the well-casing being exposed at any time), and a 1.5 km protection zone around the Kupe Well Head Platform (Condition 101); and

- m. reporting of any modified operational extraction and deposition areas or periods which differ from those identified in the “the next twelve (12) month” period of any Annual Report where any such changes are in the Petroleum Mining Licence area #38146, or the project area immediately adjacent to the Kupe assets (Condition 105).

Findings

- 1573. The s 51 report prepared by Dr Ursula Rojas-Nazar noted that “since the time the original environmental data was collected, additional activities have occurred in the area, such as the Kupe oil and gas development. These activities may have resulted in changes to the receiving environment that could affect the relevance or reliability of the older data relied on in the application.”⁷⁵⁶
- 1574. The Panel is aware that there is a 500 m exclusion zone that applies to the Kupe Well Head Platform under the Continental Shelf (Kupe Wellhead Platform Safety Zone) Regulations 2006 which prohibits the entry of any ship into this area unless it is engaged in activities associated with the Kupe Well Head Platform or its associated facilities. A protection area applies to the Kupe underwater infrastructure as well through the Submarine Cables and Pipelines Protection (Kupe Gas Project) Order 2008.
- 1575. It is evident from the drafting of the proposed conditions that TTRL engaged with Origin Energy as the former operator of the Kupe Well Head Platform, although there does not seem to have been further engagement with Beach Energy as the current operator. It was observed by Dr Rojas-Nazar, and the Panel are similarly concerned, about the reluctance of TTRL to update old data and reflect an environment that has subsequently changed.
- 1576. KASM / Greenpeace drew the Panel’s attention to authorities regarding risk and probability. They submitted that risk refers to probability and consequence. Probability is the likelihood of an event occurring where consequences involve an understanding of the sensitivity of the receiving environment (both qualitative and quantitative assessment). Low probability but high consequence risk is captured within the scope of “effects” and will continue after commercial incentives to remedy such risk post mining have expired.
- 1577. Overall, we find that there would be potentially material risks to the Kupe Well Head Platform arising from the project. However, we are satisfied that most of these risks, including risks to the efficient operation of Beach Energy within their permit area, could be managed by the imposition of conditions and the safety exclusion zones applied by other regulations such that those risks would be acceptable.

⁷⁵⁶ Section 51 Report, Dr U Rojas-Nazar, 22 September 2025, page 3.

1578. We share the concerns of JERA and Beach Energy regarding the long-term instability of the mining tailings and the potential impact of this on Kupe infrastructure (current and future). On the evidence before us, we find such risks materially uncertain. While proposed bathymetric surveys are expected to identify the occurrence of any changes in seabed morphology in proximity to oil and gas infrastructure, and the direction of any movement of sediment, we note that these changes are driven by natural processes and over timescales beyond the applicant's activities in the STB. On the evidence, these changes are not amenable to operational control and so the potential for significant long-term risk remains.

20.6 Navigation / marine traffic interests

The application

1579. While the EEZ Act does not establish a standalone maritime safety regime, navigation and marine traffic are existing interests that the Panel must consider when assessing effects and setting conditions, TTRL provide an assessment of effects on navigation and commercial shipping in section 5.13.6 of the application. This assessment draws on the Marico Report and a second technical report by R N Barlow and Associates Limited, 2015 (Barlow Report)⁷⁵⁷. TTRL describe the recorded 58 vessel movements that travelled within 5 nautical miles of the project area as one movement every six days on average and a low to very low traffic density. Most of the vessels operating adjacent the project area were engaged with servicing the Kupe platform (with four vessels within the 12-month surveyed period travelling within the Site).
1580. The Barlow report concludes that the project would have “very little impact, if any, on navigational safety in the STB”.⁷⁵⁸ The risk of collision is considered low with no constraints on commercial vessels being able to navigate around the project area safely.
1581. To safeguard against vessel collision, TTRL states that it proposes the following measures:
- a. Compliance with all “IMO conventions and New Zealand maritime rules – particularly with regard to vessel safety, operation and navigation”.⁷⁵⁹ TTRL states this includes (but is not limited to) all IMV anchor locations will have an illuminated buoy and lighting on the IMV, FSO, anchor handling vessel, fuel supply vessel and CEV will comply with maritime rules as required for their respective operations. Project vessels will also be fitted with the required AIS transponders to assist in the management of marine traffic.
 - b. Standard marine watch-keeping systems will be employed.

⁷⁵⁷ Report on the Maritime and Navigational Impacts of the Project, R N Barlow and Associates Limited dated November 2015

⁷⁵⁸ Application dated 15 April 2025 at page 248.

⁷⁵⁹ Impact Assessment, page 348.

- c. TTRL state that they will apply to Maritime NZ to establish a dynamic exclusion zone (circular) with a radius of one nautical mile⁷⁶⁰ from the IMV, thus covering other project vessels when they are operating in proximity of the IMV. While we understand that the maximum radius can only be 500 m, the critical point is that a dynamic exclusion zone is to be sought around the proposed activities. We have proceeded on the basis that such an application will be made and that an exclusion zone of the approved extent will be in place before mining commences.
 - d. Condition 30 requires the consent holder to mitigate and where practicable, avoid, adverse effects on existing interests if there is a mooring failure or loss of position.
 - e. Condition 37 sets out a defined boundary (using coordinates) that will fully contain the mooring lines and anchor of the IMV over the mining operation period.
 - f. An operational protocol is proposed to notify the EPA, LINZ, Seafood NZ (or its nominee) and the Harbour Master (if within the 12 nautical mile limit) of the location and depth of any objects greater than 1 m x 1 m that fall overboard from any project vessel and that cannot be practicably recovered. This is proposed Condition 38.
 - g. A Collision (Loss of Position) Contingency Management Plan will be required, the purpose of which is to detail preventive and responsive measures to collision events to minimise the risk of such events occurring and/or impacts of any collision events. This is proposed through conditions 67 to 68.
 - h. Conditions 90 to 102 addresses marine safety matters and will require the design of the IMV as well as operations of the project to accord with best practice as well as undertake detailed investigations and ongoing monitoring that inform the best practice operations.
1582. Overall, based on their assessment of existing marine traffic, combined with proposed management protocols, application for an exclusion zone, and conditions, TTRL conclude that the project's overall effects on navigation and maritime safety to be no more than minor.⁷⁶¹

Comments received and applicant's responses to comments

1583. The Associate Minister of Transport identifies that the Barlow Report on marine and navigation impacts of the project is a decade old. He recommended that the Panel considers requesting that TTRL review the conclusions to ensure that they remain current.
1584. While the Panel did not request this update from TTRL, TTRL did respond to the Minister's recommendation. TTRL stated that while dated, "the conclusions of the report are still considered relevant as no major changes in the maritime or shipping

⁷⁶⁰ Equates to 1,852 metres.

⁷⁶¹ Application dated 15 April 2025 at page 344.

use patterns of the Project area have changed since the report was originally published".⁷⁶²

1585. Coastguard Wanganui provided comments on the potential implications for marine search and rescue should there be a maritime emergency linked to the application. It stated that it has not been consulted or informed of how the project's risks of a maritime event might impact on the Coastguard, or how the Coastguard may be required to assist (including the knowledge, resources and training that may be required to do that). It extended its concerns to other assets involved in maritime search and rescue (e.g. Police and aviation resources), stating that they all require an overview of potential risk for coordinated contingency planning.
1586. TTRL responded saying the consultation with Coastguard was not considered necessary nor required under section 11 of the FTAA.⁷⁶³ It referred to its compliance obligations under all Maritime and Marine Projections Rules and WorkSafe NZ requirements which would manage maritime emergency matters. TTRL also referred to Conditions 90-102 which address best practice.
1587. Taranaki Regional Council raised similar concerns about sufficient resourcing in the area to manage an incident at sea (for rescue or salvage).⁷⁶⁴ It set out recommendations at paragraph 70 of its comments seeking a protocol that identifies and secures capacity for assistance, towage, rescue, or salvage as needs be for the respective project vessels and that confirms potential assistance vessels, staffing and other assistance logistics. It seeks that such a protocol be certified by the EPA (and other relevant agencies).
1588. Mr Thompson responded to Taranaki Regional Council's concerns around response capacity, referring to the range of regulations that they will need to comply with. This included compliance with Maritime Projection Rules Part 131 (offshore installations oil spill contingency plans) which require "Maritime NZ approved contingency plans, with notification, salvage/technical support arrangements, and practicable response capability for worst-case scenarios".⁷⁶⁵

Findings

1589. Navigation and maritime safety are matters the Panel must consider. Although there were limited submissions directed specifically to navigation risk, Taranaki Regional Council and Coastguard raised concerns about worst case scenarios, including response capacity should an incident occur. TTRL's operational management protocols, conditions and Management Plans are intended to avoid a situation where the rescue of people or vessel salvage is required. However, we accept that there is still potential for an incident to occur, even if it has a low probability.

⁷⁶² Response to Comments Received from Crown Ministers, page 3.

⁷⁶³ Response to Comments Received from Parties with Existing Interests, page 18.

⁷⁶⁴ Comments by Taranaki Regional Council, page 17.

⁷⁶⁵ Response to Comments Received from Local and Administering Authorities, page 29.

1590. We have considered whether the age of the marine traffic data means it cannot reasonably be relied on to inform navigation risk.
1591. We note that the Marico Marine Report was originally published in 2013 and surveyed vessel traffic in the 12 months April 2012-March 2013. The Marico Marine Report was republished in 2015 and considered that the traffic risk assessment remained valid in 2015, and so was not further updated. It stated that:
- The traffic volumes both in the area of interest to TTR, and in the wider Taranaki Bay [sic] area have not increased or reduced measurably. This is both in the frequency and type of transits made, as well as the routes taken. Recent traffic extracts of the Taranaki Bay [sic] area associated with other projects have confirmed this.⁷⁶⁶
1592. While we accept that this is a reasonable conclusion regarding the potential marine traffic changes between 2013 and 2015, we are not persuaded that traffic volumes have remained materially unchanged between 2013 and today. As we have already found, based on the information from the recreation commenters, the mining site is more popular with recreational boaters than reported in 2013. Further, evidence relating to commercial fishing before the Panel also points to a changing operating environment within the mining and sediment plume areas. This includes reported redistribution and increased concentration of set-netting activity in remaining open areas following the 2020 inshore set-net closures, and evidence that 14 commercial vessels fished within the potentially affected area in 2023–24. In addition, more recent electronic catch and position reporting introduced in 2019 provides a stronger and more reliable basis for understanding current vessel activity than the 2012–2013 AIS extract underpinning the Marico Report.
1593. Given these prior findings, we find that the underlying traffic vessel data is not the best available information for present-day conditions, particularly for smaller-vessel activity that may interact with the project area and any exclusion zone. Nor has TTRL provided any assessment of any known or potential future changes in vessel traffic in the STB (i.e. projected future vessel traffic over the duration of the proposed mining activity).
1594. However, the Panel accepts that the project area does not sit within established commercial shipping routes and we consider it more likely than not, that these core shipping routes have not shifted over time relative to the project area. The clear demarcation of commercial shipping routes means that the risk of collision for most large vessels is naturally avoided. That conclusion does not however resolve navigation risk for non-core users (including commercial fishing vessels, and vessels associated with Treaty settlement quota/ACE utilisation) who operate outside demarcated routes and whose present-day patterns are less well evidenced in the applicant's marine traffic dataset.
1595. In terms of managing navigation risk for vessels outside of the core shipping routes, and that may be closer to, or otherwise intending to traverse the project area, we are satisfied that the methods and protocols proposed by TTRL will be effective in

⁷⁶⁶ South Taranaki Bight Marine Traffic Study, Marico Marine Ltd dated 4 December 2015 at page 1

safeguarding other ocean uses, members of the public and project vessels from harm, provided that the conditions of consent are amended to secure those measures. We briefly outline our findings in relation to the conditions as follows:

- a. Conditions 37, 67, 68, and 90 to 102 – no change. These conditions are clear and reasonable. Were we minded to grant the applications, we would accept these conditions as proposed to us.
- b. Condition 30 is suitable in intent, but the language is not clear. We consider that this condition's use of 'practicable' twice gives the consent holder too much leeway. Indeed, we consider that the reference to the term practicable is not required. We also consider that the first obligation should be to avoid the generation of effects in the first instance, and then to mitigate those effects that cannot be avoided.
- c. Condition 38 is not sufficiently broad. We consider that it should include notification of other asset owners (at a minimum, Port Taranaki, Port Whanganui, and the Kupe operator).
- d. We find that the requirement to apply for and obtain an exclusion zone (as proposed) prior to mining operations commencing should be a condition of consent to provide certainty that this safety measure occurs. Such a condition should specify that the Kupe operator should be advised of the proposed exclusion zone (its purpose and proposed extent) prior to application. It should also state the relevant organisations that TTRL should inform on the purpose, location/extent, and consequences of the approved exclusion zone (once obtained), and any changes in its location/extent over the operational mining period. Those organisations should include the EPA, Seafood New Zealand (or its nominee), the Taranaki, South Taranaki and Whanganui Coastguard, Ohawe Boat and Angling Club, Opunake Boat and Underwater Club, South Taranaki Underwater Club, Whanganui Manawatu Sea Fishing Club and Pātea and Districts Boating Club. That condition should also include a requirement for TTRL to include an up-to-date map of the exclusion zone on their website (as set out in Condition 81).

1596. While an exclusion zone will limit the ability of recreational and commercial fishing vessels (and other vessels) to enter any area that is within one nautical mile of the IMV, we consider that the reduction of collision or other risk for those vessels is of greater importance than the displacement of those activities from that exclusion zone. Our rationale takes into account the burden placed on search and rescue services should a maritime rescue event be triggered in this distant location.

1597. Lastly, while we accept that TTRL may not have needed to engage with the Coastguard prior to now, we agree with the concerns raised by the Coastguard that open and regular communication between TTRL and marine emergency service providers will be in everyone's best interests prior to and during mining operations. While we do not see this current lack of consultation as fatal to our consideration of the project, the Panel finds that Condition 82 should be expanded to include regular (at least annual) engagement with maritime rescue service providers.

1598. In summary, we are satisfied that impacts on navigation and maritime safety can be effectively managed through a combination of compliance with other relevant marine management regimes and the suite of proposed conditions proposed by TTRL and the amendments to conditions set out above. With such amendments, we consider that the impacts of the project on navigation and maritime safety will be acceptable.

21 Effects on the environment or existing interests of other activities undertaken in the area

1599. Section 59(2)(b) requires the Panel to take into account the effects of other activities on the environment and existing interests, including the effects of activities that are not regulated under the EEZ Act and effects that may occur in New Zealand or in the waters above or beyond the continental shelf beyond the outer limits of the exclusive economic zone. The Panel has taken into account the effects of other activities where relevant, and to the extent that it has sufficient information for this. Effects of other activities may be relevant where they could either exacerbate or neutralise an effect of the project. In that regard, the Panel has considered effects of fishing, oil and gas activities, vessel traffic, fishing, and land-based activities that cause sediment inputs from land to the coastal environment. Those activities have existing effects on benthic ecosystems, marine mammals, seabirds, navigation, natural character and water quality.
1600. The Panel has found that the applicant's noise assessment is inadequate, including because it does not assess ambient or baseline noise in the STB. Because this information was not provided, the Panel's ability to assess the noise effects of other activities is compromised.
1601. When the project was considered by the 2017 Decision Making Committee, seismic testing was noted as an activity with existing noise effects on marine mammals. The Panel understands that more recently seismic testing has not been occurring to the extent that it was leading up to the 2017 application, although recent policy changes opening up oil and gas exploration may mean it becomes more common in the STB in the future.
1602. The Panel notes the applicant's list of activities associated with the project itself that are "not regulated under the EEZ Act" and that although an assessment of these effects is not required to form part of an impact assessment for a marine consent application, the applicant has included an assessment of those effects in Section 5 of the application.
1603. In terms of s 59(2)(b) and the matters we must take into account, the Panel finds that:
- a. activities on land contribute to elevated background levels of SSC, and this effect will likely continue throughout the proposed duration of mining;

- b. the commercial fishing industry, especially bottom trawling, may have some effect on benthic disturbance, but the effect is not on the same scale as the mining operation or its associated sediment plume; and
- c. vessel traffic poses a widespread risk of disturbance to marine mammals through noise.

22 Effects on human health

1604. This section addresses effects on human health arising from the combustion of heavy fuel oil to produce energy that powers the IMV (including the crawler) and FSO. Background on the operational set up and air quality modelling is provided in Section 15.

22.1 The application

1605. The application was supported by two Tonkin and Taylor reports⁷⁶⁷ that assessed air quality effects arising from two alternative power source options for the IMV. As described in Section 15, the application document refers to, and relies on, the results for the reciprocating engine power source option for the IMV and the Panel therefore considers that these are the most relevant results.
1606. Tonkin and Taylor Ltd conducted air quality plume dispersion modelling (for each option) and compared results to the Ambient Air Quality Standards (**AAQS**) for ambient (outdoor) air quality, the New Zealand Ambient Air Quality Guidelines (**AAQG**) and the World Health Organization global air quality guidelines. Assumptions underpinning their modelling were a maximum sulphur content in the heavy fuel oil of 4.5% (w/w) and fuel consumption by the IMV (with all engines running) of up to 156,000 tonnes per annum for the reciprocating engine option and 177,000 tonnes per annum for the gas turbine option.
1607. The assessment of emissions from the reciprocating engines option for the IMV concluded that:⁷⁶⁸
- a. for NO₂ and SO₂, the maximum 1-hour (99.9th percentile) and 24-hour concentrations anywhere in the domain exceed New Zealand standards and guidelines. These maxima occur over water outside the 12-nautical-mile limit near the IMV, where public exposure is unlikely.
 - b. the maximum predicted concentrations of PM₁₀ and CO anywhere in the domain are within New Zealand standards and guidelines.

⁷⁶⁷ Offshore Ironsands Project Air Dispersion Modelling Study - Gas Turbines, Tonkin & Taylor dated 2015; Offshore Ironsands Project Air Dispersion Modelling Study - Reciprocating Engines, Tonkin & Taylor dated 2015.

⁷⁶⁸ Offshore Ironsands Project Air Dispersion Modelling Study - Reciprocating Engines. Tonkin & Taylor dated 2015.

- c. on land, all predicted concentrations for all contaminants are within New Zealand standards and guidelines, only 24-hour SO₂ exceeds the WHO guideline. The authors note that this guideline is based on exposure over a 24-hour period and it is unlikely that there would be people exposed for this period of time given that the location is a generally unpopulated coastline.
1608. The application document reproduced the results for the reciprocating engine option for the IMV, adopting these as the maximum emissions modelled for the IMV.⁷⁶⁹

Conditions

1609. Condition 41 requires that all fuel used in the operational vessels must have a sulphur content compliant with the current International Maritime Organization limit, or no greater than 3.5% (w/w) by weight, whichever is the lesser.

22.2 Comments received, applicant's response to comments, RFI, JWS

1610. Comments on air quality were mostly made by Taranaki Regional Council who raises concerns that air quality effects, particularly sulphur dioxide emissions, are under-assessed, cumulatively underestimated, and poorly controlled in the application.⁷⁷⁰

22.3 Findings

Effects over water

1611. For reciprocating engines, the maximum 1-hour and 24-hour NO₂ and SO₂ concentrations over water are stated as exceeding ambient standards and guidelines in a zone about 1.8–2 km downwind of the IMV. This is based only on emissions modelled for the IMV.
1612. The Panel agrees with the Tonkin and Taylor assessment that at this location it is “most unlikely” that people would be exposed.⁷⁷¹ We further consider that the proposed 1 nautical mile exclusion zone around the IMV stated as being sought by the applicant to exclude non-operational vessels from an area near the IMV (discussed in section 20.6), further assists in reducing potential exposure to the highest concentrations of NO₂ and SO₂ near the IMV.⁷⁷² However, there is not sufficient information available to determine what impact cumulative operational emissions have on the concentration of emissions and their extent relative to those sources of emissions (and potentially beyond a proposed exclusion zone centred on the IMV).

⁷⁶⁹ Application date 15 April 2025, section 5.12.3.

⁷⁷⁰ s53 comments from Taranaki Regional Council.

⁷⁷¹ Offshore Ironsands Project Air Dispersion Modelling Study - Gas Turbines, Tonkin & Taylor dated 2015 at page 13.

⁷⁷² Offshore Ironsands Project Air Dispersion Modelling Study - Gas Turbines, Tonkin & Taylor dated 2015 at page 13.

1613. Given the available information, we find emissions will likely be greater than predicted by the applicant, but that, despite uncertainty in predictions, effects from emissions over water are unlikely to cause meaningful exposure risk to human health.

Effects on land

1614. For reciprocating engines on the IMV, the maximum 24-hour SO₂ onshore exceeds the World Health Organization 24-hour guideline with a maximum ground level concentration of 31 µg/m³ averaged over 24 hours (World Health Organization 24-hour guideline of 20 µg/m³).

1615. In her statement of evidence on behalf of TTRL, Dr Kelly describes that:⁷⁷³

Short-term exposure to elevated sulphur dioxide is associated with important health risks for people especially those with asthma. The WHO (2006) advises that a ten-minute period is the appropriate concentration measurement by which to judge whether there is an increased risk... In New Zealand, the NESAQ uses a one hour averaging period for sulphur dioxide for the purposes of compliance with community health protection and short term effects.

A key feature of ambient air guidelines recommended by WHO (1987, 2000, 2006) is that they are conservative in their approach to uncertainties... Additionally they are intended to be protective for people who are very susceptible to effects by reason of age, disease or other characteristics.

1616. The Panel is satisfied that SO₂ emissions from the IMV will not adversely impact people who infrequently use the coastline. However, there is not sufficient information available to determine what emission sources were considered by Dr Kelly and therefore whether cumulative operational emissions may have a greater impact onshore than described in her assessment.

1617. The use and potential occupation of the coastline have not been described by the applicant. On the evidence available, the Panel considers that there is a residual risk that if people occupy the coastline in areas in which the World Health Organization guideline is exceeded, they could be adversely impacted from the SO₂ emissions from the project vessels. The Panel also considers that it cannot rule out the risk from emissions to people with high health risks, especially people with asthma, who use the area for extended durations.

Effects on workers on the operational vessels and Kupe platform

1618. The Tonkin & Taylor reports do not address the potential impacts of emissions on people working on operational vessels. They primarily model effects at ground (water) level. While they take account of downwash effects from structures on the IMV, they do not draw any conclusions for potential effects on IMV workers or

⁷⁷³ Evidence of Dr F. Kelly for TTRL dated 15 February 2014 at [29-30].

workers on other operational vessels. Nor do they model the cumulative effect for workers on vessels operating close together. The application states that:⁷⁷⁴

However, there is the potential for staff on board the IMV to be exposed to elevated concentrations of NO₂ and SO₂ however, these discharges will occur from the exhaust system of the vessel which is located well above the working areas of the IMV.

1619. The applicant does not provide further information on the potential exposure of people working on the IMV, FSO or other support vessels or the Kupe platform but refers to the 2014 assessment of risk to human health by Dr Kelly.⁷⁷⁵
1620. Dr Kelly relied on 2014 evidence by Jenny Simpson, prepared on behalf of TTRL, who assessed effects from exposure to ground level concentrations of discharges to air on people present on the Kupe platform or TTRL vessel for work purposes using the Workplace Exposure Standards.⁷⁷⁶
1621. Ms Simpson notes that:
- a. The emissions from the IMV⁷⁷⁷ are hot (for example, the exhaust gases from the reciprocating engines will be at approximately 380°C), and are discharged via a vertical stack. This means that the exhaust plume will initially be elevated and travel some distance before it has an impact at ground level. There will be no appreciable impact on air quality from these emissions on the IMV vessel itself.⁷⁷⁸
 - b. Workplace Exposure Standards are promulgated to provide protection for adults during their work day. They differ somewhat from ambient air guidelines in that there is a presumption of a time limited exposure during a work day, usually based around eight hours continuous and five days a week. The method used to determine for a contaminant a level that safeguards workplace health sometimes differs from that used for community background ambient exposure.⁷⁷⁹
 - c. The TTRL vessels, other working ships that may be in the vicinity, and the Kupe platform, are workplaces. People working on these vessels can be assumed to be in the healthy, working subset of the population. The Workplace Exposure Standards are intended to protect the health of individuals exposed to air contaminants in their work environment. Therefore, the Workplace Exposure Standards, rather than the ambient air quality guidelines, can be used as assessment criteria for exposure of workers to air contaminants on these offshore vessels.⁷⁸⁰

⁷⁷⁴ Application dated 15 April 2025, page 215.

⁷⁷⁵ Evidence of Dr F. Kelly for TTRL dated 15 February 2014.

⁷⁷⁶ Evidence of J. Simpson for TTRL dated 16 February 2014.

⁷⁷⁷ Ms Simpson uses the terms FPSO in her assessment. The current application uses the term IMV for that vessel.

⁷⁷⁸ Evidence of J. Simpson for TTRL dated 16 February 2014 at [25].

⁷⁷⁹ Evidence of J. Simpson for TTRL dated 16 February 2014 at [31].

⁷⁸⁰ Evidence of J. Simpson for TTRL dated 16 February 2014 at [26].

1622. Dr Kelly states that:⁷⁸¹

My interpretation of the evidence by Jenny Simpson is that people present on the Kupe platform or TTR vessel for work purposes will be adequately protected from cardio-respiratory health effects even if they are predisposed to asthma

1623. Dr Kelly describes that the Kupe platform is “largely unmanned”.⁷⁸² On that basis, the Panel considers that it is likely that people present on the Kupe platform are adequately protected from risks arising from exposure to SO₂ emitted from the IMV. However, due to uncertainty on the emission sources considered by Dr Kelly, the Panel is unable to determine with any confidence the risk to people on the Kupe platform from cumulative operational emissions from the operational vessels.

1624. The Panel notes that all people working on the IMV (and FSO) will reside on the vessel for the duration of their shift (which we understand to be two or potentially three weeks) and therefore may be exposed to emissions for more than the average eight-hour work day or five days a week as assumed under the Workplace Exposure Standards and this creates some uncertainty on the applicability of this standard to the assessment. The Panel notes Ms Simpson’s explanation of the physical emissions pathway from the point of discharge and her conclusion that there will be “no appreciable” impact on air quality on the IMV vessel but also that this conclusion only relates to emissions from the IMV, not cumulative emissions from other operational vessels potentially operating nearby. Dr Kelly also did not assess impacts on workers on other operational vessels.

1625. The Panel notes that Dr Kelly’s assessment was conducted in 2014 and we have been provided with insufficient information about how operational assumptions made by Dr Kelly compare to those of the current application. This represents, in our opinion, a substantial gap in the information and assessment before us and we therefore find that the applicant has not provided the Panel with the best available information on the potential human health impacts on workers on operational vessels.

1626. Given the uncertainty from the inconsistency between the assumption on work patterns of the Workplace Exposure Standards and the planned operation of the IMV, the omission of emissions from other operational vessels in the assessment and the lack of an assessment of risk to people working on the FSO, the Panel is not satisfied that people working on operational vessels are not exposed to SO₂ at levels that pose a risk to human health.

⁷⁸¹ Evidence of Dr F. Kelly for TTRL dated 15 February 2014 at [38].

⁷⁸² Evidence of Dr F. Kelly for TTRL dated 15 February 2014 at [37].

PART VI OTHER CONSIDERATIONS RELEVANT TO THE DECISION-MAKING CRITERIA

23 Protection of biological diversity and integrity of marine species, ecosystems and processes

1627. Section 59(2)(d) of the EEZ Act requires the Panel to take into account the importance of protecting the biological diversity and integrity of marine species, ecosystems, and processes. Biological diversity is defined (in the RMA) as the variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems. This provision is intended (in part) to give effect to New Zealand's obligations under the Convention on Biological Diversity and goes to the weight to be attributed to this consideration at the EEZ Act stage of the Panel's assessment, consistently with the purpose in s 10 of protecting the environment. This consideration is distinct from s 59(2)(e) (rare and vulnerable ecosystems and threatened species), which is addressed separately.
1628. In this section the Panel draws together its findings on primary productivity, benthic habitats and species, fish, marine mammals, and seabirds.

23.1 Primary productivity

1629. The mining-derived sediment plume is predicted to cause reductions in water column light and primary productivity at varying intensity across the suspended sediment plume. The Panel identified uncertainties in the applicant's assessment of primary production effects, largely arising from the reliance on the 2015 sediment and optical modelling.
1630. The Panel accepts that mesopelagics (zooplankton, krill, small fish) are unlikely to be substantially affected because they are widely distributed, mobile, and feed in the water column. At the scale of the wider STB, effects on primary productivity are likely to be within inter-annual variability. However, at a local scale around the mining site and at downstream sensitive areas such as The Crack and Graham Bank, the Panel considers that impacts on benthic primary productivity of macroalgae are probable. The impacts are likely to persist for the duration of mining and for a period of time following the cessation of mining and of a magnitude capable of affecting the composition and functioning of rocky reef flora and thus causing material harm. Cumulatively with direct sediment impacts on rocky reefs, this effect is found to be significantly adverse within the CMA.
1631. These changes reduce the energy available to benthic and pelagic food webs in parts of the system and therefore affect the integrity of ecosystem processes, even if regional-scale productivity remains within natural ranges.

23.2 Benthic habitats and communities

1632. The Panel has found that within the active mining blocks the activity would result in effectively a 100% loss of benthic fauna, with complete removal of soft-sediment habitat to depths of up to 11 m and extreme effects in and immediately around the excavation and deposition lanes. Benthic invertebrates in soft-sediment habitats within and close (two to three km) to the mining area are expected to be killed, buried, smothered, or overcome by high suspended sediment concentrations, with recolonisation beginning within weeks to months of cessation of mining.
1633. The Panel accepts that most macroinfaunal abundance, biomass and species richness will recover within a few years; however, we have found that the post-recovery benthic community composition and structure will most likely be substantially different from what it is now, particularly for *Euchone* wormfields and seabed stability.
1634. The Panel considers that the ecological significance of a changed post-recovery soft-sediment community, including possible loss or long-term impairment of *Euchone* wormfields and associated ecological values, including as fish habitat, and sediment-stabilising functions, is uncertain but likely to be important for biological diversity and ecosystem integrity. The predicted effects on *Euchone* wormfields constitute material harm. Reduced seabed stability and increased sediment mobility from altered wormfield structure may prolong elevated suspended sediment and deposition effects beyond the consent term, extending biodiversity and process impacts in space and time.
1635. Given this uncertainty, and given that no reliable remedial or restorative methods were identified beyond avoidance or spatial exclusion, the Panel finds that section 59(2)(d) EEZ Act calls for particular caution in relation to the excavation of these soft-sediment habitats. Where that uncertainty is material, the Panel's approach is informed by the information principles in s 61 EEZ Act, including favouring caution and environmental protection.
1636. Rocky reef and biogenic habitats in the STB, including mapped sites such as the Traps, Graham Bank, Project Reef, and other mid-shelf reefs, have been found to support much higher biodiversity than surrounding sands and to function as 'islands' of complex, late-successional communities, nurseries, and taonga habitats.
1637. The Panel has found that reefs within about two to three km of the mining area would experience material harm from smothering and elevated suspended sediment, and that information on the presence, sensitivity, and recovery potential of reefs within and beyond three km of the project area is uncertain and incomplete.
1638. Significant adverse effects on reef structures within the CMA are, when all evidence before us is weighed, probable. Further and given the information that is before us, we find that such effects cannot be avoided, remedied or mitigated. Given their high ecological value and vulnerability, and the lack of demonstrated ability to avoid or

remedy such harm once it occurs, the Panel places substantial weight on protecting rocky reef biodiversity and integrity under section 59(2)(d).

23.3 Fish, marine mammals and seabirds

1639. The Panel has found that the project presents credible risks of adverse local effects on fish distribution and habitat function, particularly at sensitive reef and nursery habitats and for benthic feeders with high site fidelity that are resident within the mining site and the area affected by the suspended sediment plume.
1640. The project also risks adverse effects on fish distribution from underwater noise through avoidance and redistribution. The magnitude, duration, and spatial extent of these effects remain uncertain.
1641. The Panel has found that the applicant has not demonstrated that the current conditions framework is sufficient to ensure that these effects will be avoided or reduced to a level that protects fish from material harm. At the scale of the STB, fish biodiversity is likely to be maintained, but near and downstream of the mining area there would be changes in the distribution and relative abundance of species. Potential shifts would be towards more sediment-tolerant assemblages and reduced use of some rocky reef and soft-sediment habitats over the 20 year operational period. The Panel considers that these changes, in combination with the habitat and productivity effects discussed above, amount to a sustained reduction in the diversity and integrity of fish communities in parts of the STB, albeit without evidence of regional-scale population impact.
1642. For marine mammals, the Panel has accepted that noise at or above relevant behavioural thresholds will extend for some distance around the mining operation and may, at times, overlap with parts of Māui and Hector's dolphin, blue whale and Southern right whale habitat, although only a small proportion of each species' wider habitat will be affected at any one time. However, the Panel has found that there is substantial uncertainty about the full underwater noise footprint of the project, the adequacy of baseline and impact information, and the effectiveness of proposed noise limits and response actions, particularly for sensitive high-frequency specialists such as Māui dolphins.
1643. Given the very small Māui dolphin population, the difficulty of reliably detecting animals at sea, and expert evidence and agreement that any additional population level impact on Māui dolphins would be unsustainable, the Panel considers that it cannot be satisfied, on the information before it, that adverse effects on Māui dolphins will be avoided or reduced to a non-material level. In other words, we find that material harm will likely occur within the EEZ and that there is a credible risk of significantly adverse effects on Māui dolphins within the CMA. No measures are available to avoid, remedy or mitigate these effects. In terms of section 59(2)(d) EEZ Act, the importance of protecting the biological diversity and integrity of marine mammals therefore weighs heavily against accepting residual risk to Māui dolphins.

1644. The Panel considers that for other marine mammal and fish species, while species-level diversity is unlikely to be reduced at the scale of the STB, the integrity of some predator–prey relationships and the undisturbed use of habitats will be diminished within the zone of influence of noise and plume effects.
1645. In relation to seabirds, the Panel has found that for most species there are likely to be few effects on populations, though there may be localised and temporary effects where reduced water clarity and altered fish behaviour affect birds that rely on visual foraging.
1646. For kororā/little penguin, the Panel has found that the assumption of limited offshore use is not supported by tracking and observational data, that kororā/little penguin are likely to overlap spatially with the sediment plume and mining area during at least part of the year, and that the absence of mapped colonies along the south Taranaki–Whanganui coast reflects limited survey effort rather than evidence of absence.
1647. The Panel has also found that, given the threatened status and cultural significance of kororā/little penguin, the lack of data on population size, trends and vulnerability to reduced food supply means the information before it is uncertain and inadequate, and that there is a credible prospect the project will cause material harm to kororā/little penguin. No information has been presented to suggest that these effects can be avoided, remedied or mitigated.
1648. Similar concerns arise for fairy prion that rely on visual foraging and are vulnerable to artificial lighting at sea, with a credible prospect of material harm to fairy prion from the Takapourewa Stephens Island colony.
1649. Given uncertainties and available expert evidence, the Panel is not satisfied that the impacts on other seabird species that rely on visual foraging, reef-associated prey or are vulnerable to lighting at sea will be at a non-material level.
1650. In that context, and given the Panel's finding that the applicant has not demonstrated that the proposed conditions are suitable and sufficient to prevent material harm to threatened seabirds, the Panel considers that, under section 59(2)(d), the importance of protecting seabird biological diversity and integrity weighs strongly against accepting the residual risk to kororā/little penguin, fairy prion and other vulnerable seabird species.

23.4 Overall evaluation under section 59(2)(d)

1651. Taking these matters together, the Panel finds that allowing the activity would result in:
- a. complete removal of benthic communities within the mining footprint, followed by recovery to altered community states of uncertain ecological function, particularly in relation to *Euchone* wormfields and sediment-stabilising habitats,

with associated uncertainty about long-term seabed stability and sediment mobility;

- b. local to sub-regional reductions in benthic primary productivity and energy supply to benthic food webs at sensitive downstream sites such as Graham Bank and The Crack, at magnitudes likely to affect the composition and functioning of rocky reef flora for the duration of mining;
- c. material harm to rocky reef and biogenic habitats within two to three km of the mining area, and significant adverse effects on downstream sensitive reefs in the CMA such as The Crack and Graham Bank. We also find that there is very little reliable information on how rocky reef communities in the STB would recover if they are adversely affected and no reliable remedial measures beyond avoidance or spatial exclusion;
- d. sustained changes, over the 20 year operational period, in the distribution and relative abundance of fish species and in predator–prey relationships for parts of the STB, including reduced use of some rocky reef and soft-sediment habitats, even if regional-scale fish species richness is maintained;
- e. substantial uncertainty about the full underwater noise footprint and the effectiveness of proposed consent limits and responses for sensitive high-frequency marine mammals, particularly Māui dolphins, such that material harm will likely occur within the EEZ and a credible risk of significantly adverse effects on Māui dolphins within the CMA arises; and
- f. a credible prospect of material harm to threatened seabirds, especially kororā/little penguin and fairy prion, given likely spatial overlap with the plume and project lighting, inadequate information on populations and vulnerability, and the absence of a conditions framework shown to be sufficient to prevent material harm to these species.

1652. Having regard to the statutory direction to take into account the importance of protecting the biological diversity and integrity of marine species, ecosystems, and processes, and to the obligation in s 61 EEZ Act to favour caution and environmental protection where information is uncertain or inadequate, the Panel places emphasis on safeguarding benthic and reef ecosystems and vulnerable marine mammal and seabird species in the STB.

1653. On the evidence before it, the Panel is not satisfied that the project, even with the proposed management and monitoring regime, gives appropriate effect to the importance of protecting the biological diversity and integrity of marine species, ecosystems and processes when assessed under s 59(2)(d), particularly in light of the material uncertainties identified. These conclusions are carried forward into the Panel's overall weighting exercise under cl 6 of Sch 10 FTAA.

24 Protection of rare and vulnerable ecosystems and the habitats of threatened species

1654. Section 59(2)(e) builds on the matters under 59(2)(d) by requiring the Panel to take into account the importance of protecting rare and vulnerable ecosystems and the habitats of threatened species. In this section the Panel draws together its findings on rare and vulnerable ecosystems and on the habitats of threatened species using the STB.
1655. As we previously recorded, threatened species is defined in s 4(1) EEZ Act to include any species that falls within the definition of threatened species in s 2(1) of the Biosecurity Act 1993 or is declared to be a threatened species or an at-risk species by the Minister of Conservation under s 19 EEZ Act. The two documents listing marine mammal species and their relevant threat statuses under these legislations are the IUCN Red List and the Minister of Conservation's Declaration Notice dated 11 July 2013.
1656. The applicant based its identification of threatened species on the IUCN Red List and the NZTCS. The Panel accepts that the NZTCS, while not determinative of 'threatened species' under the EEZ Act, is ecologically informative for understanding risk to marine mammals, seabirds and fish.

24.1 Rare and vulnerable ecosystems

1657. The Panel has found that the STB contains several ecosystem types that are rare or vulnerable in a New Zealand context, notably:
- a. *Euchone* wormfields on Pātea Shoals;
 - b. biogenic shell and bryozoan rubble habitats beyond about 45–50 m depth; and
 - c. rocky reef systems on Pātea Bank and elsewhere in the STB, including but not limited to the Traps, Graham Bank, Project Reef and other mid-shelf and inshore reefs.
1658. For *Euchone* wormfields, the Panel has found that while soft-sediment habitat is likely to be recolonised within a few years, recovery of the wormfield community and its habitat and sediment-stabilising function is highly uncertain and may not occur, with a credible prospect of a long-term shift to an alternative, less stable state. Material harm is expected as a result of mining. Aside from the impacted seabed's natural rehabilitation, there are no credible means by which to avoid, remedy or mitigate this impact were mining to proceed.
1659. The Panel accepts that the biogenic shell and bryozoan rubble habitats lie largely outside the project area, and that offshore bryozoan beds would only be impacted occasionally by the mining-derived plume and not at levels that would cause adverse effects.

1660. The Panel notes, however, that it is possible that this habitat lies in the path of potential flow liquefaction and runout that, were it to occur, would be expected to be triggered by storm and seismic events. Given the significant uncertainties on the risk of flow liquefaction impact, the Panel considers that impacts on biogenic shell and bryozoan rubble habitats beyond about 45–50 m depth is a risk of low probability but high impact. Material harm would undoubtedly arise and the risk of flow liquefaction may persist over timescales extending well beyond the duration of any marine consent that we can grant for the project. There is no means available to avoid, remedy or mitigate this impact, other than not allowing the mining to proceed.
1661. For rocky reefs, the Panel has found that these ecosystems are naturally patchy, spatially limited, and, because of their unusual distance offshore on a wide, shallow shelf, are considered relatively unique and worthy of careful management in the New Zealand context. Reefs within two to three km of the mining area would experience material harm from smothering and elevated suspended sediment. We find that while no reefs have yet been mapped in this zone, potential rocky reef habitat has been identified and, given the limited survey effort, there is a credible prospect that rocky reefs are present.
1662. Other reefs, including mid-shelf reefs downstream of the plume and inshore reefs within the broader STB, are equally rare and vulnerable ecosystems in terms of their ecological role, sensitivity to chronic sediment and light-reduction stress, and limited capacity for rapid recovery once materially degraded. The Panel has found that baseline mapping, location-specific assessments and recovery information for these reef systems are incomplete and that no practical measures have been identified that could reliably support recovery or restore them once materially harmed, other than cessation of mining. Significant adverse effects on some of these reefs is expected were the mining to proceed.
1663. Given the combination of rarity, ecological importance, demonstrated vulnerability to the mining stressors, and lack of proven recovery pathways, the Panel considers that these ecosystems fall squarely within the ‘rare and vulnerable’ category contemplated by section 59(2)(e), and that their protection must be given substantial weight.

24.2 Habitats of threatened marine mammals

1664. The Panel has identified pygmy blue whale, southern right whale, Māui dolphin, Hector’s dolphin, humpback whale, fin and sei whales as threatened species using the STB and thus potentially affected by the project. The wider STB is recognised as an important hotspot for marine mammal diversity and as a foraging area for blue whales and a migratory and coastal habitat for several other threatened species, even though the immediate project area is not mapped as a key habitat for any species.
1665. For Māui dolphins, the Panel accepts that the very small population size means that any additional population level impact would be unsustainable. The Panel has also

found substantial uncertainty around the full underwater noise footprint and the adequacy of baseline information and proposed controls. Given the possibility of occasional use of the area and the high sensitivity of Māui dolphins to high-frequency noise and cumulative disturbance, the Panel is not satisfied that adverse effects on Māui dolphin habitat from underwater noise would be avoided or reduced. Consequently, material harm to Māui dolphins is a probable impact of the mining activity and significant adverse effects are likely in the CMA.

1666. For southern right whale, blue whale and other threatened baleen whales, there is uncertainty on their use of the STB, including the potential overlap between the area predicted to be affected by underwater noise and suspended sediment, with their foraging or migratory habitats. There is also uncertainty about cumulative disturbance over the 20 year period, although population-level habitat loss is unlikely at the STB scale. The Panel cannot determine with any confidence the effectiveness of the proposed effect mitigation and management approach in protecting threatened marine mammals from material harm.
1667. Having regard to section 59(2)(e), the Panel considers that the importance of protecting the habitats of these threatened marine mammal species, particularly Māui dolphins and blue whales, deserves emphasis.

24.3 Habitats of threatened seabirds

1668. The STB supports or is used by multiple threatened seabird taxa, including Antipodean albatross, Gibson's albatross, Salvin's albatross, black-fronted tern, Caspian tern, Hutton's shearwater, Spotted shag and several other species. Information on at-sea distribution and habitat use in the project area is limited. For most of these species, the Panel has concluded that population-level effects are unlikely at the scale of the STB, given wide foraging ranges and the availability of alternative habitat.
1669. However, for kororā/little penguin and fairy prion, the Panel has found that the project poses a more acute risk to habitat used by threatened species. For kororā/little penguin, the Panel has found that the assumption of limited offshore use is not supported by tracking and observational data. Kororā/little penguin are likely to overlap spatially with the sediment plume and mining area during at least part of the year and the absence of mapped colonies along the south Taranaki–Whanganui coast reflects limited survey effort rather than evidence of absence. For both kororā/little penguin and fairy prion, the Panel has found that their foraging habitats are likely to be affected by changes in water clarity, prey distribution and artificial lighting, that data on population size and trends are inadequate, and that the project is expected to materially harm the habitats of these species in the EEZ and significantly adversely affect some habitats within the CMA.
1670. In light of these findings, and the conclusion that there are no measures to avoid, remedy or mitigate these effects to the point that material harm and significant adverse effects will not arise, the Panel considers that section 59(2)(e) strongly favours protection of kororā/little penguin and fairy prion habitats.

24.4 Habitats of threatened fish and benthic species

1671. The Panel has considered whether any fish or benthic species using the project area or downstream habitats are ‘threatened species’ for EEZ Act purposes. The evidence indicates that while the STB supports a diverse fish assemblage and benthic fauna, including some taonga and commercially important species, none of the commonly occurring fish in the project area are categorised as threatened under the EEZ Act definition. No benthic species were identified as being threatened.

24.5 Overall findings under section 59(2)(e)

1672. Overall, the Panel finds that the project would cause rare and vulnerable ecosystems, specifically *Euchone* wormfields, rocky reef and biogenic habitats, and the habitats of threatened species, notably Māui dolphins, blue whales, kororā/little penguin and fairy prion, to be materially harmed and, within the CMA, significantly adversely affected, including in circumstances where recovery is uncertain and effective avoidance, remedial and mitigation measures are not available.
1673. Given the explicit statutory direction to take into account the importance of protecting those ecosystems and habitats, and the obligations in s 61 to favour caution and environmental protection where information is uncertain or inadequate, the Panel places emphasis on safeguarding these rare and vulnerable ecosystems and the habitats of threatened species and carries these findings forward into the Panel’s overall weighting exercise under cl 6 of Sch 10 FTAA.

25 Economic benefit to New Zealand of allowing the application

1674. Section 29(2)(f) of the EEZ Act requires the Panel to consider the economic benefit to New Zealand of allowing the application. This is addressed in section 5.

26 Efficient use and development of natural resources

1675. Section 59(2)(g) of the EEZ Act requires the Panel to take into account the efficient use and development of natural resources. Natural resources include the iron sands resource itself; the Kupe petroleum permit area (and the oil and gas resources therein); existing commercial, recreational and customary fishing activity and associated fisheries resources, and the use and occupation of the marine area. The Panel addresses effects on fishing (customary, recreational and commercial) and the Treaty settlement/MACA Act context in sections 7.2-7.5.
1676. The application states that TTRL has assessed the feasibility of iron sand extraction in the STB and it is a world-class natural resource of iron ore, vanadium and titanium that can be extracted in an efficient manner. The grade control drilling enables targeting of seabed material containing VTM deposits. The application further states that there is projected long-term international demand for iron ore, vanadium and titanium, and in the absence of the project the inferred mineral resource of 3.2 billion

tonnes will be unutilised. The applicant therefore considers that the project will place New Zealand as a significant global producer, and potentially the third-largest vanadium producer in the world (and the largest in the western world).⁷⁸³ The application concludes that the project provides for the efficient use and development of natural resources.⁷⁸⁴

1677. South Taranaki District Council submitted that the potential for offshore wind energy generation in or near the project area can be taken into account via section 59(2)(g) of the EEZ Act. EDS submitted that foregoing offshore wind in preference of TTRL's project represents a significant opportunity cost. The legal submissions from Taranaki Offshore Partnership considered s 59(2)(g) requires the Panel to consider whether enabling the project now would preclude more efficient development in the future.⁷⁸⁵ It states that TTRL has failed to consider how the Project will impact the use and development of other natural resources within the STB, such as offshore wind, and the opportunity cost that may result if the mining consents are approved.⁷⁸⁶
1678. In the economic Joint Witness Statement, several experts considered that there was a temporal component to the opportunity costs attached to the ore itself whereby future technologies will be able to extract higher values for the vanadium and titanium, at a lower cost of extraction and with a lower environmental impact. They inferred that delaying extraction of the VTM resource to a future time would result in a more efficient use of the resource that achieved a greater benefit to New Zealand.⁷⁸⁷
1679. The applicant responded that Section 59(2)(g) of the EEZ Act does not require the Panel to consider whether enabling the project would preclude more efficient development in the future. The applicant submitted that there is no authority supporting that interpretation of s 59(2)(g).⁷⁸⁸
1680. With respect to s 59(2)(g), the Panel notes that similar language appears in s 7(b) of the RMA, which requires decision-makers to have particular regard to the efficient use and development of natural and physical resources. Environment Court approaches to s 7(b) have not been uniform, but a consistent theme is that the section is concerned with avoiding wastefulness. In *Meridian Energy Ltd v Central Otago District Council*⁷⁸⁹ the High Court held that s 7(b) does not require:
 - a. an assessment of alternatives (given the RMA specifies when alternatives are required).

⁷⁸³ The Panel interprets 'producer' of vanadium as 'supplier' of a vanadium rich raw material that requires further processing to extract the vanadium.

⁷⁸⁴ Application dated 15 April 2025 at section 8.3.5.

⁷⁸⁵ Legal submissions on behalf of Taranaki Offshore Partnership dated 6 October 2025 at [164]

⁷⁸⁶ Legal submissions on behalf of Taranaki Offshore Partnership dated 6 October 2025 at [79]

⁷⁸⁷ Joint Statement of Expert Witnesses – Economics dated 19 November 2025 at [55].

⁷⁸⁸ Legal submissions on behalf of TTRL dated 13 October 2025 at [160].

⁷⁸⁹ *Meridian Energy Ltd v Central Otago District Council* [2010] ELHNZ 368.

- b. a quantitative cost benefit analysis. This is because the values at issue in resource management processes are often not easily quantifiable, and because s 7 is not intended to play such a dominant role in decision making.
 - c. an applicant to demonstrate their proposed use is the 'best' use of a given resource, or would generate the "greatest benefit that could be achieved from those resources or whether greater benefits could be achieved by utilising resources of lower value or a different set of resources."
1681. Like the RMA, the EEZ Act includes provisions that expressly require consideration of alternatives and s 59(2)(g) is not one of them. The *TTRL* High Court judgment referred to the Meridian findings about the need for a cost benefit analysis in reaching its view on the type of economic assessment required under s 59(2)(f). The Panel therefore does not treat s 59(2)(g) as requiring an alternatives or opportunity cost assessment of hypothetical future uses of the site (including offshore wind). However, to the extent evidence of competing uses bears on efficient use and development in the circumstances of this application, the Panel has considered that evidence.

26.1 Findings

1682. In terms of the efficient use and development of the VTM ore resource present in the seabed of the STB, the Panel finds that the extraction process proposed by the applicant is efficient and not wasteful. The applicant has identified the broad scale and location of the resource and the proposed grade control drilling will refine the appropriate depths of sediment extraction so that the crawler only targets the sediments where the resource is concentrated (and up to a maximum 11 m depth), albeit that the VTM concentrate is only expected to account for 10% (on average) of the total sediment extracted each year.
1683. The onboard processing of the extracted sediment, as described, is also expected to efficiently extract the magnetic ore to avoid losses of the resource when the material is returned to the seabed. In-situ extraction, processing and discharge of de-ored sediments (including transfer to a CEV at sea) all serve to minimise transport of the resource, which we consider efficient.
1684. Based on the conditions (particularly Conditions 99 and 100) and management plans proposed by the applicant with respect to existing and potential future operations of the Kupe petroleum mining licence area (#38146), we consider that the project will not impact oil and gas resources in the STB, or materially impact access to that natural resource over the long-term. However, as discussed earlier, the project may reduce the efficient use and development of that oil and gas resource over the long-term due to changes in the density and stability of the mining tailings within some parts of the Kupe petroleum mining licence area (refer our findings in sections 7.6, 8 and 16).
1685. For the reasons we have set out in our discussion of the project's recreational and tourism effects, the Panel is satisfied that the while the mining will impact the use of

what is a regionally significant setting, those impacts are not sufficient for it to result in an inefficient use of the recreational and tourism fishery. This stems from the relatively confined nature of the activity in the context of what is a broad area that can be used for recreational and tourism on any given day.

1686. Commercial and customary fishing activity is also a relevant use of the EEZ space and associated fisheries resources for the purposes of s 59(2)(g). The applicant submits that recorded commercial activity within the project footprint and within the higher-percentile SSC footprint is low, and that displacement would therefore be limited.
1687. However, the evidence indicates that fishing effort and value may be concentrated in specific locations and not readily substitutable at the scale of discrete grounds and reef features. In that context, while stock-scale sustainability effects are not expected by the applicant, the project may still impose costs on fishing activity through exclusion or displacement, increased steaming time, altered gear deployment, and increased operational uncertainty. Those effects are likely to fall unevenly across existing commercial operators and customary users.
1688. The evidence provided by the Ministry for Primary Industries/Fisheries New Zealand also indicates that fisheries datasets are aggregated and do not reliably resolve fine-scale patterns of use and that customary take is not comprehensively or consistently recorded in those datasets. The Panel has therefore treated the absence of recorded activity as non-determinative when assessing efficient use at the scale of discrete fishing grounds.
1689. Taken together, we find that the project does not support the efficient use and development of commercial and customary fisheries at the relevant spatial scales.
1690. With respect to efficient use of space in the marine environment, the Panel finds that the space occupied by the proposed activities at any one time is likely to be an area extending approximately one nautical mile around the IMV. This exclusive use (protected through an exclusion zone proposed by TTRL) represents a very minor share of the wider STB and has been found to have an acceptable impact on marine traffic, recreational boating and navigation. We therefore find that the activity does not represent an inefficient use of common space in the STB.
1691. Overall, the Panel finds that determining whether the application represents efficient use and development of resources is a matter of context. For the reasons set out, the Panel is satisfied that the project is efficient, or does not prevent the efficient use of resources when considered in the context of the use of the iron sand resource, its interaction with the assets of the oil and gas interests already present within the STB and in terms of the recreation and tourism fishery of occupation of common space.
1692. However, the Panel is not satisfied that the evidence establishes that the project would avoid materially reducing the efficient use and development of oil and gas resources in the Kupe petroleum mining licence area over the long-term or commercial and customary fishing activity at the relevant spatial scale.

27 The nature and effect of other marine management regimes

1693. Section 59(2)(h) of the EEZ Act requires the Panel to take into account the nature and effect of other marine management regimes. ‘Marine management regime’ is defined as including the regulations, rules, and policies made and the functions, duties and powers conferred under an Act that applies to the territorial sea, exclusive economic zone and/or continental shelf, including those established under the statutes listed in s 7 EEZ Act.⁷⁹⁰
1694. The Panel is required to consider “the key features of the other management regimes and how they would apply if the activity were being pursued under those regimes”.⁷⁹¹ The Supreme Court said that this includes consideration of, in relation to the CMA:⁷⁹²
- a. the objectives of the RMA and NZCPS and the outcomes sought to be achieved by those instruments, in the area affected by the application;
 - b. whether the application would produce effects within the CMA that are inconsistent with the outcomes sought to be achieved by those regimes; and
 - c. whether there are relevant environmental bottom lines under the NZCPS that the effects of the application (within the CMA) would be inconsistent with.⁷⁹³ The majority held that NZCPS bottom lines could not be outweighed by other s 59 considerations. Panel members agreed with this approach.⁷⁹⁴
1695. The applicant emphasised that the FTAA does not provide for ‘environmental bottom lines’. It said that elements of the Supreme Court’s decision that refer to NZCPS provisions as bottom lines are not relevant to the present application, because the FTAA framework makes clear that none of the decision-making criteria from the EEZ Act may operate as a bottom line in the context of a substantive application under the FTAA, which limits both s 10(1)(b) EEZ Act and any provisions of another marine management regime.⁷⁹⁵
1696. The Panel accepts that the FTAA does not provide for the NZCPS to operate as a bottom line, but considers that the nature of environmental bottom lines under the RMA’s marine management regime is a matter to be factored into the Panel’s

⁷⁹⁰ Section 7 EEZ Act.

⁷⁹¹ *Trans-Tasman Resources* (SC) at [181]

⁷⁹² *Trans-Tasman Resources* (SC) at [181] per William Young and Ellen France JJ, with other members agreeing at [10].

⁷⁹³ *Trans-Tasman Resources* (SC) at [187] per William Young and Ellen France JJ.

⁷⁹⁴ *TTR* at [10], [280] per Glazebrook J, [298] per Williams J and [331] per Winkelmann CJ.

⁷⁹⁵ Application page 320, also addressed in the Applicant’s response to comments (Legal Submissions) at 45 and in the Applicant’s legal submissions for the Legal Issues Hearing at 58.

analysis when taking s 59(2)(h) into account, with the outcome of that analysis then being weighed in the manner directed by the FTAA.⁷⁹⁶

1697. The Panel is also conscious that the Supreme Court in *Trans-Tasman Resources* referred to ‘environmental bottom lines’ with reference to that Court’s earlier decision in *King Salmon*, but that the Supreme Court has since adopted a slightly more nuanced approach to the NZCPS and its application to planning and consent decisions. In *Port Otago* the Court recognised that where there is more than one directive policy a ‘structured analysis’ is required, in which an environmental bottom line may not prevail.⁷⁹⁷ In *Royal Forest and Bird Protection Society of New Zealand Inc v NZTA* (the East West Link decision), the Court found that there are directive policies in the NZCPS which are “very specific as to subject matter and concrete as to intended effect.”⁷⁹⁸ For example, the Court referred to NZCPS Policy 22(2): “require that... development will not result in a significant increase in sedimentation in the coastal marine area.”⁷⁹⁹ The Supreme Court found that there is “not much wriggle room in this kind of language.”⁸⁰⁰ However, it said that Policy 11 is different:

[105] ... It is directive to be sure, in a way that Policies 6 and 10 are not. And, like Policies 13 and 15, it has “the effect of what in ordinary speech would be a rule”. But its subject matter (biodiversity in indigenous ecosystems, habitats and taxa) is set at a high level of generality and applying its thresholds (adverse or significant adverse effects) to particular cases may involve fine judgments. In other words, while Policy 11 is designed to avoid adverse effects, it is not intended to produce perverse outcomes in pursuit of that high level purpose. Rather, its broad terms mean it does—indeed, must—leave room for deserving exceptions, even if, in almost all cases, its effect is clearly “not allow” or “prevent the occurrence of”. These exceptions are necessary for the broad language of the policy to work as intended in the innumerable places and circumstances to which it must be applied, and without producing outcomes plainly at odds with Part 2. The residual discretion is simply a mechanism to ensure that the policies are applied in accordance with the purpose of the RMA.

1698. In considering the nature of the NZCPS as part of marine management regimes, the Panel has adopted that nuanced approach.
1699. Some aspects of the approach taken by the 2017 Decision Making Committee also remain relevant when assessing marine management regimes. The Decision Making Committee considered how other marine management regimes regulated effects from the proposed mining project, and whether conditions imposed by the Decision Making Committee would duplicate requirements in the marine management regimes.⁸⁰¹ It also considered how marine management regimes regulated existing interests, such as fisheries, and whether that was relevant to the management of effects and the imposition of consent conditions on the proposed mining project.⁸⁰² The Decision Making Committee only imposed conditions where

⁷⁹⁶ The relevance of ‘environmental bottom lines’ to the s 85(3) assessment is addressed below in relation to s 85(3)

⁷⁹⁷ *Port Otago Ltd v Environmental Defence Society Inc* [2023] NZSC 112, [2023] 1 NZLR 205 at [81].

⁷⁹⁸ At [103], referring to Policies 19(3), 21(d), 22(2), 23(2)(a) and 29

⁷⁹⁹ At [103(c)]

⁸⁰⁰ At [104] per Williams J

⁸⁰¹ At [1005]

⁸⁰² At [1005]

necessary and where there would be no conflict with other regimes.⁸⁰³ The last point is a requirement of s 63(4) EEZ Act, which provides that the Panel may not impose a condition to deal with an effect if the condition would conflict with a measure required in relation to the activity by another marine management regime or the Health and Safety at Work Act 2015.

27.1 Resource Management Act 1991

Part 2

1700. Section 104(1) of the RMA states that when considering a resource consent application and any submissions received to the same, the consent authority must, *subject to Part 2*, have regard to a number of matters. The phrase ‘subject to Part 2’ has been the focus of considerable scrutiny. For many years, ‘subject to Part 2’ was used to justify an assessment of a proposal against the Purpose and Principles of the Act, which are all contained within Part 2 of the RMA. In more recent times, some have questioned whether this is warranted given that planning instruments have been prepared to give effect to Part 2 of this Act. In this regard, the argument is, in very simplistic terms, that as the planning instruments must give effect to Part 2 of the RMA, a proposal that accords with the planning instruments also must accord with Part 2 (and vice versa).
1701. The Court of Appeal went some way to resolving this point of contention when it released its decision on the case entitled *RJ Davidson Family Trust v Marlborough District Council* [2018] NZCA 316 [2018] 3 NZLR 283. In this respect the Court of Appeal determined that recourse to Part 2 of the RMA can be appropriate in some circumstances. Two circumstances listed by the Court of appeal are:
- a. if higher order policies are equivocal and it is unclear from them whether resource consent should be granted or declined; or
 - b. if the relevant plan (in this case the Regional Coastal Plan and Taranaki Regional Policy Statement) has not been competently prepared in accordance with Part 2 or if there is doubt about that.
1702. The Panel does not question the competency of those who prepared the NZCPS (or the subservient regional planning instruments that give effect to the NZCPS) and the Panel is satisfied that it was prepared in accordance with Part 2.
1703. We have not found the provisions of the NZCPS to be equivocal. Indeed, the relevant objectives and policies of the NZCPS have provided clear direction as to whether the marine consents sought by the applicant accord with the outcomes that the New Zealand Government sought when it drafted and then amended this statutory planning instrument.
1704. Given the foregoing, the Panel is satisfied that the provisions of the NZCPS have been prepared having regard to Part 2 and provide a coherent set of objectives and

⁸⁰³ At [1003]

policies to achieve the environmental outcomes sought. We have, however and for completeness, considered Part 2 of the Act. We summarise the Panel's finding in the following paragraphs.

Section 6

1705. Section 6 of the Act lists the matters of national importance that consent authorities shall 'recognise and provide for' when considering resource consent applications:

6 Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

- (a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:
- (b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:
- (c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:
- (d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:
- (e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:
- (f) the protection of historic heritage from inappropriate subdivision, use, and development:
- (g) the protection of protected customary rights:
- (h) the management of significant risks from natural hazards.

1706. A number of the matters of national importance listed in s 6 are relevant to the project. The Panel's assessment of the project against them is summarised below.

1707. As is noted in our discussion of Policy 13 of the NZCPS, the project will impact on the level of natural character that exists within and adjacent to the project area. The Panel found that the magnitude of the adverse effects projected are inconsistent with the directive thresholds set in the NZCPS. When considered in this light, the Panel find that the project will be inappropriate to its environs and is thus something that needs to be protected against in the context of s 6(a).

1708. While the project area does not form part of an outstanding natural feature or outstanding natural landscape, it will impact on features (the North and South Traps and Project Reef) that do qualify for this level of recognition. As we note in our discussion of the NZCPS, the project's projected adverse effects on these natural features can achieve the thresholds set within the NZCPS. This leads the Panel to the conclusion that the project is appropriate and thus is not something that needs to be protected against in the context of s 6(b) of the RMA.

1709. Section 6(c) does not contain an 'inappropriateness' consideration. As a consequence, the threshold that we must consider is whether the significant indigenous vegetation and significant habitats of indigenous fauna can be protected if the project is allowed to proceed. The weight of the expert evidence before us is

that neither significant indigenous flora or significant habitats of indigenous fauna exist within the project area. Some, however, are located in very close proximity. The Panel has found that the project will impact on a number of significant habitats and some species that are deemed to be significant in a manner that exceeds the thresholds established by the NZCPS. This leads the Panel to the consequential conclusion that the project offends s 6(c) of the RMA.

1710. The project will progressively occupy areas of the EEZ that are currently unoccupied. Given the information that is before the Panel, we understand that only monitoring buoys will physically occupy the CMA. Notably, however, those aspects of the project do not form part of the project that has been applied for. Consequently, they are not matters that we can consider. The evidence before the Panel, however, is that impacts arising from the occupation of the EEZ by the proposed mining activity can be mitigated; albeit with some risks to some of the existing oil and gas interests (which, as the Panel has found, can be managed via the conditions and management plans proposed by the applicant) and with recreation users avoiding the area that is being actively mined. Ultimately, the Panel is satisfied that this level of effect can occur, and that access can still be maintained in accordance with section 6(d) of the RMA.
1711. We are not persuaded by the applicant that the project can proceed in a manner that will both recognise and provide for the relationship that tangata whenua have with the project area and the surrounding environs. In this regard, and for the reasons we discuss in our assessment of the NZCPS, the Panel does not consider the conditions proposed by the applicant to be sufficient. Further, the Panel has found that it is unable to impose additional or improved conditions to address this limitation. We are also not satisfied that the project is appropriate in the context of the historic heritage of the STB and the project area. These outcomes do not accord with the outcomes that are sought by s 6(e) and 6(f).
1712. The Panel understands that no protected customary rights orders apply to the project area or the impacted environs within the CMA and thus find that s 6(g) is not relevant to the project.
1713. The Panel has found that a number of hydrology and coastal geomorphology effects will arise as a consequence of the project. We have also found that there is a level of uncertainty as to some of the changes that could occur. When considered in the round, however, it seems improbable to us that these impacts will have a significant impact on the level of natural hazard risk. As a consequence, the Panel finds that no management regimes need to be imposed for the project to respond to s 6(h) of the RMA.

Section 7

1714. Section 7 of the Act lists the matters that consent authorities shall 'have particular regard to' when considering resource consent applications.

DRAFT DECISION

7 Other matters

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

- (a) kaitiakitanga:
- (aa) the ethic of stewardship:
- (b) the efficient use and development of natural and physical resources:
- (ba) the efficiency of the end use of energy:
- (c) the maintenance and enhancement of amenity values:
- (d) intrinsic values of ecosystems:
- (f) maintenance and enhancement of the quality of the environment:
- (g) any finite characteristics of natural and physical resources:
- (h) the protection of the habitat of trout and salmon:
- (i) the effects of climate change:
- (j) the benefits to be derived from the use and development of renewable energy.

1715. Of the eleven matters, s 7(a), 7(aa), 7(b), 7(c), 7(d), 7(f) and 7(g) of the Act are of relevance to the project, and thus must be given particular regard in the evaluation of the project. In that regard:

- a. The Panel is satisfied that the conditions of consent can be imposed to ensure that the consent holder exercises guardianship for the environment, and but has found that it is not possible to impose conditions that enable tangata whenua to meaningfully exercise kaitiakitanga. These findings mean that we are satisfied that the project can be conditioned so as to align with s 7(aa). It can not, however, be conditioned so as to align with s 7(a) of the RMA.
- b. The Panel is satisfied that the project has been sited so as to give it a good chance of being effective, has a functional need to be in a marine location and can be constructed and operated effectively. We doubt, however, that the applicant can manage its externalities to the point where they are acceptable. We also note that we have found that the project will not represent an efficient use in relation to the commercial and customary fisheries.
- c. For the reasons we have set out, we find, however, that some of the project's impacts on the visual amenity of the project area and the surrounding environs will be substantial and to the point whereby the amenity of the impact environs will not be maintained and enhanced. The users of these environs (with the exception of those flying over it) will, however, be able to relocate so as to avoid such impacts, which we consider reduces the consequence of this change so some degree.
- d. Given the Panel's findings on the project's ecological, water quality and geomorphological impacts, we are not satisfied that the project can be developed and operated in a manner that responds appropriately to the intrinsic values of the ecosystems within and adjacent to the project area and will maintain the quality of the environment that exists. Such findings do not accord, we consider, with the outcomes sought in s 7(d) and 7(f) of the RMA.

- e. The project would, we expect, make effective use of an area of the CMA where limited conflicts with other values exist. Equally, we are satisfied that any conflict can be managed and are comfortable with the conditions of consent that the applicant has proposed in relation to such conflicts. The Panel is also satisfied that there are relatively few viable sites available to the applicant for the mining that it has proposed, although we do record, for completeness, that the applicant has mining permits that extend well outside of the project area. This constraint (being the location of the VTM resource in a relatively shallow area) contributes, in our opinion, to the finite nature of this particular natural resource. Having particular regard to this finite characteristic is aligned, in our opinion with s 7(g) of the RMA.

Section 8

1716. Section 8 of the RMA requires us to take the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) into account when considering the project. While not defined by legislation, the principles referred to by s 8 are generally understood to include: partnership; active protection; rangatiratanga; and mutual benefit. They also require good faith engagement and informed decision-making, in a manner that properly reflects tangata whenua interests in the receiving environment. The Panel has considered the project against its understanding of these principles. In that regard, the Panel finds that:

- a. While conditions can be imposed to provide opportunities for engagement between the applicant and relevant mana whenua groups (and their mandated entities), the Panel finds that such mechanisms will, in all probability, be ineffective in realising a partnership. The evidence before the Panel is that affected mana whenua oppose the project. As a consequence, while we acknowledge the applicant's efforts to establish meaningful engagement pathways, the prospect of these efforts realising a genuine and enduring relationship with tangata whenua is, in our opinion, improbable.
- b. The Panel accepts that conditions can address some effects. However, the Panel has found that it is not possible, through conditions, to achieve the level of protection required for key values and interests relied on by tangata whenua, particularly in relation to ecological functioning and fisheries/taonga species concerns. In those circumstances and given the Panel's findings on residual effects and the limits of conditions to address them, the project is inconsistent with the Treaty principle of active protection.
- c. The marine consent applications before us do not recognise and provide for the rangatiratanga and mana of the tangata whenua groups and interests in Taranaki. While attempts have been made to involve tangata whenua in the advancement of the project, they have been unsuccessful. In these circumstances and having regard to the substance of tangata whenua opposition and the Panel's inability to impose conditions that would adequately address those concerns, declining the applications is the only outcome

available to the Panel on the evidence before it that appropriately reflects the principle of rangatiratanga for the purposes of s 8.

- d. The project offers little in the way of clear or demonstrable mutual benefits to the applicant and tangata whenua. It is important for us to record that this does not reflect the attempts that the applicant has made to engage which we accept have been genuine, although ineffectual. Equally, we recognise that the applicant did express that it was hopeful that there may be employment opportunities for Māori, and that the Hāwera training facility was intended to help with that. There is however no way for us to know how many people may pass through the training facility, where they come from and what their ethnicity is. Further we record that the proposed fund (Charitable Trust) for South Taranaki District Council is directed at the community generally and not specifically for the benefit of Māori. Lastly on this topic, while it seems probable that the proposed Kaimoana Monitoring Programme will benefit some tangata whenua, it is not possible to estimate the magnitude of that benefit.

Section 5

1717. Section 5 of the Act sets the purpose of the Act as being “to promote the sustainable management of natural and physical resources”. Section 5(2) defines the term sustainable management. It is settled jurisprudence that the application of the Act’s purpose requires a judgement as to whether a proposal would promote the sustainable management of natural and physical resources. In making such a judgement, we understand that conflicting considerations may be compared, and their relative significance assessed.
1718. Given the findings of the preceding analysis the Panel is of the opinion that the project cannot be advanced (even with conditions of consent in place) so that it is consistent with the RMA's sustainable management purpose. In that regard, we find that:
 - a. While the project will enable some people and communities to provide for their social and economic wellbeing, health and safety, this will be at the expense of the cultural wellbeing of tangata whenua in Taranaki. It is also apparent to us that the economic benefits of the project are not as far reaching or notable as we first understood them to be, with the Project offering significant regional rather than significant national benefits.
 - b. The marine environs within and adjacent to the project area, while changed by the project, will be able to continue to meet some of the reasonably foreseeable needs of future generations, albeit for some areas and values only after mining has ceased and nature has undertaken its own rehabilitation and restoration. We use the term ‘some’ deliberately, as there are some matters that we remain uncertain about, such as the stability of the mined areas and the potential for that instability to impact on down slope benthic habitats and to cause the on-going resuspension of sediment in and around the project area, and indeed, further afield.

- c. The project will impact on the life-supporting capacity of water and ecosystems. Some of these impacts will be beyond the limits set by the key statutory planning instrument under the RMA and the NZCPS.
 - d. We have found that significant actual and potential adverse effects cannot be avoided, remedied or mitigated to the point that they are acceptable.
1719. Given the foregoing, the Panel finds that approving the project, even if made subject to a strict regime of comprehensive conditions, would be contrary to the sustainable management purpose and principles of the RMA.

New Zealand Coastal Policy Statement

1720. There are a number of planning instruments that apply within the CMA. Regard has been paid to all of the applicable planning instruments in completing our analysis. This section focusses, however, on the NZCPS as it is the principal planning instrument that applies to the CMA. The subservient instruments are required to be consistent with and give effect to the NZCPS.
1721. The NZCPS was originally gazetted in 2010 but has been amended as recently as December 2025. The Panel considered the project against the revised version of the NZCPS. The Panel has also sought to adopt the nuanced approach that the Panel determined is appropriate given the direction of the Court.
1722. While not binding, the Preamble to the NZCPS is useful insofar as it emphasises that the NZCPS applies to the coastal environment. It is also clear that the coastal environment supports an array of values (including minerals) and activities. We note that the NZCPS does not directly apply to the mining proposed as the project area is not within the CMA. Policy 1 is clear that the NZCPS applies to the coastal environment, which includes the CMA and some specified areas landward of the CMA. It does not apply to the EEZ. In that context, the NZCPS is relevant under section 59(2)(h) of the EEZ Act as part of the Panel's assessment of whether the project would produce effects within the CMA that are inconsistent with the outcomes sought under the RMA and the NZCPS.
1723. The NZCPS contains seven broad objectives. Five of those objectives have what can only be described as a management focus. In this regard, Objectives 1 to 5 are principally concerned with ensuring that values and relationships that contribute to New Zealand's coastal environment are maintained, enhanced, protected, preserved and restored. The level of management that is to be applied follows the importance of the values that are being considered, with protection being advanced for those values of greatest importance. This is a matter that we return to when we discuss the more detailed suite of policies that implement the broad objectives.
1724. Objective 7 requires that the management of the CMA recognises and provides for New Zealand's international obligations.
1725. Objective 6 is the most enabling of the objectives. It speaks of concepts such as the protection of values in the CMA not precluding use and development in appropriate

places and forms, and within appropriate limits; some uses and developments needing to be functionally located in the CMA; and the coastal environment containing renewable energy resources of considerable value. Of note, however, is that even this objective makes reference to the living marine resources contributing to the social, economic and cultural wellbeing of people and communities; the RMA being an important means by which the natural resources of the CMA can be protected; and to the historic heritage in the coastal environment being extensive but not formally known, and being vulnerable to loss or damage from inappropriate use and development (amongst other activities). It is thus clear that the scheme of this planning instrument is weighted towards recognising the various values, relationships and activities that contribute to the special character of the coastal environment, and to only enabling development that responds appropriately to those values.

Treaty of Waitangi, tangata whenua and Māori heritage

1726. Policy 2 sets the direction for Treaty of Waitangi, tangata whenua and Māori heritage matters to be addressed. Of this policy, parts (a.), (d.), (e.) and (f) are relevant to the matter that is before the Panel.
1727. More particularly, when taking account of the Principles of the Treaty of Waitangi and kaitiakitanga, the Panel is required to:
 - a. Recognise that tangata whanau have traditional and continuing cultural relationships with areas of the coastal environment, including places where they have lived for generations. The Panel has recognised these values. In this regard, it has taken considerable care to hear from tangata whenua and to understand not only their values and associations, but also their location and significance.
 - b. Provide opportunities in appropriate circumstances for Māori involvement in decision making. Appointing Ms Lovell to the Expert Panel, contributed to meeting the intent of part (b), alongside the opportunities provided for tangata whenua participation through the hearing and evidence processes.
 - c. Take account of any relevant iwi management plans and any other planning documents recognised by the appropriate iwi authority or hapu. All such instruments have been considered by the Panel in its analysis of the project's potential to affect the CMA.
 - d. Provide opportunities for tangata whenua to exercise kaitiakitanga over, amongst other things, waters, land and fisheries in the coastal environment. The applicant proposed conditions in an attempt to enable such opportunities. While appreciating their intent, the Panel determined that such conditions were not sufficient. As a consequence, a more comprehensive suite of conditions was considered and explored by the Panel. They included additional mechanisms and sought to strengthen those proposed by the applicant. While improved, the Panel ultimately determined that these mechanisms are not sufficient to address the impacts of the project, particularly in relation to impacts

on fisheries that are relied upon by tangata whenua for kai and for the exercise of mana.

Precautionary approach

1728. Policy 3 requires that the Panel adopts a precautionary approach towards a proposed activity(s) whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse.
1729. While a number of potential effects of the project are anticipated, or at least are able to be predicted, the Panel has concluded that there are a number of instances where the location, nature, scale and duration of the project's effects cannot be understood based on the information that is available. We do not repeat the analysis that leads to this conclusion. Suffice to say, however, that having made this finding, the Panel is obligated to adopt a precautionary approach to the consideration of the project's effects on those values within the CMA.

Activities in the coastal environment

1730. Policy 6 appears to be a key means to give effect to Objective 6. It requires that the Panel:
- a. Recognise that the extraction of minerals may be required for the social and economic well-being of people and communities. This contribution is recognised by the Panel, insofar as it appreciates that when all relevant matters are considered that the project would benefit the communities of Taranaki and Whanganui. This finding clearly weights in favour of the project.
 - b. Consider how adverse visual impacts of development can be avoided in areas sensitive to such effects, and as far as reasonable and practicable, apply controls and conditions to avoid those effects. This matter was addressed when the Panel considered the project's potential visual effects. Aside from minimising the area of extraction, or requiring that the activity be moved to a locale that would not generate such effects (if such a location exists - there is no evidence before us to suggest that it does), it seems that little can be done. It would also seem unreasonable and impracticable to require one of these outcomes to occur. In this regard, the information before the Panel suggests that the imposition of such controls would serve to frustrate the activity to the point that it is not feasible.
 - c. Set development back from the CMA and coastal environment, where reasonable and practicable, to protect the natural character, open space and amenity values of the coastal environment. The project has been located outside of the CMA, deliberately it would seem, to, in part at least, reduce the level of impact on the CMA and the coastal environment. Even with this measure in place, the Panel found that some of these effects (as they are felt within the CMA) could be significantly adverse.
 - d. Recognise the need to maintain and enhance public open space and the recreation values and qualities of the CMA. The Panel accepts that the project

will not enhance the recreation qualities and values of the CMA. It also finds that the project would diminish the recreation experience as a consequence of the appearance of its associated plume and the impact that it is expected to have on the fishery. Fundamentally, however, the Panel is not convinced that the project's effects on the recreation values and qualities will be sufficient to prevent those wishing to recreate in the STB to do so. The ability to motor to areas not impacted is a key reason for this finding. At a fundamental level, the question therefore becomes 'is the project's predicted impact on the recreation experience in STB such that it will cause the recreation qualities and values to not be maintained?' The Panel finds that it is not for the majority of recreation effects. In that regard, even with the predicted impacts, the Panel finds that the recreational qualities and values of the STB will be maintained at a level that will support the recreation effort that is associated with this area. We accept the contention that recreation is able to relocate away from the impacted areas. We also accept the contention that while the level of impact from the project can extend over a relatively large area, that there will be substantial areas of the STB that are not impacted at any time, and thus are able to support the recreation experience. The exception to this conclusion is the diving experience at reefs such as the Traps and 'Project Reef'. The advice before us is clear and notable that water clarity at these reefs will be impacted significantly across a greater period of the year.

- e. Recognise that some activities, such as the extraction of minerals, have a functional need to be in the CMA, and to provide for those activities in appropriate places. In keeping with the direction provided in Policy 6(3), the Panel accepts that the extraction of minerals in the manner proposed has a functional and operational need to be located within the marine environment. Of note, however, is that the applicant has chosen to site the project within the EEZ and not the CMA. As a consequence, the functional and operational needs direction of the NZCPS has no relevance to what is proposed.

Indigenous biological diversity

1731. Policy 11 is directive. It requires that in order to protect indigenous biological diversity in the coastal environment that we must:

- a. Avoid adverse effects on activities on several different habitat types, ecosystem types and taxa. The listed species and habitats are considered to be particularly significant within the CMA. When interpreting this provision, the Supreme Court⁸⁰⁴ determined that 'avoid means avoid' but that there may be instances where adverse effects can be generated but which do not cause the 'avoidance' obligation to be breached. In summary, those instances were that the effects are transitory or minor (or less) in magnitude.⁸⁰⁵ The Panel has determined that the project will impact on some of the listed habitats and species values within the CMA to more than a minor degree. The Panel has also found that these effects cannot be described as being transitory.

⁸⁰⁴ *EDS v New Zealand King Salmon Company Limited* [2014] NZSC 38 at [62]

⁸⁰⁵ *EDS v New Zealand King Salmon Company Limited* [2014] NZSC 38 at [145]

- b. Avoid significant adverse effects and avoid, remedy or mitigate all other adverse effects on a list of notable indigenous taxa, habitats and ecosystems. The taxa, ecosystems and habitat types, while notable, are not as significant as those where Part (a.) of this policy applies. The Panel has also found that a number of significant effects will occur within the CMA on the ecosystems, habitat types and species that are listed in Part (b) of this policy.

Harmful aquatic organisms

1732. Put concisely, Policy 12 requires that conditions of consent be included on resource consents, where relevant, to assist with managing the risk of harmful aquatic organisms being spread by the project. For the reasons noted, the Panel is satisfied that conditions can be imposed on the marine consents to effectively manage this risk of such organisms being spread in the CMA.

Preservation and restoration of natural character

1733. Like Policy 11, Policy 13 is very directive. It addresses the concept of 'natural character' which, as we have noted, is a complex concept. It is much more than just the appearance of what is proposed. As is apparent from Policy 13(2), the naturalness of the area and all of the associated processes (including ecosystem processes) determine the level of natural character that exists. Importantly, all areas possess natural character. A spectrum exists from close to pristine to highly modified. As the Panel has found, the level of natural character within the EEZ is very high, while the natural character within the CMA is more variable. There are, however, areas that are deemed to possess outstanding natural character within the CMA. There are also several areas of high natural character within the CMA.

1734. Policy 13 is clear that:

- a. Adverse effects must be avoided on the areas of outstanding natural character. The Panel has found that the three areas that are identified as being outstanding will be adversely affected to more than a minor degree. Indeed, we find that these reefs will be significantly adversely affected; and
- b. Significant adverse effects must be avoided on all other areas of natural character, and that all other effects on these areas must be avoided, remedied or mitigated. The Panel has found that those areas that are not deemed to be of outstanding natural character could be adversely affected to a significant degree. We question, however, if these effects can be credibly avoided, remedied or mitigated.

1735. Policy 14 seeks to promote the restoration or rehabilitation of the natural character of the coastal environment. The Panel notes that this outcome is aspirational (given the use of the term 'promote') and thus establishes what we consider to be a soft obligation. In this regard, the Panel needs to be satisfied that restoration and rehabilitation has been promoted, rather than ensuring that such outcomes are achieved.

1736. With the possible exception of the measures proposed in the Kaimoana Management Plan, it is hard to see any of the applicant's proposals as actively enabling or resulting in the restoration and rehabilitation of the natural character that is present. Rather, it seems to us that the applicant is proposing to disturb the marine environs within the EEZ and thus cause consequential effects; a number of which will be felt within the CMA.
1737. It seems that aside from setting limits which it contends will protect the ecosystem functioning, that any longer term impact will be left to nature to remedy following the cessation of the mining activity after 20 years. We consider this to be a very passive approach to restoration and rehabilitation, and one that is not aligned with the outcome sought by Policy 14.
1738. The Panel has considered what measures could be imposed as conditions of consent to proactively respond to these concerns and considers that, from a theoretical perspective, interventions aimed at the protection of the existing areas of outstanding natural character could be advanced. Ultimately, however, the Panel concludes that such a finding would be speculative given the information that is before us. It is thus not something that we can reach a firm finding on. Precaution dictates that we must assume, therefore, that such interventions are unlikely to be effective.

Natural features and landscapes

1739. Policy 15 is also directive, insofar as it states that the Panel must:
- a. Avoid adverse effects arising from the proposal on the identified outstanding natural landscapes and features. The Panel has found that the identified outstanding natural landscapes and features will be impacted by the project but that they will persist. In doing so, we have had to reconcile a conclusion of minor or less adverse impacts on the outstanding natural features (the North and South Traps and Project Reef) in the CMA, with our finding that the natural character of these features will be impacted. The distinction we have drawn is that while the project will impact on the processes and ecological values that are associated with these identified outstanding natural features, the project will not directly damage the features themselves or cause them to no longer be present. In that regard, and almost despite the impact on the species that inhabit the North and South Traps and Project Reef, the Panel is satisfied that these reefs will persist during and after the conclusion of the proposed mining activity.
 - b. Avoid significant adverse effects, and avoid, remedy or mitigate the project's other adverse effects on natural features and landscapes in the coastal environment. For the reasons previously explained, the Panel has found that the project would cause adverse effects on several of the matters listed under Policy 15(3), with some effects found to be significantly adverse. For this reason, we consider that the project is inconsistent with the outcome sought by Policy 15.

Surf breaks of national significance

1740. Policy 16 is also directive when it states that the four surf breaks of national significance within Taranaki are to be protected by, amongst other things, ensuring that activities in the coastal environment do not adversely affect them. This policy is also directive. As the project is not being undertaken within the CMA, it falls outside of the remit of this policy. That said, the Panel has found that none of the listed surf breaks will be impacted. It follows, therefore, that the project is consistent with the intent of this policy.

Historic heritage identification and protection

1741. The historic heritage in the STB is to be protected from, amongst other things, inappropriate use and development (Policy 17). The Panel has found that there is limited evidence of archaeological sites existing within the STB that could be impacted by the project. The Panel is satisfied that the applicant's proposed accidental discovery protocol is an effective means of responding to any archaeological discovery that is disturbed by the proposed mining. The Panel has, however, expressed concern that the project does not respond appropriately to the sites of significance to Māori, and the associated natural resources. While it sought to develop new mechanisms, and to build on those mechanisms proposed by the applicant, the objective being to control the project so as to better respond to the historic heritage that is apparent, ultimately it was not satisfied that measures can be developed to offer the level of protection required by Policy 17. In this regard, the Panel found that conservation was needed to protect those historic heritage items of significance to tangata whenua.

Water quality and sedimentation

1742. Policy 21 speaks of priority being given to the enhancement of water quality where it has deteriorated so that it is having a significant adverse effect on one or more of an array of values and activities. There is no evidence before us to suggest that significant adverse effects are occurring as a consequence of the existing water quality. Policy 22(2) is clear that the Panel must require that the project does not result in a significant increase in sedimentation in the CMA or other coastal water. No guidance is provided within Policy 22 as to what increase would constitute a 'significant increase'. The Panel has therefore assessed 'significance' having regard to the scale, spatial extent, duration and frequency of predicted sediment deposition and turbidity effects within the CMA, and their consequences for identified ecological, cultural and recreational values. On the basis of that assessment, and for the reasons set out in Part V of this decision, the Panel is not satisfied that the project would avoid a significant increase in sedimentation within the CMA.
1743. Policy 23 talks of managing discharges to the coastal environment. While the proposed discharges from the project are not to the CMA (rather they are to the EEZ), the sediment plume associated with the discharge does extend, significantly under some circumstances and conditions, into the CMA. The Panel has considered Policy 23 on that basis.

1744. Policy 23(1)(a) to (c) address matters related to the assessment of the impact of the discharges that extend into the CMA. As far as the data and modelling allows, the Panel has sought to ensure that all of these matters have been addressed in its analysis of this effect type.
1745. The applicant has not provided an assessment of the mixing zone. As a consequence, it is not possible for the Panel to reach a finding on whether it is the smallest mixing zone necessary to achieve the required water quality in the receiving environment (Policy 23(1)(e)). Consequently, it is also not possible for the Panel to reach a conclusion as to whether adverse effects on the life-supporting capacity of water in the mixing zone (presuming that it extends into the CMA) have been minimised. In the absence of this information, and applying a precautionary approach, the Panel is not satisfied that the effects on those species within the mixing zone would not be impacted to a significant extent. Indeed, the evidence leads us to the conclusion that effects are significant where mining is undertaken within three to five kms of the of the CMA as well as outside this area where receptors rely on high water quality.
1746. The Panel is, however, able to reach a finding on Policy 23(1)(d), which requires that significant adverse effects on ecosystems and habitats are to be avoided after reasonable mixing. With no mixing zone defined by the applicant, we have adopted a precautionary approach and assumed that the mixing zone ceases at the EEZ / CMA boundary. As a consequence, we have focussed on the adverse effects of the plume within the CMA. The Panel has found that the sediment discharges would, under some conditions and in some locations, cause significant adverse effects to arise.

Coastal hazards

1747. Policy 25 addresses the management of coastal hazard risk over the next 100 years. It is clear that, amongst other activities, use and development is be managed so as to avoid increasing the risk of social, environmental and economic harm from coastal hazards. Policy 26 states that natural defences (which include features such as beaches, intertidal areas, coastal vegetation and dunes) are to be protected, restored or enhanced, where appropriate and where they protect coastal land uses, sites of significant biodiversity, cultural, historic or geological value from coastal hazards.
1748. The Panel addressed the geomorphological changes that are expected as a consequence of the project. It found that while notable changes are expected, that those changes are not expected to increase the risk of social, environmental or economic loss from coastal hazards in a meaningful way. We record, for completeness, that while hazard risks will increase within and surrounding the project area, we do not consider them to be coastal due to their distance from the shore.

Overarching conclusion

1749. Given the foregoing, the Panel finds that while aspects of the project are consistent with some enabling aspects of the NZCPS, significant areas of inconsistency would arise were the proposed mining to proceed. Of the areas of inconsistency, those aspects of the project that are inconsistent with policies 11, 13 and 15 of the NZCPS are especially noteworthy. Those provisions of the NZCPS are very clear and very directive and articulate the environmental outcomes that would be expected to be achieved within the CMA under the RMA. The project's inconsistency with those outcomes is, therefore, a matter of significant weight in the Panel's evaluative assessment under section 85 of the FTAA.

27.2 Biosecurity Act 1993

1750. Part 8A of the Biosecurity Act extends other relevant Biosecurity Act provisions (such as the duty to report notifiable organisms) to the EEZ. The applicant is required to comply with the Biosecurity Act irrespective of any marine consents it obtains.
1751. Biofoul is one of the key vectors for the entry or spread of pests and unwanted organisms by vessels. Biofouling on vessels arriving in New Zealand is managed by MPI under the Craft Risk Management Standard.⁸⁰⁶ TTRL proposes to comply with the Craft Risk Management Standards⁸⁰⁷ and additionally proposes conditions requiring a Biosecurity Management Plan to be prepared by TTRL in consultation with the Ministry for Primary Industries and certified by the EPA. This will require annual hull inspections of project vessels, with spot cleaning to remove high risk biofouling (including target organisms).⁸⁰⁸
1752. The other potential biosecurity risk is from ballast water. There is potential for the project to involve significant discharges of ballast water, which can harbour unwanted marine organisms. Those organisms can be harmful to marine life and the aquaculture industry. Ballast water is regulated by the Marine Protection Rules⁸⁰⁹ under the Maritime Transport Act 1994. The Rules require on-board ballast water treatment. The conditions proposed by TTRL incorporate these requirements.

Comments received and applicant's responses

1753. Comments were received from the Minister of Primary Industries, which advised that the Minister has not identified any immediate biosecurity issues for this project. The comments said that it is expected that any marine vessels entering the EEZ will

⁸⁰⁶ Ministry for Primary Industries, 2014. "Biofouling on Vessels Arriving to New Zealand – CRMS BIOFOUL" 15 May 2014.

⁸⁰⁷ Application page 244.

⁸⁰⁸ Conditions 43 and 70.

⁸⁰⁹ Part 300: Ballast Water Management

comply with New Zealand's regulation relating to biofouling to ensure any biosecurity risks are addressed. All overseas marine vessels coming into New Zealand must comply with New Zealand's biofouling requirements and provide evidence of this before arriving in the country. Prior to arrival at their location in the EEZ, each vessel will need to follow standard arrival procedures (including submitting all arrival forms and supporting documents). Given the projected vessel numbers in the application, this is unlikely to impact Biosecurity New Zealand's (BNZ) capacity. Any non-compliance will be dealt with on a case-by-case basis and is also unlikely to impact BNZ capacity. BNZ has managed such operations previously with no noticeable impact on BNZ resources; typically these craft are cleaned prior to arrival. Once the vessels have been cleared at time of set up, vessels moving between the site and port are considered domestic movements and do not trigger the Craft Risk Management Standards for vessel requirements.

Findings

1754. The Panel is satisfied that the separate requirement for compliance with the Biosecurity Act and Maritime Transport Act and regulations made under those Acts, the requirement for preparation and certification of a Biosecurity Management Plan, and the conditions relating to ballast water, will manage biosecurity risks in a manner that is consistent with the nature and effect of the biosecurity-focused aspects of the marine management regime.

27.3 Maritime Transport Act

1755. The Maritime Transport Act sets out principles for the management of maritime safety and protection of the marine environment. Those broad principles are implemented through Maritime Rules and Marine Protection Rules. In relation to marine protection, the primary issue of concern is ballast water, which is addressed at section 27.2 above.
1756. TTRL has commissioned assessments of the project's effects on navigation.^{810 811} Amongst other proposed mitigation measures, TTRL intends to apply to Maritime New Zealand to establish an exclusion zone (buffer zone) around the IMV and other project related vessels when anchored within the extraction lanes to safeguard other ocean users, members of the public and project vessels from harm. TTRL considers that the combination of measures it has proposed will ensure that any effects on marine traffic are avoided.
1757. The grant of marine consents does not exempt TTRL from the requirement to comply in full with all applicable maritime safety and protection requirements arising under the Maritime Transport Act. It is only necessary for the Panel to be confident that the measures proposed for inclusion as marine consent conditions do not

⁸¹⁰ Marico Marine NZ Ltd. (2013) "South Taranaki Bight Marine Traffic Study" Report Number: 13UK934. July 2013.

62 pp. Updated November 2015.

⁸¹¹ Barlow, R. N. 2015. "Trans-Tasman Resources Ltd, South Taranaki Bight, Offshore Iron Sand Extraction and Processing project – Report on the Maritime and Navigational Impacts of the project" November 2015.

conflict with any requirements under the Maritime Transport Act, and likely to be consistent with the objectives of that Act and subordinate Rules. The Panel accepts that granting the marine consents would not be inconsistent with the nature and effect of the Maritime Transport Act.

27.4 Fisheries Act 1996

1758. A comprehensive analysis of customary and commercial fisheries is separately addressed in sections 7.2 and 7.3. The Panel agrees with the applicant that the Fisheries Act does not purport to facilitate exclusive occupation of New Zealand Fisheries waters. The Panel has made factual findings about the project's potential effect on fisheries and habitats which mean that it disagrees with the applicant's contention that "to the extent that the project may have any effect on fisheries it is sufficiently small to be consistent with the Fisheries Act objective of ensuring sustainability."
1759. Some marine features including the Pātea Shoals were identified in comments⁸¹² as "habitats of particular significance to fisheries management", as that phrase is used in s 9 of the Fisheries Act 1996. The applicant's response to comments stated that this is only a 'potential' habitat of particular significance to fisheries management as it has not been formally identified.
1760. The Panel asked the parties to comment on whether habitats must be formally identified in order for the Fisheries Act and s 59(2)(h) EEZ Act to apply, and if so what form that identification would take. The applicant submitted that until/unless formally identified, a habitat cannot constitute a "habitat of particular significance to fisheries management" under the Fisheries Act and cannot therefore be taken into account as part of a "marine management regime" under s 59(2)(h). It said that identification must take the form of addition to the register managed by the Ministry for Primary Industries.
1761. All commenters said that there is no requirement for formal identification. Ngāti Ruanui submitted that there is no requirement in the Fisheries Act 1996 for formal identification of such environments and in the context of the environmental principles set out in the same section – "associated or dependent species should be maintained above a level that ensures their long-term viability" and "biological diversity of the aquatic environment should be maintained" it would make no sense to expect such identification. Rather, it said the existence of a habitat of particular significance for fisheries management is a matter of fact and evidence in the particular instance, as is the existence of associated or dependent species or the status of biological diversity.
1762. The Panel was also assisted on this matter by the Minister for Oceans and Fisheries comments on the application, and further information provided by the Minister for

⁸¹² Seafood NZ and Talleys

Oceans and Fisheries in response to Minute 10. In relation to habitats of particular significance for fisheries management, the Minister said:

The applicant's assessment of effects does not consider impacts on nursery habitat for blue cod identified in the South Taranaki Bight, which has been discussed in recent reviews of the catch settings for a number of fisheries. The full extent of the nursery habitats at the Pātea Shoals (Rolling Grounds), which includes seaweed and sponges on subtidal rocky reefs, is unknown. As blue cod is declining in this area, maintaining the function of this nursery habitat is particularly important for supporting the stock. This habitat is within the zone identified in the application as impacted by the effects of the sediment plume. The applicant has not considered whether the level of sedimentation (and reduced light penetration) over these habitats is likely to constitute material harm. I recommend the applicant assess and monitor these effects on seaweed and sponges that may contribute to the habitat function as a nursery.

1763. The Minister then provided a document titled "Guidance for the identification of habitat of particular significance for fisheries management and taking into account that they should be protected" dated February 2025. The Guidance does not identify types of qualifying habitat, instead it says "we [Fisheries NZ] will undertake case-by-case assessments of the best available information supporting the particular significance of a habitat in a specific location." It refers to a register of habitats of particular significance in the following terms:

Purpose of this guidance

...

Areas identified as HoPS will be published in an online register to support consideration of s9(c). Information used to support the identification of HoPS will be publicly available unless information is considered sensitive. As well as informing fisheries management advice, the register of HoPS will also help other agencies (e.g., councils) identify and manage the impacts of non-fishing activities that may cause adverse effects on HoPS.

2.6 The register of habitat of particular significance for fisheries management

The evidence base supporting the identification of HoPS and their sensitivities to pressures as well as the assessment of confidence in evidence will be included in a register of HoPS. From mid-2025 the register will be freely accessible on the FNZ website and will show users the general location of the HoPS, its attributes (e.g., habitat type, reason it is of especially great importance), species for which the HoPS is important, its sensitivity to fishing and nonfishing stressors, and supporting references.

The register will be available for use by other agencies (e.g., regional councils) to alert them to the existence, location, and characteristics of HoPS, allowing them to consider the management of non-fishing stressors on HoPS.

2.7 Identifying HoPS is an ongoing process

The HoPS register and the information behind it will be a living document; periodic updates of the register will involve review and inclusion of new information...

1764. Having considered s 9 of the Fisheries Act and the information provided by the Minister, the Panel considers it is clear that the online register is a tool rather than a statutory threshold. The Panel considers that the principle that habitats of particular significance for fisheries management should be protected can be applied

to marine features that it determines, on the basis of evidence, to be habitats of particular significance for fisheries management (regardless of whether the feature has been identified by Fisheries NZ or entered into Fisheries NZ's online register). It also considers that the project will not protect habitats of particular significance for fisheries management.⁸¹³

1765. For those reasons, the Panel considers that granting the marine consents is inconsistent with the nature and effect of the Fisheries Act.

27.5 Crown Minerals Act 1991

1766. The purpose of the Crown Minerals Act is to promote prospecting for, exploration for, and mining of Crown owned minerals (both terrestrially and in the marine environment) for the benefit of New Zealand. To this end the Act provides for:⁸¹⁴
- a. efficient allocation of rights to prospect for, explore for, and mine Crown owned minerals;
 - b. the effective management and regulation of the exercise of those rights;
 - c. the carrying out, in accordance with good industry practice, of activities in respect of those rights; and
 - d. a fair financial return to the Crown for its minerals.
1767. The Crown Minerals Act does not generally seek to manage environmental effects of prospecting, exploration or mining operations, rather its focus is on developing and using mineral resources efficiently. However, the exercise of rights granted under the Crown Minerals Act should not be unduly impacted by other activities that pose potential risks to those rights holders. In that regard, the Panel notes the comments from Beach Energy, which has existing interests relating to the Kupe JV permits and assets. Its comments raised concerns about the potential for collision between TTRL's mining vessels and the Kupe Well Head Platform, citing risks to infrastructure and safety. Its concerns relate to both operational safety and financial risk to Kupe JV assets. It was noted that the local seabed topography is changeable and sensitive to environmental conditions, which could be exacerbated by mining activities.
1768. Beach Energy requested that TTRL work with it to develop a Simultaneous Operations Plan, a Collision Contingency Management Plan, and joint risk assessments, and suggested updates to consent conditions, including terminology changes and increasing public liability insurance from \$500M to \$667M to reflect 2025 values. The Panel is satisfied that conditions can be imposed that will adequately manage risk to the existing Kupe JV assets and operations. However, the Panel finds that there is uncertainty around the long-term stability of the seabed in and around the project area that we consider could pose a risk for oil and gas infrastructure over long timescales. These risks are considered low probability but

⁸¹³ Section 9(c) Fisheries Act.

⁸¹⁴ Crown Minerals Act s 1A purpose

high impact for the Kupe permit operator that could not be avoided through TTRL's operational controls if the consent was granted. For those reasons, the Panel considers that granting the marine consents may be inconsistent with the nature and effect of the Crown Minerals Act.

27.6 Health and Safety at Work Act 2015

1769. The Health and Safety at Work Act 2015 applies in the territorial sea, to New Zealand ships wherever they may be, and to workplaces (including ships) where mining activity regulated by the EEZ Act is carried out.⁸¹⁵ It places a duty on persons conducting a business or undertaking to ensure the health and safety of workers, so far as is reasonably practicable.⁸¹⁶ It also covers management of risks posed by hazardous substances in workplaces.⁸¹⁷ Granting the marine consents sought would not exempt or preclude TTRL from complying with all applicable requirements under the Health and Safety at Work Act and would not be inconsistent with the nature and effect of that regime.

27.7 Marine Mammals Protection Act 1978

1770. The Marine Mammals Protection Act makes provision for the protection, conservation, and management of marine mammals within New Zealand and within New Zealand fisheries waters (which by definition extends it to the EEZ⁸¹⁸). It applies to any act or omission on any New Zealand ship wherever that may be, and to any act or omission by a New Zealand citizen wherever that person may be.⁸¹⁹ It is an offence under the Act to "take" any marine mammal, which is defined to include disturbing marine mammals,⁸²⁰ without a permit.⁸²¹
1771. The Act also provides for the establishment of marine mammal sanctuaries. The West Coast North Island Marine Mammal Sanctuary, which is subject to measures to protect Hector's dolphin, covers the full length of the coastal marine area from Maunganui Bluff in Northland to the south coast of Wellington (but does not extend into the EEZ).⁸²² Seabed mining is restricted in most of the sanctuary.⁸²³
1772. A Hector's and Māui Dolphin Threat Management Plan (**TMP**) was developed in 2007 to provide an overarching framework that identifies human-induced threats to Hector's and Māui dolphins and strategies to mitigate those threats to ensure the dolphins' long-term survival. The TMP was most recently revised in 2020. The Plan's vision is that New Zealand's Hector's and Māui dolphin populations are resilient and thriving throughout their natural range. The vision is supported by a

⁸¹⁵ Sections 10 and 11.

⁸¹⁶ Section 36.

⁸¹⁷ Under the Health and Safety at Work (Hazardous Substances) Regulation

⁸¹⁸ Section 2 MMPA, s 2 Fisheries Act 1996

⁸¹⁹ Section 1 MMPA

⁸²⁰ Section 2 MMPA

⁸²¹ Section 9 MMPA

⁸²² Marine Mammals Protection (West Coast North Island Sanctuary) Notice 2008

⁸²³ Clause 6.

long-term goal and four medium-term goals. The first of these is to ensure that known human-induced threats are managed within levels that allow sub-populations to thrive and recover. The Plan sets population outcomes to help further define that goal. The population outcomes are:

- a. for Māui dolphin: Human impacts are managed to allow the population to increase to a level at or above 95% of the maximum number of dolphins the environment can support.⁸²⁴
 - b. for Hector's dolphin: Human impacts are managed to allow the population to increase to a level at or above 90% of the maximum number of dolphins the environment can support.
1773. The TMP identifies seabed mining as a threat to dolphins.⁸²⁵ For seabed mining and other human-induced non-fishing threats, the objective is to ensure that adverse effects are avoided or minimised. The TMP provides for this objective to be met through interventions under (inter alia) the EEZ Act.⁸²⁶
1774. Granting the consents sought would likely cause material harm on Māui dolphins in the EEZ and create a credible risk of significantly adverse effects on Māui dolphins within the CMA. Given the available information, no measures are available to avoid, remedy or mitigate these effects. As such, granting the consents would be inconsistent with the TMP. It would not be inconsistent with the Marine Mammals Protection Act itself.

27.8 Wildlife Act

1775. The Wildlife Act is the “mainstay of statutory protection of animals in the environment”.⁸²⁷ It applies throughout New Zealand and New Zealand fisheries waters (which includes the EEZ). It does not apply to marine mammals⁸²⁸ and only covers a limited number of aquatic marine species (primarily corals, some sharks and some rays).⁸²⁹ It otherwise declares all wildlife to be absolutely protected.⁸³⁰ Relevantly, this includes all seabirds.
1776. It is an offence to catch, hunt or kill wildlife without authorisation.⁸³¹ This includes ‘pursuing, disturbing, or molesting’ wildlife.⁸³² These terms are not limited to actions that are purely incidental to hunting or killing animals.⁸³³ ‘Disturb’ prohibits action which physically or mentally agitates the protected wildlife to a level creating a real

⁸²⁴ A population outcome of 95% means that human-induced deaths need to be as near as practicable to zero.

⁸²⁵ Page 3

⁸²⁶ Page 6.

⁸²⁷ *Shark Experience Ltd v PauaMAC5 Inc* [2019] NZSC 111 at [46]

⁸²⁸ Section 2, definitions of “wildlife” and “animal”

⁸²⁹ Wildlife Act Schedule 7A.

⁸³⁰ Section 3 (subject to some exclusions that are not presently relevant).

⁸³¹ Section 63 (absolutely protected wildlife) and 63A (partially protected marine wildlife)

⁸³² Section 2, definition of “hunt or kill”.

⁸³³ *Shark Experience Ltd* at [35]

risk of significant harm.⁸³⁴ A statutory defence is available in respect of marine wildlife where the act or omission was part of an emergency,⁸³⁵ or where the alleged offence is the killing or injuring of marine wildlife, and the death or injury was accidental or incidental and the incident reported.⁸³⁶ The statutory defences available under s 68B are not available where the prohibited act does not result in death or injury, but the common law absence of fault defence would be available if a partially or absolutely protected animal is disturbed, but not injured or killed, through no fault of the person charged.⁸³⁷

1777. The application states that:

- a. the only way in which the project could conceivably trigger the requirement for a permit is if an animal that is one of the identified absolutely protected species was present in the mining area and became entrained in the extraction process.
- b. the survey work undertaken by TTRL has not identified any of the protected marine species within the project area, so the probability of this is considered to be extremely low.

1778. No Cnidaria listed in Schedule 7A of the Wildlife Act 1953 have been identified by the applicant or in Morrison et al. (2022); however, the Panel considers that the limited survey effort of benthic habitats, particularly rocky reefs, would not have reliably identified those species if they were present. While, on the available evidence, the project therefore appears to be consistent with the Wildlife Act 1953, there is a possibility that Cnidaria listed in Schedule 7A may be identified during pre-commencement or ongoing monitoring. To ensure consistency with the Wildlife Act 1953, conditions should include a requirement for benthic surveys to be conducted in a way that enables identification of these species.

1779. The independent review of information on finfish (including sharks) did not raise any concerns about Chordata listed in Schedule 7A and specifically commented on White pointer shark (*Carcharodon carcharias*), noting that while there has been recent concern about a reported sighting of juvenile sharks spending time in the STB and a suggestion that this might be evidence of a nursery area for this listed species, there is no previous information of this occurring and the source of the reported sighting would require confirmation.⁸³⁸

1780. The Panel has also considered whether the project is consistent with respect to its effects on seabirds. The Panel has found that there is a credible prospect that threatened bird species will be adversely affected and that avoiding those effects would require a robust and clearly specified effects mitigation and management framework. The applicant has not demonstrated that conditions can prevent material harm to seabirds, particularly for threatened species such as kororā/little

⁸³⁴ *Shark Experience Ltd* at [73] – [74]

⁸³⁵ Section 68B(3)

⁸³⁶ Section 68B(4)(a)

⁸³⁷ *Shark Experience* at [83]

⁸³⁸ Review of information on finfish and fisheries relevant to the Taranaki VTM project, Mr P Taylor dated 12 January 2026 at [11].

penguin and fairy prion. On that basis the project is potentially inconsistent with the Wildlife Act. However, the inadvertent taking or killing of seabirds can now be authorised under that Act,⁸³⁹ and it is unclear whether such authorisation must be consistent with the purpose of the Act (wildlife protection) as other forms of authorisation⁸⁴⁰ must be. On that basis, the Panel is not able to reach a final conclusion on consistency with the Wildlife Act.

27.9 Marine and Coastal Area (Takutai Moana) Act 2011

1781. The implications of MACA Act-related interests, including their interaction with tikanga-based existing interests and Treaty settlement obligations, are addressed in more detail in Part II and sections 7.2, 20.1 and 32.

27.10 Other marine management regimes

1782. The Panel adopts the applicant's analysis with respect to other relevant marine management regimes.⁸⁴¹

28 Best practice in relation to an industry or activity

1783. Section 59(2)(i) requires the panel to take into account best practice in relation to an industry or activity. The applicant considers that it will employ best practice, making the operation as efficient and effective as possible and thereby minimising any adverse effects associated with the project. These measures include:⁸⁴²
- a. removing the top five metres of seabed (on average, although that could range from one metre to 11 metres) to obtain the higher-grade iron sand that "sits on top" of the existing 20-30 m of seabed sand;
 - b. minimal disturbance as less than 0.3 km² of seabed at any given time will be disturbed. The application considers that the seafloor will 'return to normal' within two to five years;
 - c. the avoidance of using chemicals or toxins, with mechanical extraction;
 - d. localised sediment plume that the applicant claims will be largely negligible adding 0.5 to 1.5 mg/L of SSC; and

⁸³⁹ Section 53A Wildlife Act

⁸⁴⁰ Section 53 Wildlife Act; *Shark Experience Ltd v PauaMAC5 Inc* [2019] NZSC 111, [2019] 1 NZLR 791 at [120]

⁸⁴¹ Addressed in the application at 8.3, including the Continental Shelf Act 1964, Hazardous Substances and New Organisms Act 1996, Heritage New Zealand Pouhere Taonga Act 2014, Marine Reserves Act 1971, and Submarine Cables and Pipelines Protection Act 1996.

⁸⁴² Application dated 15 April 2025 at page vi.

- e. project operations will produce fewer carbon emissions per tonne of concentrate compared to other iron sand and hard rock iron ore mines around in the world.
1784. The application identifies other areas where industry best practice will be applied to the vessels, including ship-to-ship transfers, lighting and shapes appropriate for each vessel, management of ballast water, biosecurity, spill contingency plans for oil spills and maritime safety measures.⁸⁴³
1785. The Panel has no reason to conclude that the application is not following best practice in terms of its methodology of mining or management of its vessels.
1786. Best practice extends to the effects assessment, pre-commencement monitoring and on-going effects monitoring and management should the consent be granted. In this regard the Panel do not consider that TTRL have adopted best practice. Specifically:
- a. The modelling reports do not describe the frequency or duration of suspended sediment concentration pulses or elevations. The Panel finds that the failure of the applicant to provide quantitative information about the frequency and duration of SSC elevations is an important gap as these characteristics are material to assessing effects on sensitive receptors, including the extent to which SSC exposures are episodic or chronic. The applicant could reasonably have reduced this uncertainty by extracting and presenting additional outputs from the existing simulations. While the applicant's experts acknowledge the dynamic and variable nature of the suspended sediment plume, they have not systematically compiled, described or visualised the dynamics illustrated in the animations and case studies. Best practice would require systematic compilation and visualisation of the full range of predicted suspended sediment extent and directionality across the simulation period.
 - b. Best practice in effects monitoring requires that monitoring focusses on sensitive sites to capture the spatial and temporal extent of predicted environmental effects of greatest ecological relevance. The proposed conditions do not control SSC elevations at all sensitive sites that may be affected by SSC elevations. Additional sites sensitive to suspended sediment, such as benthic reefs, have been revealed since the sites listed in Schedule 2 have been identified, yet the proposed conditions do not require their inclusion. Best practice monitoring design would address these limitations.
 - c. Best practice in effects monitoring and management requires explicit justification of indicators. The Panel finds that the selection of indicators of adverse effects forms a core component of the effects assessment that should have been provided with the application and that, therefore, deferring this task to conditions inappropriately delays an assessment that must be made at the application stage. For example, in relation to marine mammals, the conditions require the MMMP to set out indicators of adverse effects, but the Panel

⁸⁴³ Application dated 15 April 2025 at section 8.3.7.

identifies that the scope, definition and threshold for such indicators should have been provided with the application.

- d. Best practice in effects assessment and management requires that compliance limits and trigger values be scientifically justified with explicit linkages between thresholds and effects. The applicant has not described on what basis the SSC compliance thresholds percentiles in Condition 5 were set and what level of protection they provide. The applicant has not demonstrated that SSC above the thresholds would cause adverse effects or material harm, and equally, that changes below those thresholds would not. The Panel considers that providing such justification is standard practice for consent applications at the scale of this project.
- e. Best practice requires that where a surrogate measure is used for compliance monitoring, the relationship between the surrogate and the actual parameter be established and validated before consent is granted or, as a minimum, specific performance criteria for validation are specified in conditions. The proposed conditions allow turbidity to be used as a proxy for SSC when assessing against the SSC limits specified in Schedule 2. While conditions require the proxy relationship between turbidity and SSC to be established as part of pre-commencement monitoring, no performance requirements are stipulated, and no information has been presented confirming that such a relationship can be established with sufficient rigor.
- f. The OSPM is proposed to be developed post-consent as an operational forecasting tool, distinct from the assessment model. However, the conditions do not specify performance objectives for matters identified by expert modellers as necessary (e.g., near-field resolution, atmospheric forcing and lateral boundary conditions), do not specify performance criteria for calibration and validation, and do not set out a clear process for model development, calibration and verification to ensure that these processes align with modelling best practice. This represents deferral of critical validation work to the operational phase, contrary to best practice principles. All modelling experts agreed that any model has inherent uncertainties that must be recognised and managed, yet the conditions provide no framework for this recognition and management prior to operations commencing.

1787. We consider that, while well-structured and drafted, the proposed conditions do not represent best practice. At a fundamental level, and of greatest concern to us is that they seek to enable substantive decisions to be made following the approval of any consents. This is a consequence of the conditions seeking to address the short comings in the information that is available to us. Such data and information are needed to both understand the existing environment and to enable the actual and potential effects of the project to be accurately and confidently predicted.

1788. We also consider that the approach to consultation and engagement with iwi and hapū has not been best practice. While efforts were also made to engage with tangata whenua over the proposal, they were insufficient and yielded limited insight

and information. Ultimately this was provided by the various Māori interest groups that appeared before us.

1789. The Panel also notes that the applicant's commissioned cultural assessments were prepared in the absence of a Ngāti Ruanui authored cultural impact assessment and with limited direct input from Ngāti Ruanui knowledge holders. As recorded in section 20.1, this necessarily constrained the ability of those reports to substitute for tikanga-consistent, front-end engagement and co-design for this application.⁸⁴⁴
1790. Best-practice engagement with tangata whenua for a proposal of this scale is front-loaded, relationship-based, and would enable iwi and hapū to participate meaningfully in scoping issues and shaping the proposal. It involves early notice, kanohi ki te kanohi engagement, and reasonable time and information to support iwi-led assessment of effects, cultural baselining and mapping, and discussion of appropriate mitigation and monitoring. It also requires engagement that is tailored to who holds mana whenua and mana moana and to the location and nature of the activity, rather than a one-size-fits-all approach.⁸⁴⁵
1791. TTRL's approach for this application relied substantially on historic engagement undertaken for earlier processes, supplemented by targeted pre-lodgement correspondence inviting responses within short timeframes, with no new programme of hui.⁸⁴⁶ Evidence and comments from iwi evidence noted late, correspondence-heavy engagement, but an absence of the information actually needed, such as fine-scale cultural mapping, agreement on baselines and indicators, and informed input into conditions and management plans.⁸⁴⁷
1792. The limitations apparent with the applicant's engagement were also, however, reflected in the proposed conditions of consent that were designed to address the impacts on Māori interests. In practical terms, the Panel considers that the approach taken by the applicant meant iwi and hapū had limited opportunity to contribute to the development of conditions and management settings in an informed and agreed way.⁸⁴⁸
1793. In the absence of agreed baselines, indicators, or governance arrangements, the Panel is not satisfied that conditions could reliably address these impacts.

⁸⁴⁴ Cultural Values Assessment and Analysis, Tahu Pōtiki, August 2016, at section 2.3(c)–(g) and Expert Evidence of Buddy Mikaere on behalf of Trans Tasman Resources Limited, Buddy Mikaere, 17 December 2016, at [71] and [106]–[107]

⁸⁴⁵ Ngāti Ruanui Trust, *Best Practice Guidelines for Engagement with Māori*, undated, pp. 1–3 and 13–15

⁸⁴⁶ Walden, *Stakeholder Engagement Report*, sections on iwi engagement

⁸⁴⁷ Day 1 Conference transcript, Ngāti Ruanui submissions on inability to validate effects without full information, requests for access to technical material.

⁸⁴⁸ Minute 11 questions (Te Korowai o Ngāruahine), evidence describing receipt of a pro-forma letter shortly before lodgement and stating it was not tikanga-consistent engagement.

29 Any other matter

29.1 A Mineral Strategy for New Zealand to 2040 (2025) and A Critical Minerals List for New Zealand (2025)

1794. The Minerals Strategy communicates the Government's vision for the minerals sector and initial actions to get there. While the Strategy takes a broad approach to minerals identified in New Zealand, minerals defined as 'critical' are an important part of the outcomes and objectives sought by the Government. The production of the Critical Minerals List was an action point of the Strategy and it identifies 37 critical minerals (including vanadium and titanium) that are economically important and vulnerable to supply risk or essential to unlocking other critical minerals. It is noted that the list is dynamic and may change as a result of periodic reviews (with some minerals dropping off or being added to the list each time).
1795. The Strategy states that while New Zealand uses critical minerals (directly or in imported products) our critical minerals contribution to the global market is limited. The Strategy identifies an opportunity for New Zealand to become a reliable supplier of minerals to our economic partners. By strengthening critical mineral supply chains in a global context, the Government considers that this can assist with leveraging our relationships and international partnerships. The overarching goal of the Minerals Strategy is to double annual mineral exports to reach \$3 billion by 2035.
1796. The Panel agrees with TTRL that the project aligns with some key outcomes sought by the Minerals Strategy. Namely, it attracts foreign investment in the mining industry; brings innovative technology to New Zealand (although some have argued that it stops at the EEZ),⁸⁴⁹ supports workforce development; supports industries that support the mining sector; would make New Zealand a supplier of critical minerals vanadium and titanium for a 20 year period (in the form of co-products of the VTM iron ore); and contributes to growth in New Zealand mineral exports value.
1797. A major focus of the Strategy "is adding value to our minerals by undertaking domestic processing prior to export".⁸⁵⁰ The project aligns with this in terms of processing seabed material into VTM concentrate on the IMV, but any further processing to extract minerals from the ore will occur offshore.
1798. The Minerals Strategy also sets out the Government's guiding principles for how growth in the minerals sector should be achieved. Principle 1 is that New Zealand's mineral development honours Te Tiriti o Waitangi and upholds Treaty settlements and commitments, including recognising iwi and hapu perspectives and aspirations. Principle 2 is that minerals development will happen in a responsible manner where environmental protection, the health and safety of our workers, and impacts on regional communities inform all sector initiatives. The Strategy refers to balancing

⁸⁴⁹ Professor Banks for The Royal Forest and Bird Protection Society, Economics Joint Witness Statement paragraph 19.

⁸⁵⁰ A Minerals Strategy for New Zealand to 2040, page 11.

environmental protection and long-term environmental sustainability with the need for resource development – but not at the expense of the environment.

1799. TTRL states that “the sustainable recovery method for vanadium recommended in the Metallurgic Review report and potential high recovery rates (peaking at 79%) will provide economic viability and environmental stewardship aligning with the principles and outcomes of the Minerals Strategy”.⁸⁵¹ The Panel disagrees that the potential for offshore processing of vanadium from exported VTM resource bears any connection to the guiding principles of the Strategy. Both principles apply to the way in which minerals development occurs in New Zealand, not through overseas downstream processing.
1800. As set out elsewhere in this Decision (including section 32), the Panel considers that the project does not align with guiding principle 1 of the Strategy: Te Tiriti o Waitangi. While health and safety of workers is considered to be managed effectively through compliance with relevant regulations and other marine management regimes, the Panel considers that the project does not align with key aspects of guiding principle 2: Responsible. Specifically, the Panel finds that the project does not mitigate all environmental risks associated with the mining activity; does not achieve environmental protection; or deliver long-term environmental sustainability.

30 Information principles and adequacy of information

1801. If available information is uncertain or inadequate, s 61(2) EEZ Act provides that decision-makers must favour caution and environmental protection. If favouring caution and environmental protection means that an activity is likely to be refused, the panel must first consider whether taking an adaptive management approach would allow the activity to be undertaken (s 61(3) EEZ Act). However, that does not apply to a marine discharge consent.
1802. Aspects of the application for marine consent where available information has been identified by the Panel as being uncertain or inadequate relate to the effects from the disturbance of the seabed associated with seabed material extraction via the crawler and the noise generated by the project, and include:
- Benthic recovery in the mining area is uncertain: It is uncertain whether the ‘recovered’ soft-sediment habitat in the mining area will comprise a comparable benthic community structure and provide comparable seabed stability and habitat function.
 - Benthic recovery timeframes are uncertain: There is uncertainty around benthic recovery timeframes, particularly for *Euchone* wormfield habitat and associated ecosystem functions. The evidence provided does not support a conclusion of rapid recovery within the timeframes stated in the application.

⁸⁵¹ Application dated 15 April 2025, page 352.

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- c. Underwater noise modelling limitations: The modelled scenario does not represent a realistic worst-case for total project noise because of the focus on two continuously operating noise sources (IMV and crawler) only. Not explicitly modelling realistic worst-case combinations leaves the full envelope of potential marine mammal and fish exposure insufficiently defined.
 - d. Absence of baseline underwater noise measurements: This information gap limits the ability to assess the project's contribution to the existing soundscape in the STB.
 - e. Underwater noise monitoring and compliance uncertainty: Uncertainty about whether the monitoring regime will adequately collect and analyse data to inform compliance decisions, especially when measured levels fluctuate around single-value limits.
 - f. Operational noise achievability and mitigation information gaps: Substantial uncertainty exists around both the likelihood of Condition 11 being consistently achieved in practice and the availability and effectiveness of response actions if exceedances occur. The application does not provide information about operationally practical mitigation and response options.
 - g. Full project noise footprint uncertainty: Inadequate information has been provided on which to evaluate the full actual noise footprint and the scale and relevance of noise generated at locations other than near the IMV. No conditions are proposed to cap or monitor noise from sources other than IMV and crawler.
 - h. Marine mammal noise effects are uncertain: Important information gaps exist on specific consequences on marine mammal species, including threatened species, from exposure to underwater noise from the 20-year long mining operation. Noise modelling contains uncertainties and the applicant has not provided an explicit assessment of chronic exposure effects.
 - i. Fish distribution effects from underwater noise are uncertain: Limited information on noise sources other than IMV and crawler, lack of assessment of sustained chronic operational noise generation and redistribution, and expert disagreement create uncertainty about impacts of underwater noise on fish.
1803. The Panel has found that information about recovery of the seabed in the mining area, particularly the *Euchone* wormfield, and project noise generation is uncertain and inadequate, and that favouring caution and environmental protection would (subject to the FTAA weighting and s 85 assessment) support refusing the approval. The Panel has therefore considered whether taking an adaptive management approach would allow the activity to be undertaken.
1804. At this stage, the Panel has no evidence as to the viability of an adaptive management approach to seabed recovery and noise generation, and it is not clear how such an approach would be effective given the related marine discharge consent. It is also unclear how an adaptive management approach would affect the project's national and regional benefits.

1805. Should the applicant propose an adaptive management approach to noise as part of its response to this draft decision, this will be considered by the Panel before it issues its final decision.

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PART VII CONDITIONS

31 Conditions

31.1 Context and Approach

1806. Section 81(1)(a) of the FTAA enables the Panel to impose conditions on the marine consents made by the applicant should it determine that they can be granted. While there are other instances where the FTAA places obligations on the composition of any conditions imposed (such as s 84(1)), s 83 is, in our opinion, central to our consideration of what conditions can and cannot be imposed.

83 Conditions must be no more onerous than necessary

When exercising a discretion to set a condition under this Act, the panel must not set a condition that is more onerous than necessary to address the reason for which it is set in accordance with the provision of this Act that confers the discretion.

1807. When assessing the project's actual and potential environmental effects (in the CMA) and its actual and potential impacts in the EEZ, the Panel has considered (in detail) the conditions proposed by the applicant. We express our gratitude to the applicant for the efforts it has made to revisit and update those conditions as information has been provided in relation to this project.
1808. When analysing the conditions proposed by the applicant we have considered (in the detail needed to conclude our analysis) the comments of those who addressed them. We have also been acutely aware of our overarching obligation set by s 83 of the FTAA. We have also been very mindful of the obligations that are imposed by the EEZ Act on the type and nature of conditions that can be imposed.
1809. As is apparent from the earlier sections of this decision, we have, for each effect and impact, ultimately reached findings on conditions. The findings set out whether the proposed conditions are acceptable as they stand or are acceptable with modifications. Very few of the conditions proposed are, in our opinion, structurally inappropriate and/or unacceptable although some have been found to be ineffective or unenforceable. We have also been clear where we consider new conditions would be required to supplement those that are proposed. And in some instances, we have concluded that conditions cannot be imposed to address the impacts and/or effects that the project will cause. We return to this latter point shortly.

31.2 Key issues in contention

1810. We received many comments on the conditions proposed by the applicant. There were, however, two recurrent legal issues raised. They concerned the concepts of adaptive management and pre-commencement monitoring. Indeed, both of these issues were a point of focus at our legal issues hearing on the 27th of November 2025 where we asked the commenters to address us on the following questions:

- a. which, if any, of the conditions proposed by the applicant constitute adaptive management within s 61(3) and s 64(2) EEZ Act?
- b. are proposed conditions requiring pre-commencement monitoring lawful?

1811. We address each of these issues in turn.

Adaptive Management

1812. The concept of adaptive management is relevant to the assessment of the project as s 61(3) and 64(2) of the EEZ Act prevents its use on marine discharge consents.

61 Information principles

...

(3) If favouring caution and environmental protection means that an activity is likely to be refused, the marine consent authority must first consider whether taking an adaptive management approach would allow the activity to be undertaken.

(4) Subsection (3) does not—

(a) apply to an application for—

(i) a marine dumping consent; or

(ii) a marine discharge consent; or

(iii) a marine consent in relation to an activity referred to in section 20(2)(ba); or

(b) limit section 63 or 64.

64 Adaptive management approach

...

(2) An adaptive management approach includes—

(a) allowing an activity to commence on a small scale or for a short period so that its effects on the environment and existing interests can be monitored:

(b) any other approach that allows an activity to be undertaken so that its effects can be assessed and the activity discontinued, or continued with or without amendment, on the basis of those effects.

1813. Our attention was directed to the Supreme Court's findings by several commenters. Their collective advice was that the conditions previously advanced by the applicant (which are very similar to those before us) do not represent 'adaptive management'.⁸⁵²

1814. Given the decision of the Supreme Court, and the universal acceptance of the Court's determination by the commenters that appeared before us on the 27th of November 2025, we find that the approach proposed by the applicant does not constitute 'adaptive management'. As a consequence, we do not consider that the

⁸⁵² *TTR* at [10] and [224] and [226] per William Young and Ellen France JJ.

constraint imposed by ss 61(3) and 64(2) of the EEZ Act (which prevents the use of adaptive management on marine discharge consents) binds in this instance.

Pre-Commencement Monitoring

1815. Several commenters submitted that the applicant's proposed pre-commencement monitoring conditions were not lawful. For example, Forest and Bird submitted that:⁸⁵³

The Supreme Court considered the issue of pre-commencement monitoring. Justices France and Young found that condition requiring pre-commencement monitoring were not unlawful merely because they related to collection of baseline data before mining. Justices France and Young held that all conditions must still comply with the statutory requirement to favour caution and environmental protection. They went on to find that there was insufficient information for the DMC to be satisfied that the conditions met that requirement, and that this deficiency could not be remedied by relying on pre-commencement monitoring alone.

Justices France and Young's primary concern related to seabirds and marine mammals, but they also noted similar issues with other environmental effects, including sediment plume impacts. They concluded that the conditions did not favour caution and environmental protection. Justice Glazebrook agreed, although was more critical of the absence of information provided by TTR.

The conditions proposed have not materially changed from those in the 2016 application. The removal of the reference to population level effects does not materially change the concern about the absence of adequate information in the application.

On this basis, under the EEZ Act the conditions relating to pre-commencement monitoring are unlawful.

1816. The applicant submitted that the conditions are lawful.⁸⁵⁴ The applicant acknowledged the Supreme Court's criticisms of the pre-commencement conditions, but submitted that the Panel is not bound to reach the same view as the Supreme Court because:

- a. This subject matter mixes fact and law. How the conditions function—i.e. what they 'do'—is a matter of fact. Whether they conform with requirements for principled condition making and do not undermine participation rights are matters of law. Plainly, the Supreme Court was concerned that the pre-commencement conditions did undermine participation rights. However, those conclusions were based on the Court's understanding of how the conditions would operate as a matter of fact. To that extent, the Court's findings on conditions are not binding on the Panel. The Panel must form its own views about what the conditions 'do' as a matter of fact.
- b. Properly understood, the conditions do not give rise to the legal issues that concerned the Supreme Court. The Supreme Court's criticism of the marine mammal conditions does not reflect the true function of the "population level"

⁸⁵³ Submissions for the Royal Forest and Bird Protection Society of New Zealand Incorporated in response to Minute 11 of the Expert Panel dated 14 November 2025 at [71-75].

⁸⁵⁴ Submissions for TTRL on Identified Legal Issues dated 14 November 2025 at [43-55]

condition or the pre-commencement monitoring. The purpose of the pre-commencement monitoring was not therefore to quantify the populations of marine mammals (as the Supreme Court seemed to think) because quantifying the populations in any reliable way is neither possible, nor in fact necessary to achieve the stipulated outcome. The pre-commencement monitoring requirements are intended to support ongoing work to identify any detectable trends in marine mammal presence and abundance. TTRL's position is that such conditions are fit for purpose, and properly understood, the pre-commencement requirements are:

- i. not an improper attempt to 'operationalise' a 'no adverse effects' condition; and
 - ii. not an attempt to obtain baseline data needed to support a conclusion that the stated outcome will be met.
 - c. There is already ample information (despite the assertions of others) to support a conclusion that there will be no adverse effect on the specified marine mammals if the operational conditions (and associated management plans) are implemented.
 - d. The proposed pre-commencement monitoring to support detection of trends in marine mammal presence and abundance does not amount to delaying the gathering of necessary baseline data and does not cut across any rights of public participation. The FTAA adopts a far more restrictive approach towards participation than the EEZ Act.
1817. The suite of conditions proposed by the applicant contain a substantial 'pre-commencement monitoring programme' (proposed Conditions 47 and 48, and Schedule 6) that is focussed on gathering data to better understand aspects of the environment that exists, and to enable values to be set for key operational conditions (principally the 'SSC Limit' - proposed Condition 5 and Schedule 2), and, indeed, to assist in the development of a key management mechanism (the OSPM - proposed Conditions 52 and 53) to be used to minimise the sediment impacts of the project.
1818. A key question we face is whether sufficient data and information is before us to both understand the environmental values that could be impacted by the project and to give us confidence that the environmental effects of the project on those values can be reliably predicted and quantified. We have found in numerous areas, including for the benthic ecology, water column, marine mammals (principally the underwater noise emissions) and geomorphology / geotechnical impacts, that such information simply does not exist. In that regard, we do not agree with the applicant's contention that, as a matter of fact, that we can, in all of the areas we need to, both understand the environment, and have confidence in the nature of the impact / effects assessment that is before us.

1819. Turning next to the interpretation of the law, we are clear that pre-commencement monitoring cannot be used to provide additional detail to either clarify or better quantify an impact(s) and/or effect(s). Further, we are also clear that such monitoring cannot be employed to determine if an effect will arise at all, and where its impact will be felt. We consider that conditions that seek to address any of these outcomes are ultra vires, for more than the reason cited by the Supreme Court. In that regard, we consider that it is unlawful for a condition to defer the substantive decision as to the actual and potential impacts of the project to a subsequent time and process. In this instance, we consider that to be the key matter of concern, rather than the potential for such conditions to limit public participation. The FTAA does, after all, seek to truncate such participation.
1820. At a fundamental level, and for the reasons we discuss when we analyse the project's impacts and effects, we find that the applicant's proposed pre-commencement monitoring conditions will, in large part and for critical environmental impacts and effects, gather data that is needed to both adequately understand the existing environment and enable the project's impacts and effects to be predicted. This, in our opinion, effectively defers a substantive decision to a post-grant situation. We find that we cannot 'kick that can' down the road. Indeed, we consider that any conditions we imposed to achieve such an outcome would be ultra vires. We record, for completeness, that had the requisite information and data been available for us to assess now, that the mechanism proposed in Conditions 47 and 48, and Schedule 6, would have been appropriate; albeit with some modifications to accommodate the findings we make in our analysis of the project's impacts and effects.

31.3 Ability to address effects

1821. As we have already noted, when we considered each of the project's actual and potential impacts / effects, we considered if measures were available to reduce the level of impact to the point whereby they achieved the relevant thresholds from the NZCPS (and thus Part 2 of the RMA) and prevented material harm from occurring (which is the key threshold in the EEZ Act).
1822. We also considered whether the project's impacts could be managed so as to ensure that one of more of the compulsory decline measures set out in s 85 of the FTAA were not engaged. For the reasons we have stated, and which we do not repeat here, there are several areas where this cannot be achieved.
1823. It follows, therefore, that the Panel finds that it is not in a position where it can impose conditions so as to ensure that the project can adequately avoid, remedy or mitigate its impacts and effects in relation to the project's impact on commercial and customary fishing interests, geomorphological risks, avifauna, marine mammals, visual amenity within close proximity to the area of mining, natural character values, benthic ecology habitats, recreational diving at some of the reefs within the STB, and Treaty settlement obligations. Consequently, the Panel finds that any suite of consent conditions will be insufficient to avoid material harm in the EEZ and appropriately manage the project's environmental effects in the CMA and Treaty

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obligations. Given this finding, the Panel has not further developed the conditions in a manner that gives effect to the conclusions we have reached for all of the impact / effect areas.

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PART VIII ASSESSMENT OF RELEVANT FACTORS AND DECISION

32 Effect of Treaty settlements and other obligations on decision making

32.1 Purpose and scope

1824. Table 3 in section 4.3 of this decision listed Treaty settlements (and their associated instruments) that were presented in evidence to the Panel as being potentially relevant to the project and our decision. This chapter sets out the Panel's conclusions on whether granting approval would comply with the obligation in s 7 of the FTAA to act consistently with obligations arising under those existing Treaty settlements. It also addresses the obligation to give a settlement document the same or equivalent effect in decision-making as it would have under any relevant 'specified Act'.

32.2 Legal framework applied in this decision

1825. Section 82 FTAA applies if a Treaty settlement is relevant to an approval. It provides in ss 82(2) and (3):

82 Effect of Treaty settlements and other obligations on decision making

...

(2) If the settlement or Act provides for the consideration of any document, the panel must give the document the same or equivalent effect through the panel's decision making as it would have under any relevant specified Act.

(3) The panel must also consider whether granting the approval would comply with section 7.

1826. The Panel treats s 82 as important for two related reasons. First, it prevents settlement instruments (and the obligations therein) from being treated as background context only where, under the relevant specified Act, they are intended to have real and practical effect. Second, it informs what kinds of measures could realistically avoid or remedy any inconsistency. Where a settlement instrument is intended to operate in a durable and practical way, the Panel must be satisfied that approval, including any conditions, would preserve that practical operation. Where the Panel is not so satisfied, the FTAA requires that approval be declined.

1827. In applying s 7, the Panel has considered whether approval would materially undermine the intended practical operation and integrity of Treaty settlement obligations. The Panel also recognises that Treaty settlement instruments frequently implement tikanga through relationship and participation structures (including protocols, agreed engagement pathways, recognition of kaitiakitanga responsibilities, and provisions directed to taonga species and customary practice). Where a settlement instrument is designed to enable iwi to exercise tikanga in connection with fisheries management and use, the Panel treats "integrity" as

including the instrument's practical ability to support that tikanga-based exercise over time.

1828. Finally, in reaching its conclusions in this Part, the Panel relies on findings already made in Parts V and VI of this decision. In particular, the Panel proceeds on the basis of its findings in Part V as to the scale of adverse effects, the presence of material uncertainty, the limits of the proposed conditions framework, and its conclusions in Part VII as to the inability of conditions to reliably avoid or remedy those effects in practice. Those findings establish credible pathways for material harm and effects on existing interests that could not be addressed through conditions or post-consent processes. This Part applies those findings to the Panel's obligation under s 7 of the FTAA to act consistently with obligations arising under existing Treaty settlements.

32.3 Historical context

1829. The iwi of Taranaki share a collective settlement history marked by extensive raupatu (confiscation), warfare, and sustained Crown actions that undermined their authority, relationships with their lands and waters, and capacity to exercise kaitiakitanga, including the events at Parihaka and their enduring consequences. The Deeds of Settlement record that history as a common experience across Taranaki iwi and recognise that the resulting loss of land, resources and decision-making power extended to the coastal and marine environment.
1830. The Panel has considered the historical context within which relevant Treaty settlements were negotiated, including raupatu and the cumulative loss of land, resources, and authority experienced by affected iwi. As noted in section 20.1, raupatu and associated dispossession had profound effects on iwi relationships with their rohe, including the coastal and marine environment.
1831. The settlement frameworks below reflect the intention to restore, in a modern statutory form, aspects of rangatiratanga, kaitiakitanga, and economic participation that were lost or constrained. That intention informs how settlement obligations are to be understood and applied in this decision, including whether approval would preserve the practical operation of settlement recognised instruments.

32.4 Identification of Treaty settlement obligations engaged

1832. In assessing consistency with Treaty settlements, the Panel has looked at both the language of the legislation and settlement instrument and how those settlement instruments are intended to work in practice. Where a settlement instrument is designed to enable iwi to access, use, or care for marine areas and resources over time, the Panel has considered whether approval of the project would materially interfere with that ability⁸⁵⁵. Interference may arise where the project's effects would

⁸⁵⁵ *Te Ohu Kai Moana Trustee Ltd v Attorney-General* [2025] NZHC 657, High Court, at [115]–[130] (legal framework and enduring settlement obligations).

limit access, displace customary activity, or introduce ongoing uncertainty of a kind or scale that materially undermines the ability of settlement beneficiaries to exercise their settlement-recognised roles and responsibilities in practice and over time.⁸⁵⁶

1833. Applying that approach, the Panel identifies several settlement instruments that are engaged by the project and that, on the findings discussed below, raise a real question as to whether they could continue to operate with practical integrity if approval were granted. In summary:
- a. The Māori Fisheries settlement⁸⁵⁷: the project would adversely affect commercial and customary fishing interests through displacement, loss of practical access, and uncertainty, in circumstances where those fisheries arrangements were intended to provide enduring and intergenerational benefits to Māori and to be capable of practical exercise over time.
 - b. Settlement instruments that provide for active stewardship, management, or use of affected marine areas: where the project's effects materially constrain the practical exercise of those instruments, even in the absence of permanent physical exclusion, such that the instruments cannot operate in the manner contemplated by the settlement, the Panel considers approval would be inconsistent.
1834. In addition, the Panel considers that the project may be inconsistent with the Māori Commercial Aquaculture settlement.⁸⁵⁸ This settlement secures Māori access to new aquaculture space, delivered regionally, with further space obligations arising over time.⁸⁵⁹ On the evidence before it, the Panel is not satisfied that it can determine whether approval would materially constrain the Crown's future ability to deliver settlement aquaculture space or materially undermine the practical operation of the MCACS Act instrument

32.5 Obligations under the Māori Fisheries settlement

1835. As set out above, the Māori Fisheries settlement is a Treaty settlement with statutory force. It is implemented through the 1992 Settlement Act, the 1992 Deed of Settlement,⁸⁶⁰ and the MFA. The MFA states its purposes include implementing the 1992 Deed and providing for the development of iwi interests in fisheries "for the benefit of all Māori".⁸⁶¹ The settlement was intended to operate on an enduring and

⁸⁵⁶ *Te Ohu Kai Moana Trustee Ltd v Attorney-General* [2025] NZHC 657, High Court, at [188]–[199] (conclusions on settlement integrity and ongoing Crown obligations).

⁸⁵⁷ Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, New Zealand Parliament, enacted 1992, Māori Fisheries Act 2004, New Zealand Parliament, enacted 2004, Fisheries (Kaimoana Customary Fishing) Regulations 1998

⁸⁵⁸ Māori Commercial Aquaculture Claims Settlement Act 2004, New Zealand Parliament, enacted 2004,

⁸⁵⁹ Māori Commercial Aquaculture Claims Settlement Act 2004, ss 5–7; ss 8–12 (including definition of "new space" and regional delivery obligations).

⁸⁶⁰ Deed of Settlement between Māori and the Crown, Crown and Māori, dated 23 September 1992

⁸⁶¹ Deed of Settlement between Māori and the Crown, Preamble; cls 2.1–2.3.

intergenerational basis.⁸⁶² Perhaps best said by then parliamentarian the Hon Dame Georgina Te Heuheu during the first reading of the Māori Fisheries Bill:

The overriding objective for Parliament—given the 11 years of litigation, dispute, compromise, consultation, and debate among Māori—should now be to make sure that this bill reflects the agreements of the 1992 deed of settlement and the underlying aspirations of those who negotiated that deed. Clearly, the underlying aspirations were that the Māori beneficiaries would be able to establish for themselves a firm and significant stake in the sector and create both wealth and opportunity for their own communities, and for Māori.⁸⁶³

1836. Te Ohu Kaimoana characterises this as a matter of settlement integrity, rather than solely the economics of quota.
1837. The Panel finds that the project engages the settlement framework because it adversely affects fishing interests through localised displacement, reduced practical access, and enduring uncertainty of a kind that materially constrains the practical and ongoing use of settlement-derived rights and obligations. For the purposes of s 7 FTAA, the Panel finds that those effects materially reduce the ability of Māori to use settlement-derived rights and obligations in the practical and enduring way the settlement framework was designed to operate.
1838. The customary dimension of the fisheries settlement is part of the settlement package. The 1992 Settlement Act records the Crown's commitment to introduce regulations recognising and providing for customary food gathering, in that:
- The Crown recognises that traditional fisheries are of importance to Māori and that the Crown's Treaty duty is to develop policies to help recognise use and management practices and provide protection for and scope for exercise of rangitiratanga in respect of traditional fisheries.⁸⁶⁴
1839. The Kaimoana Regulations give effect to that settlement commitment through a tikanga-based authorisation and management system (including tangata kaitiaki/tiaki roles and related customary management tools). These instruments represent the practical implementation of the customary fisheries component of the settlement.
1840. The Panel finds that the project risks materially undermining both the commercial and customary fisheries dimension of the Māori Fisheries settlement. In relation to commercial fisheries, the effects identified above would constrain the practical and ongoing use of settlement derived quota and related rights. In relation to customary fisheries, the effects would impair the operation of tikanga-based authorisation and management instruments provided for under the settlement.
1841. In assessing consistency under s 7, the Panel relies on its findings on Māori fishing existing interests, tikanga-based effects, and the limits of post-consent conditions and engagement. For those reasons, the Panel is not satisfied that the proposed

⁸⁶² Te Ohu Kai Moana Trustee Ltd v Attorney-General [2025] NZHC 657, High Court, at [115]–[130] (legal framework and enduring settlement obligations).

⁸⁶³ Māori Fisheries Bill First Reading, Hon Georgina Te Heuheu, New Zealand Parliamentary Debates (Hansard), 4 December 2003, Vol 614 at 10474.

⁸⁶⁴ Deed of Settlement between Māori and the Crown, Preamble; cls 2.1–2.3.

conditions would preserve the practical operation of either the commercial or customary fisheries settlement instruments in the affected rohe moana.

1842. Accordingly, the Panel finds that approving the project would be inconsistent with the obligation to uphold the practical integrity of the Māori Fisheries settlement and would breach 7 FTAA.

32.6 Māori Commercial Aquaculture Settlement

1843. The Māori Commercial Aquaculture settlement is implemented through the MCACS Act. The MCACS Act requires the Crown to provide and transfer settlement assets that are representative of 20% of “new space”, and it requires those obligations to be met separately for each region. “New space” is defined by reference to coastal permits to occupy space for aquaculture activities (and associated exclusions). The settlement structure established under the MCACS Act is therefore space-based in design. The MCACS Act also requires a separate set of obligations in respect of pre-commencement space, again on a regional coastline / harbour basis. Again, reflecting on the intent of the Act, then Bill, the Hon Rino Tirikatene stated:

We know that the aquaculture industry, as it grows, Māori will grow with it, because this is a prospective settlement. As it grows, 20 percent of it, whether it's through space or cash, will be transferred to iwi.⁸⁶⁵

1844. Reinforced by Tim van de Molen:

When we consider that in any new aquaculture space that is consented, 20 percent of that is allocated to iwi under the settlement basis, that presents a significant opportunity for those iwi players.⁸⁶⁶

1845. The project engages the aquaculture settlement framework because it operates within coastal marine space that is relevant to the operation of the Māori Commercial Aquaculture settlement under the MCACS Act. However, on the information before it, the Panel is not satisfied that it can determine whether granting approval would materially constrain the Crown's future ability to deliver settlement aquaculture space or materially affect the practical operation of the aquaculture settlement instruments in the relevant region. In circumstances where the settlement depends on future space availability and Crown capacity to deliver it, the Panel considers that this uncertainty weighs against approval. However, this uncertainty alone, is not determinative of the Panel's conclusion under s 7, which rests on the findings in sections 32.5 and 32.7–32.10 below.

⁸⁶⁵ *Māori Commercial Aquaculture Claims Settlement Amendment Bill — Second Reading*, Rino Tirikatene, New Zealand Parliamentary Debates (Hansard), 10 August 2021, Vol 753 at 11852–11853

⁸⁶⁶ *Māori Commercial Aquaculture Claims Settlement Amendment Bill — Second Reading*, Tim van de Molen, NZPD, 10 August 2021, Vol 753 at 11851–11852.

32.7 Ngāti Ruanui

1846. Ngāti Ruanui's Treaty settlement⁸⁶⁷ context is central to how it frames its fisheries interests and kaitiakitanga responsibilities in this proceeding. As recorded earlier in this decision (including at paragraphs 1460–1467), that context includes a history of raupatu and cumulative dispossession, and a settlement framework intended to restore Ngāti Ruanui's role as kaitiaki in a modern statutory form. As Ms Inns stated at conference, the history of raupatu and persecution "are all part of the settlement" and "part of the commitment that the Crown made".⁸⁶⁸ That context informs the Panel's assessment of whether the practical operation and integrity of settlement-recognised instruments would be preserved in practice.
1847. The Panel has had regard to the Ngāti Ruanui settlement instruments relevant to the coastal environment, including an MPI/Fisheries NZ Fisheries protocol and a Department of Conservation protocol⁸⁶⁹ and associated statutory acknowledgements, which support tikanga-based stewardship, protection of taonga, and Ngāti Ruanui involvement in the management of affected coastal and moana environments. Those instruments are directed to enabling Ngāti Ruanui to exercise kaitiakitanga and to influence the protection and management of taonga and their rohe moana environments through recognised statutory and relationship-based instruments.

Fisheries protocol

1848. Ngāti Ruanui holds a Fisheries protocol as part of its settlement arrangements. The protocol is a Crown-facing instrument that gives effect to the settlement commitment to recognise Ngāti Ruanui's fisheries interests as grounded in tino rangatiratanga and kaitiakitanga. It is directed to supporting Ngāti Ruanui's ongoing role in the sustainable use and management of fisheries resources through participation in fisheries decision-making, sustainability measures, and management processes affecting customary fishing interests and identified taonga species within the protocol area and its adjacent waters. Through those processes, the protocol is intended to enable Ngāti Ruanui to meaningfully inform and contribute to decisions affecting the state and management of the fisheries resource, consistent with the settlement framework.
1849. The Panel has already found that the project may adversely affect fishing interests through localised displacement, reduced practical access, and enduring uncertainty. The Panel has also found that those effects cannot be reliably avoided or remedied through conditions or post-consent processes (Parts V and VI). Those findings bear directly on the ability of the Fisheries protocol to operate as intended.

⁸⁶⁷ Ngāti Ruanui Claims Settlement Act 2003, New Zealand Parliament, enacted 2003

⁸⁶⁸ Day 1 Hearing Transcript, Evidence of Ms Inns (Ngāti Ruanui), at p [page], lines 11–12.

⁸⁶⁹ Ngāti Ruanui Deed of Settlement, Crown and Ngāti Ruanui, dated 12 May 2001, Schedule 2 (Fisheries protocol); Schedule 3 (Department of Conservation protocol).

1850. Where a project materially constrains the availability of fisheries resources, limits practical access to customary fishing locations, or introduces enduring uncertainty as to future use, the Fisheries protocol cannot give effect to its settlement purpose of supporting Ngāti Ruanui's role in sustainable fisheries management.

Department of Conservation protocol

1851. The Ngāti Ruanui Department of Conservation protocol also forms a distinct component of Ngāti Ruanui's settlement framework. It is directed to the protection and management of taonga species and sites, including wāhi tapu such as reefs and fishing grounds, and extends to marine mammals and other coastal and marine taonga. The protocol requires the Crown, through the Department of Conservation, to recognise Ngāti Ruanui's kaitiakitanga responsibilities and to engage with Ngāti Ruanui where activities may affect those taonga.
1852. The Department of Conservation protocol applies to marine mammals generally and expressly identifies a number of cetacean species that overlap with the threatened marine mammal species known to use the STB. These include sperm whales, bottlenose dolphins, Hector's dolphins (and therefore the Māui dolphin subspecies), and killer whales. The protocol also applies to all baleen whales, which includes blue whales and other threatened whale species identified in this decision. The protocol expressly prioritises engagement in relation to threatened species through recovery, research and monitoring processes.
1853. As found in sections 23 and 24 of this decision, the STB is an ecologically important area for marine mammals, including twelve threatened taonga species. The Panel has identified underwater noise, sediment plume effects, and cumulative impacts as credible risks and has found that for highly vulnerable species any additional impact would be unsustainable and cannot be reliably avoided or remedied through conditions.
1854. Where the Panel has found that approval would expose taonga species and environments to a real risk of adverse effects that cannot be reliably managed or remedied, the Department of Conservation protocol cannot operate as intended. In those circumstances, Ngāti Ruanui's settlement recognised role in influencing the protection and management of taonga through kaitiakitanga may be materially constrained.

Finding

1855. For these reasons, the Panel is not satisfied that the Fisheries protocol or the Department of Conservation protocol would be able to operate with practical integrity if the project were approved.
1856. Accordingly, the Panel finds that approving the project would be inconsistent with the obligation to uphold the practical integrity of Ngāti Ruanui's Treaty settlement.

32.8 Ngā Rauru Kītahi

1857. Ngā Rauru Kītahi's Treaty settlement⁸⁷⁰ reflects the long-standing effects of raupatu and loss of authority over coastal and marine environments and is directed to restoring Ngā Rauru Kītahi's ability to exercise Ngā Raurutanga and kaitiakitanga in a living and practical way. The settlement framework emphasises relationship, participation, and place-based stewardship, rather than the transfer of proprietary or decision-making control. That context informs the Panel's assessment of whether the practical operation and integrity of Ngā Rauru Kītahi's settlement-recognised instruments would be preserved in practice.
1858. The Panel has had regard to the Ngā Rauru Kītahi settlement instruments relevant to the coastal and marine environment. As identified in Table 3, these include the Paepae Rangatira Accord, a Fisheries protocol, and a comprehensive Department of Conservation protocol, together with Cultural Redress schedules, statutory acknowledgements, and Statements of Association.⁸⁷¹ Collectively, these instruments are directed to enabling Ngā Rauru Kītahi to exercise kaitiakitanga and Ngā Raurutanga, to protect taonga species and wāhi tapu, and to influence the management of their rohe moana through recognised statutory and relationship-based instruments.

Paepae Rangatira and relationship framework

1859. A distinctive feature of the Ngā Rauru Kītahi settlement is the Paepae Rangatira Accord. That accord establishes a standing forum between Ngā Rauru Kītahi and the Crown for engagement on matters affecting the Treaty relationship and Ngā Rauru interests, including environmental and resource management issues. While the Paepae Rangatira does not confer decision-making authority, it is intended to operate as a meaningful mechanism through which Ngā Rauru Kītahi can raise concerns, inform and contribute to Crown decision-making processes, and exercise stewardship responsibilities in respect of their rohe.
1860. The practical effectiveness of that relationship framework depends on Ngā Rauru Kītahi being able to engage on matters where tikanga-based stewardship remains capable of being exercised in substance through the processes and tools contemplated by the settlement.

Fisheries protocol

1861. Ngā Rauru Kītahi holds a Fisheries protocol as part of its settlement arrangements. The protocol is a Crown-facing instrument that gives effect to the settlement commitment to recognise Ngā Rauru Kītahi's fisheries interests as grounded in kaitiakitanga. It is directed to supporting Ngā Rauru Kītahi's ongoing role in the

⁸⁷⁰ Ngā Rauru Kītahi Claims Settlement Act 2005, New Zealand Parliament, enacted 2005,

⁸⁷¹ Ngā Rauru Kītahi Deed of Settlement, Crown and Ngā Rauru Kītahi, dated 27 November 2003, Cultural Redress Schedules (including Fisheries protocol; Department of Conservation protocol; Paepae Rangatira Accord).

sustainable use and management of fisheries resources through participation in fisheries decision-making processes provided for under the relevant statutory frameworks, affecting customary fishing interests and identified taonga species within the protocol area and its adjacent waters. The protocol expressly recognises rāhui as a traditional management practice and records Crown undertakings to engage with Ngā Rauru Kītahi where fisheries management decisions may affect their interests.

1862. The Panel's earlier finding on the project's adverse effects on fishing interests bear directly on the ability of the Fisheries protocol to operate as intended.
1863. Where a project materially constrains the availability of fisheries resources, limits practical access to customary fishing locations, or introduces enduring uncertainty as to future use, the Fisheries protocol cannot give effect to its settlement purpose of supporting Ngā Rauru Kītahi's role in sustainable fisheries management in practice, including through the effective exercise of rāhui and other tikanga-based tools.

Department of Conservation protocol

1864. The Ngā Rauru Kītahi Department of Conservation protocol forms a distinct and important component of Ngā Rauru Kītahi's settlement framework. It is directed to the protection and management of taonga species and sites, including wāhi tapu such as reefs and fishing grounds, and expressly extends to marine mammals and other coastal and marine taonga. The protocol requires the Crown, through Department of Conservation, to recognise Ngā Rauru Kītahi's kaitiakitanga responsibilities and to engage with Ngā Rauru Kītahi where activities may affect those taonga.
1865. The Department of Conservation protocol applies to marine mammals generally and expressly identifies a number of cetacean species that overlap with the threatened marine mammal species known to use the STB. These include sperm whales, bottlenose dolphins, Hector's dolphins (and therefore the Māui dolphin subspecies), and killer whales. The protocol also applies to all baleen whales, which includes blue whales and other threatened whale species identified in this decision. The protocol expressly prioritises engagement in relation to threatened species through recovery, research and monitoring processes.
1866. As discussed, the STB is an ecologically important area for marine mammals, including multiple threatened taonga species. The Panel has identified underwater noise, sediment plume effects, cumulative effects, and uncertainty as credible risks, and has found that for highly vulnerable species any additional impact would be unsustainable and cannot be reliably avoided or remedied through conditions.
1867. Where approval would expose taonga species and environments to a real risk of adverse effects that cannot be reliably managed or remedied, the Department of Conservation protocol cannot operate as intended. In those circumstances, Ngā Rauru Kītahi's settlement-recognised role in participating in and contributing to the

protection and management of taonga through kaitiakitanga is materially constrained.

Finding

1868. For these reasons, the Panel is not satisfied that the Fisheries protocol or the Department of Conservation protocol would be able to operate with practical integrity if the project were approved. Accordingly, the Panel finds that approving the project would be inconsistent with the obligation to uphold the practical integrity of Ngā Rauru Kītahi's Treaty settlement.

32.9 Ngāruahine

1869. The Ngāruahine and its hapu entered negotiations with the Crown with the background of a history of raupatu and cumulative dispossession, through which Ngāruahine's ability to act as kaitiaki and rangatira within their rohe was significantly undermined.
1870. In negotiating their settlement, Ngāruahine expressly sought redress to restore and strengthen that role. The settlement records that Ngāruahine considered that their ability to act as kaitiaki and rangatira in their rohe had been undermined through the loss of lands and resources and exclusion from the management of those resources. Ngāruahine therefore sought, through the settlement, to enhance their involvement in the management of land and waterways through relationship agreements with the Crown and local government and through increased participation in the management of natural resources. The Crown agreed to provide redress reflecting that relationship and to provide Ngāruahine with a recognised kaitiaki role.⁸⁷²
1871. That redress is implemented through a package of fisheries and conservation instruments, including a Fisheries protocol, a Department of Conservation protocol, and the Ngāruahine Kaitiaki Plan. Those instruments are directed to restoring Ngāruahine's practical ability to exercise kaitiakitanga through meaningful and ongoing participation in decision-making affecting taonga species, coastal and moana environs, and the management of natural resources within Ngāruahine's rohe moana.⁸⁷³

Fisheries protocols

1872. Ngāruahine's Fisheries protocol is directed to recognising Ngāruahine's fisheries interests as grounded in kaitiakitanga and to supporting Ngāruahine's ongoing role in fisheries management affecting customary fishing interests and identified taonga species at specific coastal and moana locations. It provides for engagement with

⁸⁷² Ngāruahine Claims Settlement Act 2016, New Zealand Parliament, enacted 2016, Part 2 (historical account and acknowledgements).

⁸⁷³ Ngāruahine Claims Settlement Act 2016, New Zealand Parliament, enacted 2016, Part 2 (historical account and acknowledgements); Documents Schedule (protocols and Ngāruahine Kaitiaki Plan).

Ngāruahine where fisheries decisions may affect those interests and anticipates tikanga-based management responses, including rāhui, where appropriate.

1873. The Panel has found that the project may adversely affect fishing interests. Those findings bear directly on the ability of the Fisheries protocol to operate as intended.
1874. Where a project materially constrains the availability of fisheries resources, limits practical access to customary fishing locations, or introduces enduring uncertainty as to future use, the Fisheries protocol cannot give effect to its settlement purpose of supporting Ngāruahine's role in sustainable fisheries management in practice, including through the effective exercise of rāhui and other tikanga-based tools.

Department of Conservation protocol

1875. This Department of Conservation protocol is directed to the protection and management of taonga species and sites within the coastal environment. It requires the Crown, through Department of Conservation, to recognise and provide for Ngāruahine's kaitiakitanga responsibilities, including through engagement where activities may affect taonga species and culturally significant sites within the coastal and marine environment.
1876. In particular the Natural Heritage and Species Management provisions within the Ngāruahine Department of Conservation protocol emphasise the survival of threatened species, especially those most at risk of extinction. The protocol recognises that recovery actions must be prioritised according to species vulnerability and likelihood of success, and that effective species protection depends on coordinated national and local programmes.
1877. In that context, the protocol provides for Ngāruahine to identify species of importance to them. Department of Conservation must then inform, involve and engage with Ngāruahine in relation to national species programmes, recovery actions, research and monitoring, and the development or review of management plans affecting those species within the protocol area. These provisions establish the framework through which Ngāruahine's cultural relationship with indigenous species is recognised and through which their kaitiakitanga is exercised in relation to species identified as threatened or otherwise at risk.
1878. The Department of Conservation protocol applies to marine mammals generally and expressly identifies a number of cetacean species that overlap with the threatened marine mammal species known to use the STB. These include sperm whales, bottlenose dolphins, Hector's dolphins (and therefore the Māui dolphin subspecies), and killer whales. The protocol also applies to all baleen whales, which includes blue whales and other threatened whale species identified in this decision. The protocol expressly prioritises engagement in relation to threatened species through recovery, research and monitoring processes.
1879. In these circumstances and having regard to the settlement purpose of restoring Ngāruahine's practical ability to act as kaitiaki through these protocols, the Panel is

not satisfied that the Fisheries protocol or the Department of Conservation protocol would be able to operate with practical integrity if the project were approved.

Ngāruahine Kaitiaki Plan

1880. The Panel has also had regard to the Ngāruahine Kaitiaki Plan⁸⁷⁴, which forms part of the kaitiaki redress expressly contemplated by the Ngāruahine Claims Settlement Act. The purpose of the Ngāruahine Kaitiaki Plan is to identify Ngāruahine values and principles in relation to the kaitiaki area, and the resource management issues of significance to Ngāruahine within that area. The Ngāruahine Kaitiaki Plan operates as evidence of the values, principles and resource management priorities that the settlement was intended to recognise and support, by articulating those matters for consideration in resource management decision-making. It is an iwi management plan to which decision-makers must have regard under the RMA, and in this proceeding it informs the Panel's understanding of Ngāruahine settlement values and expectations, rather than operating as a standalone decision-making instrument.
1881. Given the Panel's findings elsewhere in this decision on ecological risk, cumulative effects, and uncertainty, and its conclusion that those risks cannot be reliably avoided or remedied through conditions or post-consent processes, the Panel is not satisfied that approval would be consistent with the settlement purpose. That conclusion is reached having regard to the way in which the Ngāruahine Kaitiaki Plan operates as evidence of agreed settlement values, principles and resource management priorities. The Ngāruahine Kaitiaki Plan also informs the Panel's assessment of whether the exercise of kaitiakitanga by Ngāruahine would be supported in practice.

Finding

1882. For these reasons, the Panel is not satisfied that the Fisheries protocol, Department of Conservation protocol or the Ngāruahine Kaitiaki Plan would be able to operate with practical integrity if the project were approved. Accordingly, the Panel finds that approving the project would be inconsistent with the obligation to uphold the practical integrity of Ngāruahine's Treaty settlement.

32.10 Taranaki Iwi

1883. The Taranaki Iwi Treaty settlement is a pan-iwi settlement, marked by a shared history and experience of raupatu, military occupation, and sustained Crown action across the Taranaki region, including the invasion of Parihaka and the suppression of peaceful resistance. As recorded in the Taranaki Iwi Deed of Settlement and associated historical account, these events affected all Taranaki iwi, resulting in widespread loss of land, resources, authority, and the ability to exercise

⁸⁷⁴ Ngāruahine Kaitiaki Plan, Ngāruahine Iwi Authority, dated 2021, sections 1–2 (Purpose; Values and Principles); sections identifying resource management issues of significance.

rangatiratanga and kaitiakitanga in relation to their whenua and the coastal and marine environment.⁸⁷⁵

1884. The settlement framework reflects a collective redress response to those shared historical grievances. It is directed to restoring, in a modern statutory form, the ability of Taranaki iwi to maintain relationships with their coastal and marine environments, to protect taonga, and to re-embed iwi values and responsibilities within public decision-making affecting their rohe moana. That historical context informs the Panel's assessment of whether the settlement instruments could continue to operate with practical integrity if approval were granted.⁸⁷⁶
1885. As a comprehensive iwi settlement, the collective Taranaki iwi settlement adopts a relationship-based architecture that differs in emphasis from other iwi specific settlements. Rather than conferring extensive operational protocols across agencies, the settlement places particular weight on statements of association, statutory acknowledgements, and relationship agreements designed to embed Taranaki iwi perspectives at a strategic level into Crown decision-making processes and policies.⁸⁷⁷ That structure informs how the Panel assesses whether the settlement instruments could continue to operate with practical integrity if approval were granted.
1886. The settlement includes statements of association that describe Taranaki iwi relationships with the coastal and marine environment in place-based terms, including reefs, fishing grounds, tauranga waka, river mouths and nearshore coastal environments relied on for customary harvest and cultural practice. Those statements extend seaward and emphasise "ki uta ki tai" - the interconnectedness of land, waterways and the moana. While the statements of association do not themselves create operative obligations, they provide essential context for the purpose and intended operation of the settlement instruments that do apply to this decision.⁸⁷⁸

Protocols

1887. Taranaki iwi hold Fisheries and Department of Conservation protocols as part of their settlement arrangements. These are Crown-facing instruments that give effect to the settlement commitment to recognise Taranaki iwi interests as grounded in

⁸⁷⁵ Taranaki Iwi Deed of Settlement, Crown and Te Kāhui o Taranaki Trust, dated 5 September 2015, Historical Account.

⁸⁷⁶ Taranaki Iwi Claims Settlement Act 2016, New Zealand Parliament, enacted 2016, Historical Account and Apology

⁸⁷⁷ Taranaki Iwi Deed of Settlement, Crown and Te Kāhui o Taranaki Trust, dated 5 September 2015, protocols Schedule (Fisheries Protocol; Department of Conservation protocol; Ministry for the Environment Relationship Agreement).

⁸⁷⁸ Taranaki Iwi Deed of Settlement, Crown and Te Kāhui o Taranaki Trust, dated 5 September 2015, protocols Schedule (Fisheries Protocol; Department of Conservation protocol; Ministry for the Environment Relationship Agreement).

kaitiakitanga and to support iwi involvement in the management and protection of fisheries resources and taonga species.

1888. The protocols impose obligations on the Crown and relevant agencies, including duties to consult and provide information, recognition of tikanga-based management tools such as rāhui, and expectations of iwi involvement where decisions may affect taonga species or culturally significant environments. The Department of Conservation protocol applies to all marine mammal species occurring within New Zealand's fisheries waters, all of which are protected under the Marine Mammals Protection Act 1978.
1889. The settlement purpose reflected in the protocols assumes that iwi engagement is capable of informing and contributing to the protection and management of the coastal and marine taonga to which the protocols are directed. Their practical operation therefore depends on the continued availability and cultural acceptability of those environments and resources.
1890. Given the Panel's findings on ecological risk, cumulative effects and uncertainty, and its conclusion that those risks cannot be reliably avoided or remedied (including for threatened at risk species), the Panel is not satisfied that the Fisheries and Department of Conservation protocols could operate as intended in practice and over time if the project were approved. Where the environments and taonga to which those protocols are directed are exposed to material risk and enduring uncertainty, the settlement-recognised instruments for iwi participation are materially constrained.

Ministry for the Environment Relationship Agreement

1891. A distinctive feature of the Taranaki iwi settlement is the Relationship Agreement with the Ministry for the Environment.⁸⁷⁹ That agreement is directed to establishing and maintaining an enduring relationship between Taranaki iwi and the Crown in relation to environmental management, including policy development, legislative processes and strategic environmental matters affecting their rohe, including the coastal and marine environment.
1892. The Relationship Agreement reflects the settlement objective of addressing historic exclusion from environmental governance and providing for early, informed and ongoing engagement between Taranaki iwi and the Crown on matters within the Ministry's functions. It does not confer decision-making authority or project-level approval rights but is intended to provide a structured framework for engagement and dialogue in the development and implementation of environmental policy and regulatory settings.
1893. The Panel accepts that engagement under the Relationship Agreement would continue if the project were approved. However, that engagement would take place

⁸⁷⁹ Taranaki Iwi Deed of Settlement, New Zealand Parliament, Schedules giving effect to protocols and relationship agreements.

only after approval, in circumstances where the key environmental risks have already been accepted and cannot be avoided or remedied through conditions. In that setting, engagement would be directed to responding to the consequences of approval, rather than providing the early, strategic and meaningful involvement in environmental protection and management that the settlement framework was intended to support. For that reason, the Panel is not satisfied that approving the project would be consistent with the settlement purpose reflected in the Relationship Agreement.

Finding

1894. Taken together and having regard to the distinctive structure and purpose of the Taranaki iwi settlement, the Panel is not satisfied that the settlement instruments negotiated by Taranaki iwi would be able to operate with practical integrity in the manner contemplated by the settlement, if the Project were approved.
1895. Accordingly, the Panel finds that approving the Project would be inconsistent with the obligation to uphold the practical integrity of the Taranaki iwi Treaty settlement.

32.11 Instruments not triggered by location

1896. On the information presently before the Panel, we find that several deed-based instruments identified as potentially relevant to the project in Table 3 are not engaged.
1897. The Treaty settlement areas of reference for Ngāti Mutunga, Ngāti Maru, Whanganui iwi do not materially intersect or lie adjacent to the project or the modelled discharge area, and the instruments for those settlements are therefore not triggered by location on the present record. Te Awa Tupua (the Whanganui River settlement) is catchment centred. The project footprint is offshore, and there is no evidence of direct hydrological or morphological effects on the river or its statutory catchment, so the Act's duties are not engaged. Engagement would arise only on a narrow river-mouth pathway, which the evidence does not support. The Taranaki Maunga collective redress is primarily terrestrial. The project footprint and plume/deposition envelopes do not intersect the maunga parks or the defined 'surrounding lands' in the collective-redress materials supplied; accordingly, the Maunga instruments are not relevant.

National instruments

1898. The iwi specific findings above do not affect the continued operation of national Māori fisheries settlement frameworks and the rights arising from them for Ngāti Mutunga, Ngāti Maru and Whanganui iwi in respect of their commercial and customary fishing interests. In that instance, the Panel's finding of inconsistency with the MFA will apply to those interests as well.

32.12 Effect of inconsistency under s7

1899. Having reached the findings set out above, the Panel records that s 7 of the FTAA operates as a substantive barrier to approval. It is open to the Panel to set conditions to recognise or protect a relevant Treaty settlement.⁸⁸⁰ However, the proposed conditions framework and post-consent processes presented by the applicant would not preserve the practical operation and integrity of the affected settlement instruments and the Panel has not identified alternative conditions that would achieve Treaty settlement consistency.
1900. The Treaty settlement obligations engaged in this case depend on the preservation of enduring, practical benefits and instruments, including Māori fisheries settlement interests intended to operate in perpetuity. As the High Court confirmed in *Te Ohu Kaimoana Trustee Ltd v Attorney-General*, where settlement-derived fisheries interests are impaired or lost, the Crown's obligation is to provide redress that preserves the value of those settlement benefits, including through compensation where necessary.
1901. No evidence has been provided that any such compensatory or restorative mechanism would be available or implemented in this case. Conditions imposed on the applicant could not address that deficiency, nor could they substitute for the Crown's settlement obligations. The Panel therefore concludes that conditions would not, in any realistic or lawful sense, cure the inconsistency identified under s 7.
1902. Accordingly, the Panel is required under s 85(1)(b) to decline the approvals sought.

32.13 Consideration of documents provided for under Treaty settlements

1903. The Ngāruahine Kaitiaki Plan is relevant to the Panel's s 82(2) FTAA obligation to give documents "equivalent effect". The Ngāruahine Kaitiaki Plan is provided for under Subpart 5 of the Ngāruahine Claims Settlement Act. Its purpose is to identify the values and principles of Ngāruahine, and the resource management issues of significance to Ngāruahine, in relation to the kaitiaki area (including the coastal area identified).
1904. The settlement legislation requires a relevant local authority to take a kaitiaki plan into account when preparing or reviewing policy statements or plans under the RMA and requires a relevant department to have regard to a kaitiaki plan when exercising functions that relate to the purpose of the plan within the kaitiaki area.
1905. Section 82, therefore, requires the Panel to take the Kaitiaki Plan into account, having regard to its purpose, its spatial application to the coastal kaitiaki area, and the nature of the obligations it creates.

⁸⁸⁰ Section 84 FTAA

1906. The Panel has taken the Ngāruahine Kaitiaki Plan into account to the extent that its content bears on resource management issues relevant to the coastal kaitiaki area and the effects of the project. In doing so, the Panel has had regard to the Plan's articulation of Ngāruahine values, its emphasis on protection of mauri, and its expectations regarding engagement and decision-making.
1907. The matters identified in the Plan inform the Panel's assessment of cultural effects, information adequacy, and the realism of conditions frameworks relied on by the applicant. Those considerations contribute to and inform the Panel's findings under sections 7, 81, 82 and 85 of the Act.
1908. The Panel has also considered whether Te Heke Ngahuru ki Te Awa Tupua, developed under the Te Awa Tupua (Whanganui River Claims Settlement) Act 2017, is engaged for the purposes of s 82 FTAA.
1909. Under s 37 of the Te Awa Tupua Act, Te Heke Ngahuru has legal effect only where a decision relates to the Whanganui River or to an activity within the Whanganui River catchment that affects the River.
1910. The Panel finds that the project is located outside the Whanganui River catchment and that the effects of the project will not extend to the Whanganui River or its river mouth. On that basis, the statutory preconditions for the application of Te Heke Ngahuru are not triggered, and the Panel does not consider that Te Heke Ngahuru applies for the purposes of this decision.
1911. Accordingly, section 82 of the Act is not engaged in relation to Te Heke Ngahuru ki Te Awa Tupua.

33 Clauses 6 and 7, Schedule 10 FTAA

1912. Under cl 6 of Sch 10 FTAA, when considering an application for a marine consent (including conditions) the panel must take into account the purpose of the FTAA, ss 10 and 11 of the EEZ Act and ss 59, 60, 61(1)(b) and (c) and (2) to (5), 62(1A) and (2), 63, and 64 to 67 of the EEZ Act.⁸⁸¹ The Panel has been very mindful that the purpose of the FTAA is to facilitate the delivery of projects with significant benefits, and that this is reflected in the cl 6 requirement to give the Act's purpose the greatest weight when weighing the factors in cl 6.
1913. The Panel has complied with that statutory weighting. This can be seen in our careful up-front consideration of the extent and significance of the project's benefits in section 5. The Panel is satisfied that the project will deliver significant (gross) regional economic benefits and that it would meet the purpose of the FTAA on that basis (the Panel also accepts that the project will have modest national benefits). Granting the approvals would further the purpose of the Act, and the Panel has given that matter the most weight in its cl 6 weighting.

⁸⁸¹ Clause 6(1)(c) and 6(2) are not presently relevant.

1914. With respect to clauses 6(1)(b) and (d), the Panel is clear that ss 10 and 11 and the decision-making criteria in the EEZ Act are matters to 'take into account', rather than directions to be complied with, and that these matters are to be given less weight than the FTAA purpose. Nonetheless, the Act does contemplate that there may be adverse impacts of sufficient significance that they are out of proportion to the project's regional or national benefits (s 85(3) – (5)), so the effect of the cl 6 weighting cannot be to require that approvals are granted in all cases.
1915. In this case, the Panel has assessed the project's benefits as less significant than stated by the applicant and has found that there are significant adverse impacts, some of which are inconsistent with the EEZ Act purpose (s 10). The Panel also finds that these impacts are in tension with provisions of relevant international conventions (s 11).
1916. Clause 7 (conditions) provides that ss of the EEZ Act apply with any necessary modifications as if the references to a marine consent authority in those sections were references to the Panel. The Panel has considered those provisions in its approach to conditions.

34 When the panel must or may decline approvals

34.1 When approval must be declined

1917. Under s 85(1) FTAA the panel must decline an approval if one or more of the matters in subclauses (a) to (h) apply. Subclause (a) applies where an approval is for an ineligible activity. As discussed in paragraphs 53-58, the Panel finds that the approvals are not for an ineligible activity. Subclause (b) applies where the panel considers that granting the approval would breach s 7, which includes the obligation to act in a manner consistent with the obligations arising under existing Treaty settlements. For the reasons set out in section 32, the Panel finds that granting the approvals would breach s 7, and so must be declined. No other s 85(1) matters are relevant.

34.2 Approval may be declined if adverse impacts out of proportion to regional or national benefits

1918. Section 85(3) states that a panel may decline an approval if in complying with s 81(2), the Panel forms the view that there are one or more adverse impacts in relation to the approval sought, and those adverse impacts are sufficiently significant to be out of proportion to the project's regional or national benefits that the Panel has considered under s 81(4), even after taking into account: (i) any conditions that the Panel may set in relation to those adverse impacts; and (ii) any conditions or modifications that the applicant may agree to or propose to avoid, remedy, mitigate, offset, or compensate for those adverse impacts. An adverse impact is any matter considered by the Panel in complying with s 81(2) that weighs against granting the approval. A panel may not form the view that an adverse impact

meets the threshold in subsection (3)(b) solely on the basis that the adverse impact is inconsistent with or contrary to a provision of a specified Act or any other document that a panel must take into account or otherwise consider in complying with s 81(2). The Panel's interpretation of s 85(3) – (5) is set out in section 3.

1919. The Panel has carefully considered the extent of the project's regional and national benefits, and the significance of the project's adverse impacts. Appendix G sets out the project's benefits and its more significant adverse impacts, and summarises the extent of benefits and relative significance of adverse impacts. The Panel has reached the view that the adverse impacts in Appendix G (which are discussed in detail throughout this decision) are sufficiently significant to be out of proportion to the project's regional or national benefits. To avoid doubt, the Panel records that while some of the adverse impacts listed in Appendix G (and discussed in detail in this decision) relate to the project's inconsistency with a provision of the EEZ Act or a document that the Panel must take into account, the Panel has not formed the view that an adverse impact meets the proportionality threshold solely on the basis that the adverse impact is inconsistent with or contrary to a provision of a specified Act or any other document.

35 Decision

1920. Acting pursuant to s 81(1)(b) of the Fast-track Approvals Act 2024, the Panel declines the approvals sought in the substantive application made by Trans-Tasman Resources Limited for marine consents to enable all activities associated with the Taranaki VTM project, listed in Schedule 2 of the FTAA.
1921. The Panel records its gratitude to the Environmental Protection Authority support team for the considerable logistical support they provided to us during the duration of this fast-track process. We also extend our thanks to Sally Gepp KC for her legal advice and to Carolyn Wratt for her assistance with the drafting of a long and complex decision.