Taranaki Regional Council

AGENDA
Policy & Planning

Tuesday 16 September 2025 9.00am

Policy and Planning Committee

16 September 2025 09:00 AM - 10:00 AM

Agenda Topic

Whakataka te hau

Karakia to open meetings

Whakataka te hau ki te uru	Cease the winds from the west
Whakataka te hau ki te tonga	Cease the winds from the south
Kia mākinakina ki uta	Let the breeze blow over the land
Kia mātaratara ki tai	Let the breeze blow over the ocean
Kia hī ake ana te atakura	Let the red-tipped dawn come with a sharpened air
He tio, he huka, he hauhu	A touch of frost, a promise of glorious day
Tūturu o whiti whakamaua kia tina.	Let there be certainty
Tina!	Secure it!
Hui ē! Tāiki ē!	Draw together! Affirm!

Health and Safety Message

Emergency Procedure

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If you require assistance to exit, please see a staff member.

Once you reach the bottom of the stairs make your way to the assembly point at 43 Cloten Road. Staff will guide you to an alternative route if necessary.

Earthquake

If there is an earthquake - drop, cover and hold where possible. Please remain where you are until further instruction is given.

Date: 16 September 2025

Subject: **Taranaki VTM Project Written Comment**

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Approved by: S J Ruru, Chief Executive

Document: TRCID-1492626864-1174

Purpose

1. To seek endorsement of Taranaki Regional Council's written comment on the Taranaki VTM Project under the Fast Track Approvals Act 2024.

Executive summary

2. The Expert Panel to determine the Taranaki VTM Project application (the Application) has now been established. Taranaki Regional Council (Council) received its invitation to provide written comment on 8 September 2025. The Expert Panel has to issue its decision on the Application by 18 March 2026.
3. The crucial points in Council's written comment on the Application are:
    a. The Application would likely have significantly positive gross economic benefits on the region, but it is not yet possible to reach a judgment on the net economic benefits (i.e. after costs, including environmental, have been taken into account)
    b. The Application is opposed by iwi and portions of the community
    c. The information in the Application is insufficient to reach conclusions regarding the extent of adverse effects on seabirds, marine mammals, and generally from the sediment plume on sensitive reef ecosystems
    d. How the Expert Panel decides to take into account the requirement to favour caution and environmental protection will be crucial
    e. In taking caution and environmental protection into account, the Expert Panel should take a conservative approach to uncertain environmental effects and assume a plausible worst case to base its assessment on.
4. Overall, the written comment concludes that the final decision of the Expert Panel to grant or decline the Application is likely to be finely balanced. On one hand, the project would likely have significant gross economic benefits to the nation and region. On the other, the possibility that the activities' adverse effects are sufficiently significant to be out of proportion with the project's regional or national benefits cannot be ruled out. This is primarily due to the considerable uncertainty regarding adverse effects and the presence of both vulnerable and highly valued ecosystems and species in the South Taranaki Bight.
5. After submitting its written comment, Council will likely be involved in providing further information to the EPA, participating in any hearings or expert caucusing determined by the Expert Panel, and commenting on draft consent conditions. To facilitate Council's timely response to these largely

technical matters, it is recommended the Chief Executive have responsibility for responding, utilising existing delegations. These delegations were recently updated and cover all aspects needed for the remainder of the Application.

Recommendations

That the Taranaki Regional Council:

a) receives the memorandum titled *Taranaki VTM Project Written Comment*

b) endorses the written comment in Attachment One

c) agrees further engagement on the Application be exercised by the Chief Executive under delegation

d) determines that this decision be recognised as not significant in terms of section 76 of the Local Government Act 2002

e) determines that it has complied with the decision-making provisions of the Local Government Act 2002 to the extent necessary in relation to this decision; and in accordance with section 79 of the Act, determines that it does not require further information, further assessment of options or further analysis of costs and benefits, or advantages and disadvantages prior to making a decision on this matter.

Background

The Fast Track Approvals Act 2024

6. The purpose of the Fast Track Approvals Act 2024 (the Act) is to "facilitate the delivery of infrastructure and development projects with significant regional or national benefits." The Act then sets a framework for a single process to grant approvals across multiple pieces of legislation. It also limits opportunities for public engagement, the grounds for projects to be declined once they are accepted into the fast-track process, and the ability to appeal a decision.
7. The final decision on an application is made by the relevant decision-making panel. The panel is appointed by either the Panel Convener, or one of two Associate Panel Conveners. Appointment is skills-based. The members of the panel must collectively have the knowledge, skills and expertise relevant to the approvals being sought, and expertise in environmental matters. They must also include at least one member who understands te ao Māori and Māori development.
8. The bar for a panel declining an application is very high. The general test for declining an application is where the panel forms the view that the adverse impacts of a project "are sufficiently significant to be out of proportion to the project's regional or national benefits". In reaching this decision, the panel has to take into account conditions imposed and any further modifications to the Application put forward by the applicant in response to the Panel's proposal to decline the Application. In making its decision, a panel also needs to give the greatest weight to the purpose of the Act, and lesser weight to matters set out under other legislation.

The Application

9. The Taranaki VTM Project (the Application) by Trans-Tasman Resources Limited (TTR) was included in the Act as a listed project. They are seeking approvals under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ Act).
10. The Project is to undertake iron sand extraction in the South Taranaki Bight. The project area is beyond the territorial sea, within the exclusive economic zone. It covers 65.76 square kilometres located between 22 and 36 kilometres off the coastline of South Taranaki in water depths ranging from 20 to 42 metres.
11. TTR proposes extracting up to 50 million tonnes of seabed material per year, targeting the recovery of iron sand deposits. Of the extracted material, approximately 10% by volume will be processed into iron

ore concentrate for export. The concentrate contains vanadium and titanium, both of which are listed in the New Zealand Critical Minerals List. The remaining de-ored sediment (up to 45 million tonnes per year) will be redeposited on the seabed within the previously excavated area via a controlled discharge system.

12. The Project has a long history. TTR first lodged an application with the EPA under the EEZ Act in 2013. This was subsequently declined by the Decision Making Committee (DMC) of the EPA. TTR then undertook further work and resubmitted its application to the EPA in 2016. The EPA granted marine consent in 2017. This then went through multiple rounds of appeals. It culminated in the Supreme Court quashing the consent and referring the application back to the DMC for reconsideration. This reconsideration process progressed from 2022-2024. It ended with TTR withdrawing its application in March 2024.

The process

13. The Expert Panel for the Application has now been appointed. The members are:
    a. Hon Kit Toogood KC (chair)
    b. Loretta Lovell (local authority nominee)
    c. Dr Hilke Giles (coastal science)
    d. Gavin Kemble (planning)
    e. Natalie Hampson (economics).
14. The Expert Panel formally commenced work on 25 August 2025. They have until 18 March 2026 to issue their decision on the Application. In setting that deadline, the Panel Convener had regard to:
    a. The large volume of material and technical reports in the Application, including that some of that information was prepared to support the 2016 application
    b. This is the first application under the Act to seek approval under the EEZ Act, including the complexities associated with the conclusions reached in the Supreme Court decision on the previous application
    c. That the Expert Panel will likely consider engaging a range of specialists on matters relevant to the application
    d. Due to the history of the application, the level of local interest, the claimed economic benefits, and the nature of some effects, there are likely to be a number of invitations to provide written comment. These will require time to process and consider
    e. The complexity of the set of conditions proposed by the Applicant
    f. Provision being made for the Expert Panel to hold some form of hearing, workshops or other facilitated issue resolution sessions if they so choose.
15. The Expert Panel issued their call for written comment on 8 September 2025, with comments due by 6 October 2025. The invitation for written comment went to a wide range of parties, with the full list contained in Attachment Four.

Issues

16. The Application's benefits and adverse effects will primarily be felt within the Taranaki region. Whether these adverse effects are sufficiently significant to be out of proportion to the project's regional or national benefits is the key test. If granted, Council will also likely have responsibilities in the monitoring of consent conditions. Council's role in this process is to provide written comment on the issues arising from the application that are of relevance to the Expert Panel's considerations under the Act.

Discussion

Written comment

17. Council officers have undertaken an evaluation of both the Application and the decision-making framework under the Act. The proposed written comment is contained in Attachment One. Key points are:
    a. The Application would likely have significantly positive gross economic benefits on the region, but it is not yet possible to reach a judgment on the net economic benefits (i.e. after costs, including environmental, have been taken into account)
    b. The Application is opposed by iwi and portions of the community
    c. The information in the Application is insufficient to reach conclusions regarding the extent of adverse effects on seabirds, marine mammals, and generally from the sediment plume on sensitive reef ecosystems
    d. How the Expert Panel decides to take into account the requirement to favour caution and environmental protection will be crucial[1]
    e. In taking caution and environmental protection into account, the Expert Panel should take a conservative approach to uncertain environmental effects and assume a plausible worst case to base its assessment on
    f. The Application's treatment of air emissions is insufficient, and further attention is needed in particular to assess the potential environmental impact of sulphur dioxide emissions
    g. Further consideration is needed of how any response to a maritime incident involving any of the project's vessels would be managed. The Applicant's proposed public liability coverage is also insufficient
    h. There is insufficient information to assess alignment with provisions in the Taranaki Regional Policy Statement and Taranaki Coastal Plan. But there are key policies in the Coastal Plan that could be breached and these should be given due regard by Expert Panel.
18. Overall, the written comment concludes that the final decision of the Expert Panel to grant or decline the Application is likely to be finely balanced. On one hand, the project would likely have significant gross economic benefits to the nation and region. On the other, the possibility that the activities' adverse effects are sufficiently significant to be out of proportion with the project's regional or national benefits cannot be ruled out. This is primarily due to the considerable uncertainty regarding adverse effects and the presence of both vulnerable and highly valued ecosystems and species in the South Taranaki Bight.

Process from here

19. Upon lodgment of its written comment, Council could, depending on the decisions made by the Expert Panel on how it wishes to proceed, be involved in a combination of the following activities over the remainder of the 2025 calendar year:
    a. Providing further information requested by the EPA
    b. Participating in expert conferencing amongst relevant technical experts
    c. Participating in a hearing
    d. Providing advice on draft consent conditions.

[1] Under section 61(2) the EEZ Act, a decision-making panel is required to favour caution and environmental protection where the information available is uncertain or inadequate. Under clause 6(1)(d) of Schedule 10 in the Fast Track Approvals Act, a decision-making panel is required to take into account this requirement.

20. These engagements will likely require the rapid provision of information and high levels of technical detail.
21. Accordingly, it is recommended that decisions as to how Council might respond to further requests from the Expert Panel for engagement on the Application be exercised by the Chief Executive under delegations. Relevant delegations in the *Taranaki Regional Council Delegations Manual* were recently updated and cover all aspects needed for the remainder of the Application. Council officers will continue to report back on the progress of the Application.

Options

22. Council could endorse the written comments as proposed or seek amendments. As the written comment has been based on a thorough assessment of the application and the decision-making framework, and they are highly technical, it is recommended the written comments be endorsed as drafted.
23. Council could also request subsequent decision points along the Application process be returned to Council for endorsement. However, doing so would likely severely restrict Council's ability to engage in the process due to the speed we will likely have to respond, and the level of technical detail required. Accordingly, it is recommended the Chief Executive carry out these responsibilities.

Significance

24. This decision is assessed as not significant with regards to the Significance and Engagement Policy. It will have no impact on levels of service, incur more than $10,000,000 budgeted or $5,000,000 of unbudgeted expenditure, or involve the transfer of ownership or control of a strategic asset. More broadly, final decision-making authority rests with the Expert Panel. Council's role is to provide comment on the matters that the Panel is able to consider under the Act.

Financial considerations—LTP/Annual Plan

25. This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

26. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the *Local Government Act 2002*, the *Resource Management Act 1991* and the *Local Government Official Information and Meetings Act 1987*.

Climate change considerations

27. There are climate change impacts to consider in relation to this item. The operation of the vessels will produce greenhouse gas emissions. However, section 59(5)(b) of the EEZ Act precludes the Expert Panel from having regard to the effects on climate change of discharging greenhouse gases into the air.

Iwi considerations

28. This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the

Local Government Act 2002) as outlined in the adopted Long-Term Plan and/or Annual Plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.

29. In drafting its written comment, Council has suggested the need for protocols around the accidental discovery of human remains and how the Applicant would respond to any rahui declared in the coastal marine area adjacent to the site. Council has not provided comment on tikanga related matters, which are better commented on by iwi authorities, who have also been invited to provide comment. These matters were also well canvassed in the Supreme Court judgement. The written comment highlights that the Application is strongly opposed by iwi.

Community considerations

30. This memorandum and the associated recommendations have considered the views of the community, interested and affected parties and those views have been recognised in the preparation of this memorandum.
31. The written comment acknowledges that a portion of the community in Taranaki is strongly opposed to the Application. This is evidenced by protest action, previous delegations to Council and media coverage. However, no statistically robust survey of the region has been undertaken so it is not possible to gauge the levels of support or opposition across the full community.

Legal considerations

32. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

TRCID-1492626864-1173: Taranaki VTM Project Written Comment

TRCID-1290311762-10750: Market Economics Taranaki VTM Report Economic Review

TRCID-1290311762-12342: PDP Technical Assessment of Fast Track Application

TRCID-1290311762-12579: Taranaki VTM Project Invitation for Written Comment

Taranaki VTM Project: Written Comment

TRCID-1492626864-1173

Taranaki Regional Council

Table of contents

1. Executive summary

1. Taranaki Regional Council (Council) considers that the final determination of the Expert Panel to grant or decline the Taranaki VTM Project application (the Application) is likely to be finely balanced. On one hand, the project would likely have significant gross economic benefits to the nation and region, and this must be given greater weight under the Fast Track Approvals Act 2024 (FTAA). On the other, the eventuality that the activities' adverse effects are sufficiently significant to be out of proportion with the project's regional or national benefits cannot be ruled out. This is primarily due to the considerable uncertainty regarding adverse effects and the presence of both vulnerable and highly valued ecosystems and species in the South Taranaki Bight (STB).
2. Regarding uncertainty, the significant information deficiencies for adverse effects on marine mammals, seabirds, and the effects of the sediment plume identified by the Supreme Court in the 2016 application remain highly relevant. The limited work done by the Applicant since that Supreme Court decision has done little to address these gaps.
3. Resolving if the adverse effects are sufficiently out of proportion or not will likely hinge on how the Expert Panel takes into account the requirement to favour caution and environmental protection. The FTAA necessitates a judgement on extent of adverse effects, even in the face of considerable uncertainty. Council considers in such circumstances the Expert Panel should assume a plausible worst-case scenario for uncertain effects. If the Expert Panel agrees with this approach, caucusing amongst respective technical experts will likely be needed to determine what a plausible worst-case is in the context of seabirds, marine mammals and the sediment plume. This can then inform further analysis against relevant statutory criteria, including under the Resource Management Act 1991 and the Taranaki Coastal Plan (2023).
4. Council has also highlighted additional concerns with the application that we recommend the Expert Panel consider. These are the lack of assessment of environmental effects associated with the air discharges, misuse of the ISQG-High criteria, apparent gaps in the assessment and proffered consent conditions regarding incident response, and the Applicant's proposed approach to liability.
5. Council thanks the Expert Panel for the opportunity to provide its written comment. We look forward to further engagement throughout this process and can provide any further advice or information that may assist the Expert Panel in its deliberations[1].
6. Council's recommendations the Expert Panel:

Legislative application

a. Draw on case law regarding the Housing Accords and Special Housing Areas Act 2013 in determining its approach to the FTAA decision-making process.
b. Give close consideration to the underlying reasons for any potential breach of a bottom line, giving greater weighting to any adverse effect that causes such a breach compared to an adverse effect that does not.
c. In taking into account the requirement to favour caution and environmental protection, take a conservative approach to the extent of uncertain adverse effects focusing on the plausible worst case scenario, and if deciding to grant the application, applying stringent consent conditions.

Regional and national benefit

d. Note that the Application is strongly opposed by iwi and portions of the community.
e. Note that Council considers the project would likely provide significant gross economic benefits to the region, but cannot yet reach a judgement on if there would be significant net economic benefits.

[1] Council has provided advice on proposed consent conditions at points throughout this document. This is not a comprehensive treatment of consent conditions. If the Expert Panel decides to grant the application, detailed commentary on consent conditions from Council will be provided under section 70 of the FTAA.

f. Seek clarification from the Applicant on their estimates of jobs that will be taken by people who will live in Taranaki/Whanganui and how they arrived at such figures.
g. Consider if the requirement for the project's head office be based in Taranaki could be a suitable consent condition.

Environmental setting and sediment plume

h. Consider the confidence it can give to the conclusions that have been reached by the Applicant regarding potential impacts on reef ecosystems, despite:
    i. gaps in the assessment regarding known reef locations and associated biota (particularly in light of the Morrison et al. report);
    ii. uncertainty regarding other potential reef locations; and
    iii. uncertainty regarding the sediment plume modelling approach.
i. Consider how uncertainty in the calibration of the sediment plume model across different years and timeframes affects confidence in whether the model accurately reflects oceanic conditions.
j. Consider how the lack of clarity around the interaction of the two sediment discharge sources affects the weight given to conclusions about sediment dispersal.
k. Note the size and extent of the depositional area is not fully defined, limiting the ability to accurately assess the magnitude of sedimentation effects on the receiving environment.

Wider ecological effects

l. Give close consideration to the knowledge gaps with regards to seabirds and marine mammals, as well as the uncertainty associated with the models that have been employed to fill these knowledge gaps.
m. Note that the need to favour caution and environmental protection in the above matters will be particularly important for sensitive or endangered species such as pygmy blue whales, Hector's and Maui dolphins, the little penguin (*Eudyptula minor*), and the relict fairy prions (*Pachyptila turtur*).

Sulphur dioxide emissions

n. Request the Applicant to clarify whether the Floating Production, Storage and Offloading Vessel air quality emissions modelling by Tonkin & Taylor refers to emissions from the Integrated Mining Vessel (IMV) or alternatively from the Floating Storage and off-loading Vessel (FSO).
o. Request the Applicant to provide air quality emissions dispersion modelling that incorporates the cumulative effects of emissions simultaneously from the IMV, the FSO, and the Bulk Carrier Export Vessel (CEV).
p. Request resolution of possible discrepancies within the application documentation regarding the likely annual consumption of heavy fuel oil (HFO) by the IMV.
q. Request the Applicant provide modelling and environmental effects analysis regarding the potential impingement and deposition of acid gas condensation aerosols and plume on the sea surface in the vicinity of the IMV, FSO, and CEV.
r. Consider if requirements under MARPOL Annex VI apply to the Application regarding limitations on sulphur content in HFO.
s. Consider whether it is acceptable to allow the Applicant to use HFO of up to 3.5%, and if not, to consider:
    i. requiring the Applicant to use HFO of a maximum of 0.5% sulphur content;
    ii. requiring the use of only diesel fuel;
    iii. imposing a cap on annual emissions of sulphur dioxide and allowing the Applicant to manage fuel consumption within that cap;
    iv. requiring the installation of approved sulphur dioxide scrubbers on engine exhausts; or
    v. requiring continual ocean neutralisation dosing equivalent to their acid gas emissions.

Application of the ISQG-High

t. Amend draft Condition 6 by making reference to 'the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 ("ANZECC 2018"), and not the 2000 guidelines.

u. Amend draft Condition 6 by deleting any reference to the 'ISQG-High' values in the ANZECC 2000 guidelines, and instead requiring the Applicant to demonstrate compliance with the DGV criteria in the ANZECC 2018 guidelines (or any future update).

Incident response

v. Require the Applicant to provide appropriate analysis and a verifiable protocol setting out:
    i. identified and secured capacity for assistance, towage, rescue, or salvage, as needs be, for the mining and ancillary vessels involved in the seabed mining operation;
    ii. confirming matters such as potential assistance vessels and staffing, constraints upon availability, mobilisation time, and suitability for large vessel assistance; and
    iii. that the protocol is to be submitted to EPA (and other statutory agency or agencies as appropriate) for certification.

w. Seek clarification from the Applicant on the rationale behind using 100 metric tonnes for oil spill modelling and consider the need for further modelling and effects assessment, including of a catastrophic failure scenario.

x. Review the level of public liability insurance cover offered by the Applicant, in order to establish a meaningful extent of cover.

y. Consider if a requirement for professional indemnity insurance from relevant technical experts referenced in the proposed consent conditions is appropriate.

z. Amend proposed conditions 33 and 34 to:
    i. explicitly require MNZ approval of the oil spill contingency plan to be obtained by the Applicant prior to the commencement of any on-site extraction operations; and
    ii. require consultation by the Applicant with representatives of the Taranaki marine oil spill response team, and the Manawatu-Wanganui marine oil spill response team (subject to their availability), in the preparation and exercising of the oil spill contingency plan.

aa. Consideration be given to New Zealand's capacity to respond to a large-scale oil spill incident associated with the Project, and if potential gaps exist, these be addressed through consent conditions.

Liability

bb. Review the certainty, integrity, geographic coverage and term of the current assurances and consent conditions concerning the intention and capacity of the Applicant to ensure post-extraction recovery of the wider marine environment, and impose such additional measures, mechanisms, and criteria as it finds necessary to guarantee delivery of such capacity even in the case of default by the Applicant.

cc. In giving effect to the above recommendation, give consideration to the following potential requirements:
    i. progressive payments during mining operations into a trust fund, to be accessible as need is found once extraction ceases, and any residual to be returned to the Applicant at the end of the five-year period or the end of reinstatement works whichever comes later;
    ii. the public liability insurance to be arranged such that the EPA is recognised as a co-beneficiary for the purpose of environmental reinstatement cost recovery;
    iii. public liability cover for the full five-year period following cessation of extraction to be certified prior to the cessation of extraction; or
    iv. a bond, despite the Applicant's objections to such a provision.

Cultural protocols

dd. Set conditions following the template of those relating to the discovery of archaeological sites, and applying to the discovery of human remains or human artefacts.

ee. Set a condition requiring the development of a protocol for the operator to implement in case of declaration of a rahui in the general vicinity of extraction operations.

Planning analysis

ff. Note Council considers it currently has insufficient information to make a judgement on if the Application is consistent with the nature and effect of the RMA and Taranaki Coastal Plan (2023).

gg. Note that policies 9 and 15 and possibly 43 in the Taranaki Coastal Plan establish relevant bottom lines that should be given close consideration by the Expert Panel, while the requirement to take a precautionary approach in Policy 3 could also be contravened.

hh. Note that Council is able to provide further advice on consistency with key planning instruments as the decision-making process progresses.

2. Introduction

7. This report contains Taranaki Regional Council's (Council) written comment on the Taranaki VTM Project application (the Application). It has been informed by the expertise of Council staff, the *Taranaki VTM Report – Economic Review* prepared by Market Economics (The Market Economics Report, Attachment 1), and the *Technical assessment of Fast Track* by Pattle Delamore Partners (the PDP Report, Attachment 2) regarding environmental effects. While key parts of these reports are summarised in this document, the full reports also form part of Council's written comment and should be read in their entirety.

3. Legislative application

3.1 Decision-making framework

8. This section outlines considerations for the Decision-Making Panel (the Expert Panel) regarding the decision-making framework under the Fast Track Approvals Act 2024 (FTAA). In presenting these comments, Council is cognisant of the Supreme Court judgement on the previous application for this project, and that this is the first application for fast-track approval for permits under the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ Act).
9. Decision-making under the FTAA includes both a general weighting exercise against different criteria, as well as an additional threshold that must be met to decline an application. In the weighting exercise, panels are to give greatest weight to the purpose of the FTAA and, in turn, the regional or national benefits of the project. The other mandatory considerations include the substantive application and any of the reports, advice and other information listed in section 81(2)(a) of the FTAA; and the specific matters set out in Clause 6 of Schedule 10 regarding the EEZ Act.
10. Under section 85(3) of the FTAA, a panel can only decline an application if it forms the view that the adverse impacts of an application "are sufficiently significant to be out of proportion to the project's regional or national benefits." This is after taking into account any conditions imposed or modifications proffered by the applicant.
11. In undertaking the required weighting exercise, Council suggests guidance can be taken from case law on the Housing Accords and Special Housing Areas Act 2013 (HASHAA), which contains weighting provisions in a similar structure to the FTAA. The Court of Appeal's interpretation of the HASHAA weighting provisions are that each of the matters listed needed to be considered independently first before the overall weighting exercise is carried out[2].
12. As the Expert Panel undertakes this independent assessment of the relevant matters, the findings of the Supreme Court regarding the previous application remain highly relevant. This decision canvased matters pertinent across a range of decision-making criteria in the EEZ Act.
13. Of particular relevance to Council is the Supreme Court's findings regarding the requirement to take into account "the nature and effect of other marine management regimes" (EEZ Act, section 59(2)(h)). The Supreme Court found the decision-making committee under the EEZ Act must consider[3]:
    a. the objectives of the Resource Management Act 1991 (RMA) and New Zealand Coastal Policy Statement (NZCPS), and the outcomes sought to be achieved by those instruments, in the area affected by the proposal;

[2] Enterprise Miramar Peninsula Inc v Wellington City Council [2018] NZCA 541

[3] Trans-Tasman Resources Limited v Taranaki-Whanganui Conservation Board [2021] NZSC 127 at [181] and [182], per William Young and Ellen France JJ; [280], per Glazebrook J; [298], per Williams J; [331] per Winkelmann CJ. Note that the members of the Supreme Court held differing views about aspects including the weight to be given to environmental bottom lines in the NZCPS in the context of the EEZ Act.

b. whether the proposal would produce effects within the coastal marine area that are inconsistent with the outcomes sought to be achieved by those regimes; and

c. whether the proposal "would be inconsistent with any environmental bottom lines established by the NZCPS. If a proposed activity within the EEZ would have effects within the CMA that are inconsistent with environmental bottom lines under the marine management regime governing the CMA, that would be a highly relevant factor for the DMC to take into account. The DMC would need to squarely address the inconsistency between the proposal before it and the objectives of the NZCPS. If the DMC [decision-making committee] was minded to grant a consent notwithstanding such an inconsistency, it would need to clearly articulate its reasons for doing so."

14. While the FTAA explicitly overrides any bottom lines, either in the EEZ Act or another marine management regime, Council encourages the Expert Panel to give close consideration to the underlying reasons for any potential breach when carrying out its proportionality assessment. In this assessment, it is reasonable to consider that any adverse effect that breaches a bottom line be given greater weight than an adverse effect that does not – even if such a breach cannot be the sole reason for meeting the threshold for declining an application as stated under section 85(4) of the FTAA. In other words, bottom lines indicate a threshold for particularly serious adverse effects that need to be given appropriate weighting in the Expert Panel's decision making.

3.2 The role of uncertainty and precaution

15. Council considers that the Expert Panel's way of approaching uncertainty under the FTAA will be of crucial importance. Where there is insufficient information to make a robust judgement on the extent of any positive or adverse effect, the FTAA provides pathways to commission reports, invite comments from specific parties, request further information, or hold a hearing. However, the strict timelines imposed under the FTAA may limit how many information deficiencies can be robustly addressed.

16. Council considers it unlikely the FTAA provides scope to directly decline an application on the basis of there being inadequate information. Under an orthodox EEZ Act process, section 62(2) of the EEZ Act enables a marine consent application to be refused if the authority has inadequate information. That provision is listed in clause 6 of Schedule 10 of the FTAA as part of the criteria to take into account when assessing the Application. However, under section 81(2)(f) of the FTAA, panels can decline approvals only in accordance with section 85. Section 85 does not include a provision about inadequate information.

17. Where there is uncertainty, clause 6(1)(d) of schedule 10 of the FTAA requires the Expert Panel to take into account section 61(2) of the EEZ Act, being the requirement to favour caution and environmental protection. As noted by the Applicant, "[g]iven the inherent uncertainties in the information to support the applications, the requirement to favour caution and environmental protection under section 62 of the EEZ Act is triggered."[4] This follows the conclusions in the Supreme Court decision regarding the lack of sufficient information in the 2016 application regarding effects on marine mammals and seabirds, and effects from the sediment plume. While the EEZ Act provides for an application to be declined due to the requirement to favour action and environmental protection, like with uncertainty, it is unlikely the FTAA directly provides for this. It is not a matter included under section 85 of the FTAA.

18. However, Council considers where there is uncertainty, the requirement to favour caution and environmental protection should still be given significant weight in the Expert Panel's decision making. This is through two pathways. First, where there is uncertainty around the adverse effects, that may require the Expert Panel to take a conservative view of a potential effect and adopt a plausible worst case scenario as its finding about the extent of the adverse effect. Second, where the Expert Panel

[4] Application report, section 8.3.15

decides to grant an application even where there is significant uncertainty, the requirement to favour caution and environmental protection should be expressed through stringent consent conditions.

3.3 Recommendations

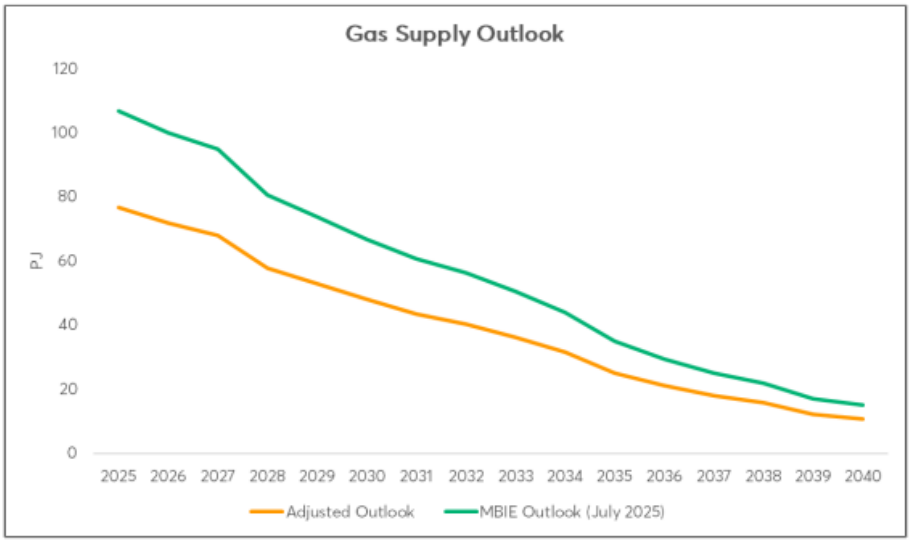
19. Council recommends the Expert Panel:
    a. Draw on case law regarding Housing Accords and Special Housing Areas Act 2013 in determining its approach to the FTAA decision-making process.
    b. Give close consideration to the underlying reasons for any potential breach of a bottom line, giving greater weighting to any adverse effect that causes such a breach compared to an adverse effect that does not.
    c. In taking into account the requirement to favour caution and environmental protection, take a conservative approach to the extent of uncertain adverse effects focusing on the plausible worst case scenario, and if deciding to grant the application, applying stringent consent conditions.

4. Regional and national benefit

4.1 Regional economic context

20. The expected economic benefits of the project need to be considered within the current and projected economic context of the region. The Taranaki economy remains in recession, with preliminary estimates from Infometrics predicting a decline in regional gross domestic product (GDP) by 3.1% the year to March 2025. This is contrasted with a 1.1% decline nationally. This economic contraction is most keenly felt for the mining sector, with particular impacts also on the construction, metal product manufacturing and utilities section. Employment has dropped by 1.8% over this period, compared with a 0.9% decline nationally. This has corresponded to an increase in the unemployment rate to 4.5%, compared with 4.9% nationally[5].
21. In the medium-term, the region is facing serious economic headwinds with the decline of the oil and gas industry. Using 2020 data, the oil and gas extraction and exploration and other mining support services provided 1,148 jobs and just over $1.6 billion in value added. This industry in turn supports a much wider network of jobs and economic performance, contributing in part to 1,381 jobs in primary metal and metal product manufacturing, and fabricated metal product manufacturing; and 383 jobs in electricity generation and on-selling, and electricity transmission and distribution[6]. Natural gas also directly supports over 300 direct employees at the Methanex Motunui facility and over 100 jobs at the Ballance urea plant Kapuni – with these two facilities generating their own flow-on economic benefits. Further jobs and gross domestic product are supported through the hospitality industry and other induced effects.
22. Without any significant new finds – where opinions differ on the probability of this occurring – the gas supply projections indicate a rapid decline in supply. The below graph shows MBIE's original 2024 projection for gas supply and an adjusted outlook based on actual 2025 data[7] .

[5] Infometrics Quarterly Economic Monitor, Taranaki Region, June 2025.
[6] Figures taken from Moran, E., McDonald, G., and Mckay, D. (2024). The Taranaki Economy and Freshwater Management. Taranaki Regional Council.
[7] Figure from the Gas Industry Co. Quarterly Report June 2025. The data is provided with a standard '2P' 50% probability that ultimate volumes will be greater or less than stated.



23. While the flow of specific economic impacts of the decline is uncertain, these impacts are highly likely to be significant for the regional economy. They are already being felt, as indicated by the ongoing natural gas supply crisis, reduction in Methanex's production, and slated temporary shutdown of Ballance's urea plant[8].
24. There are however bright spots in the Taranaki economy. The recent ANZ Taranaki Regional Spotlight Report[9] noted:

    Manufacturing companies - including New Plymouth-based engineered timber producer Taranakipine (profiled in this report) - are investing heavily in innovation and new technology. This has boosted productivity, given these companies a competitive edge in the global market, and primed them for growth. Productivity gains and record-high prices have also enabled dairy farmers to make a substantial and growing contribution in recent years. By diversifying product offerings and markets, with a focus on developing high-value exports, these producers and manufacturers have played a key role in supporting our economy.

    It is also important to emphasise the range of innovative work that is being done in the region regarding renewable energy technologies, such as hydrogen and biogas. Organisations like Ara Ake and Venture Taranaki also play a crucial role in supporting the ongoing development of the region.

4.2 Economic significance

25. The project would likely bring significant gross economic benefit to Taranaki. As concluded in the review of the NZIER report in the Application by Market Economics (Attachment 1):

    The economic assessment of the Taranaki VTM Project, conducted by NZIER using standard input-output methodology, demonstrates significant potential economic impacts. The analysis appropriately quantifies direct, indirect and induced effects, showing annual contributions of 0.34% to South Taranaki-Whanganui's GDP, 0.87% to the broader Taranaki-Whanganui region, and 0.07% nationally. These translate to substantial absolute benefits ($222 million regionally and $265 million annually) with cumulative impacts exceeding $4.4 billion (regional) and $5.3 billion (national) over 20 years.

[8] Gas 'crisis' warning as MBIE warns again supply falling faster than expected, RNZ, 2025; Balance's Kapuni plan to shut down temporarily in January, the Post, 2025; Methanex sells gas for winter electricity supply again, the Post, 2025.
[9] ANZ Taranaki Regional Spotlight Report 6 August 2025.

Further, within the context of the decline of the oil and gas industry, the forecast 355.83 direct; 798.99 direct and indirect; and 1,123.10 direct, indirect and induced jobs at the regional (Taranaki-Whanganui) level take on additional significance.

26. However, Council emphasises the conclusion in the Market Economics review of:

> *While NZIER's expenditure-focused assessment follows conventional practice and provides credible impact estimates, it does not fully evaluate broader economic benefits (as distinct from impacts) or account for potential adverse environmental/social effects identified in the Project Report.*

Hence, while the Council considers the project would likely have a significant gross economic impact, we cannot yet comment on the expected net economic benefit. It is the role of the Expert Panel to reach a judgement on the net benefit, after considering quantitative and qualitative evidence on the potential costs, including social and environmental, of the project. And as highlighted below, there remains information deficiencies in the Application that currently preclude Council from reaching its own judgment.

27. Council also notes that the final number of jobs that will be based in the region is uncertain in two regards. First, the exact number is expressed differently throughout the Application and needs clarity[10]. Second, the regional job numbers include 35 based at a head office in New Plymouth, however there is no certainty that the head office will indeed be situated within Taranaki. Consideration should be given to this being a condition of consent if the application is granted, especially considering the elevated importance of regional economic benefits in the FTAA.
28. Finally, Council considers that the net economic benefits should also be tempered by the degree that a given community wants that development to occur. While no systematic survey of Taranaki residents has been undertaken, Council emphasises that the Application is strongly opposed by iwi and portions of the community.

4.3 Recommendations

29. Council recommends the Expert Panel:
    d. Note that the Application is strongly opposed by iwi and portions of the community.
    e. Note that Council considers the project would provide significant gross economic benefits to the region, but cannot yet reach a judgement on if there would be significant net economic benefits.
    f. Seek clarification from the Applicant on their estimates of jobs that will be taken by people who will live in Taranaki/Whanganui and how they arrived at such figures.
    g. Consider if the requirement for the project's head office be based in Taranaki could be a suitable consent condition.

5. Environmental setting and sediment plume

5.1 Discussion

30. As set out in the PDP Report, considerable work has been undertaken by the Applicant to describe the baseline state of the activity area. However, the Application's treatment of the new information revealed in the *Offshore subtidal rocky reef habitats on Pātea Bank, South Taranaki (2022)*[11] by Morrison et al. is poor. This report demonstrated that subtidal reefs are relatively common along the Pātea Bank, and that there are likely many more that have not yet been identified. Further, it concluded these reefs

[10] Section 8.3.4. refers to 799 jobs in the Taranaki/Whanganui regions, the NZIER report refers to the full 1,123.1 being in the Taranaki/Whanganui economy, section 5.2.3.4 refers to three quarters of the direct 359 employees being based outside the region, section 5.2.3.5 refers to the majority of employees being based in Taranaki, Manawatū-Whanganui and Wellington.

[11] The report can be found om the Council website here.

are relatively unique in a New Zealand context due to their distance offshore. The Application's main consideration of these matters appears confined to passing reference in two paragraphs[12]. Further consideration of these matters is needed, especially the potential for rocky reefs to be within 3km of the mine site.

31. The PDP Report also sets out a range of other concerns and areas where further information is needed in order to be able to robustly assess the Application. Key matters are:
    a. The absence of an updated assessment of localised impacts on reef habitats and associated species (e.g. *Ecklonia radiata*) in light of the Morrison et al. report being a critical gap in the Application.
    b. This includes considering whether these impacts have been assessed under the latest worst-case scenario testing for optical and primary production effects, and using the most appropriate plume modelling approach (e.g. near-field verses far-field).
    c. The calibration of the sediment plume model across different years and timeframes introduces potential uncertainty.
    d. There remains a lack of clarity around the interaction of two sediment discharge sources, particularly the mechanism by which de-ored sand is expected to trap finer sediment.
    e. The size and extent of the depositional area is not fully defined, limiting the ability to accurately assess the magnitude of sedimentation effects on the receiving environment.

5.2 Recommendations

32. Council recommends the Expert Panel:
    h. Consider the confidence it can give to the conclusions that have been reached by the Applicant regarding potential impacts on reef ecosystems, despite:
        i. gaps in the assessment regarding known reef locations and associated biota (particularly in light of the Morrison et al. report);
        ii. uncertainty regarding other potential reef locations; and
        iii. uncertainty regarding the sediment plume modelling approach.
    i. Consider how uncertainty in the calibration of the sediment plume model across different years and timeframes affects confidence in whether the model accurately reflects oceanic conditions.
    j. Consider how the lack of clarity around the interaction of the two sediment discharge sources affects the weight given to conclusions about sediment dispersal.
    k. Note the size and extent of the depositional area is not fully defined, limiting the ability to accurately assess the magnitude of sedimentation effects on the receiving environment.

6. Wider ecological effects

6.1 Discussion

33. Council also commissioned PDP to undertake an assessment of the Application regarding effects on seabirds, marine mammals, and polychaete worms. Key points are:
    a. Based on the evidence, there does not appear to be sufficient information to fully and confidently assess the impacts of the mining activity on seabirds in the STB. Additionally, there is little indication that identified knowledge gaps have been substantially filled since the 2016 application.

[12] [17] and [18] of Dr. Alison Macdiarmid's evidence of 19 May 2023.

b. Site-specific data on seabird presence, distribution, foraging areas, and behavioural patterns remain limited, which makes it difficult to quantify potential population-level or long-term impacts.
c. Potential effects on seabirds, including the little penguin (*Eudyptula minor*) who travel to feed in the STB and the relict fairy prions (*Pachyptila turtur*), was inconclusive regarding evidence presented in the 2023 reconsideration.
d. There are potential mitigations available to reduce the attractiveness of the IMV to birds.
e. Based on the information provided throughout the application, it is difficult to assess the potential for effects on marine mammals, including with regards to noise.
f. The STB is an important hotspot for marine mammal diversity in New Zealand. Sightings and strandings include the following threatened or endangered species: bottlenose dolphin, Hector's dolphin, Maui dolphin, leopard seal, New Zealand sea lion, pygmy blue whale, killer whale (orca) and southern right whale.
g. Within the mining site, it is likely that that recolonisation of seabed biota would occur, and flow on effects on food webs may be minimal. This is subject to the caveats that the presence of novel species in the area is unknown and recolonisation relies on nearby source populations.

6.2 Recommendations

34. Council recommends the Expert Panel:
    l. Give close consideration to the knowledge gaps with regards to seabirds and marine mammals, as well as the uncertainty associated with the models that have been employed to fill these knowledge gaps, and how the Expert Panel will take into account the need to favour caution and environmental protection regarding potential effects on these animals.
    m. Note that the need to favour caution and environmental protection in the above matters will be particularly important for sensitive or endangered species such as pygmy blue whales, Hector's and Maui dolphins, the little penguin (*Eudyptula minor*), and the relict fairy prions (*Pachyptila turtur*).

7. Sulphur dioxide emissions

7.1 Application content

35. The Application proposes that both the Integrated Mining Vessel (IMV) and the Floating Storage and off-loading Vessel (FSO) will primarily operate using heavy fuel oil (HFO) – with the IMV being able to also operate on diesel. The IMV and FSO vessels will have capacity for 35,000 tonnes and 20,000 tonnes of HFO respectively. Under normal operations they will consume up to 7,500 and 1,500 tonnes per month[13]. The engines will operate to International Maritime Organisation Tier II emission levels, with no exhaust gas treatment systems.'[14] The fuel requirements of the Bulk Carrier Export Vessel (CEV) are not stated in the Application report.
36. The Applicant has offered to include a condition limiting the sulphur content of any fuel used in the project vessels to 3.5% wet weight. The Applicant states the condition is provided on an Augier bases, given the potential effect is not regulated[15].
37. The potential effects on human health from these emissions were modelled by Tonkin & Taylor (T&T) for two different possible power system configurations. The two air quality plume dispersion modelling

[13] Application report, section 2.3.10
[14] Application report, Section 2.3.21
[15] Application report, section 5.12.4

reports by Tonkin & Taylor each refer to emissions from the Floating Production, Storage and Offloading (FPSO) vessel.

38. The two reports found that people on the coastline would not be exposed to sulphur dioxide, nitrogen dioxide and carbon monoxide at concentrations above New Zealand's National Air Quality Standards. However, the Application report does note the potential for staff on board the IMV to be exposed to elevated concentrations of sulphur dioxide and nitrogen dioxide[16].

7.2 Modelling omissions and consumption figures

39. The modelling completed by T&T appears to have omitted the emissions from the FSO and CEV. If this is the case, it is partial and incomplete. The T&T gas turbines report refers to the operation of four HFO fired gas turbines on the FPSO. The T&T reciprocating engines report refers to six 12V46 engines and one R1, seven-cylinder engine. It is this latter configuration that is referred to in the Application report, and as being located on the IMV.
40. The FSO is a second and substantial source of sulphur dioxides alongside the IMV. In addition, from time to time the CEV will moor in the vicinity in order to load raw iron ore. The downwind effects from the two and on occasion three significant sources will be cumulative. But there appears to be no report or other appendix to the Application that provides modelling of air emissions from either the FSO or the CEV. In the absence of consideration of these other sources of emissions, the findings regarding a lack of risk to human health on downwind shores are inadequately informed.
41. Further information is also needed to reconcile differences in the estimated HFO consumption. The Application report estimates the IMV using 7,500 tonnes of HFO per month, equating to 90,000 tonnes per year. However, the T&T reciprocating engines report states that "[w]ith all engines operating (ie the six 12V46 engines and the one R1 7 cylinder engine) the FPSO will use up to 156,000 tonnes per annum of HFO[17]". Noting the latter figure is a theoretical maximum and the former is an estimated actual, the discrepancy still requires explanation and rationale. A reliable figure for HFO consumption is essential for assessing the impacts of the emissions.

7.3 Lack of assessment of environmental effects

42. The Application contains no assessment of the environmental effects of sulphur dioxide emissions and resulting formation of sulphuric acid. Sulphur dioxide will be formed whenever sulphur-containing fuel is burned. Upon its release into the atmosphere, it reacts readily with any moisture in the air or on any surface (noting the naturally high levels of sea spray in the application area) to initially form sulphurous acid. Further oxidation then occurs naturally, at a somewhat slower rate, to form sulphuric acid mist or solution.
43. The estimated monthly consumption on the IMV is given as 7,500 tonnes per month, and on the FSO as 1,500 tonnes per month. These combined figures mean the combustion and release of up to 315 tonnes of sulphur per month for a HFO sulphur content of 3.5%. The combusted sulphur will be discharged in the form of 630 tonnes of sulphur dioxide, which in turn is equivalent to 965 tonnes of sulphuric acid (H_2SO_4) per month, deposited directly or indirectly into the sea. Over the course of 20 years, this indicates a gross potential discharge equivalent to up to 231,000 tonnes of concentrated sulphuric acid into the STB.
44. These figures do not take into account any additional contribution from the CEV to the annual sulphur dioxide deposition budget. Neither do they take into account the consequences of acid rain deposition of nitrogen oxides or carbon dioxide, likewise sourced from the combustion products.

[16] Application report, section 5.12
[17] Page 3.

45. Ocean acidification due to the dissolution of sulphur dioxide, nitrogen oxides, and carbon dioxide (each arising from combustion of HFO) is recognised as a global environmental crisis. The consequences include:
    a. changes in ocean chemistry (the acidity of the ocean has already increased about 25% since the start of the Industrial Revolution);
    b. the degradation and loss of coral reefs and beds and other life forms that rely on carbonate-based shells and skeletons;
    c. the weakening of shellfish shells with resultant greater vulnerability to predation and sediment abrasion, and loss of shellfish community health, diversity, and abundance; and
    d. adverse effects on any species sensitive to acidity.

    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.

46. In response to the adverse effects of HFO sourced emissions, 3.5% HFO is no longer the standard grade fuel for ocean going vessels. Annex IX of the International Convention for the Prevention of Pollution from Ships (MARPOL) seeks to limit air pollution from ships. On 1 January 2020 the previous sulphur limit of 3.5% in MARPOL was dropped to 0.5%. New Zealand adopted MARPOL Annex VI on 26 May 2022, with it coming into force gradually as regulations are updated. Regulation 3.1 of Annex VI does include an exemption for "emissions associated solely and directly with the treatment, handling or storage of seabed minerals" and "emissions from marine diesel engines that are solely dedicated to the exploration, exploitation and associated offshore processing of seabed mineral resources". Considering that HFO will be used to power all aspects of the IMV, FSO and assumedly CEV, a key question is if the seabed minerals exemption in Annex VI applies to the IMV, FSO, and CEV.
47. Regardless of if Annex VI applies, consideration should be given to if use of HFO of 3.5% sulphur is appropriate. Especially in the context of the global move to low sulphur HFO and the already identified ability to use diesel in the IMV.

7.4 Recommendations

48. Council recommends the Expert Panel:
    n. Request the Applicant to clarify whether the FPSO air quality emissions modelling by Tonkin & Taylor refers to emissions from the IMV or alternatively from the FSO.
    o. Request the Applicant provide air quality emissions dispersion modelling that incorporates the cumulative effects of emissions simultaneously from the IMV, the FSO, and the CEV.
    p. Request resolution of possible discrepancies within the application documentation regarding the likely annual consumption of HFO by the IMV.
    q. Request the Applicant provide modelling and environmental effects analysis regarding the potential impingement and deposition of acid gas condensation aerosols and plume on the sea surface in the vicinity of the IMV, FSO, and CEV.
    r. Consider if requirements under MARPOL Annex VI apply to the Application regarding limitations on sulphur content in HFO.
    s. Consider whether it is acceptable to allow the Applicant to use HFO of up to 3.5%, and if not, to consider:
        v. requiring the Applicant to use HFO of a maximum of 0.5% sulphur content;
        vi. requiring the use of only diesel fuel;
        vii. imposing a cap on annual emissions of sulphur dioxide and allowing the Applicant to manage fuel consumption within that cap;
        viii. requiring the installation of approved sulphur dioxide scrubbers on engine exhausts; or
        ix. requiring continual ocean neutralisation dosing equivalent to their acid gas emissions.

8. Application of the ISQG-High

8.1 Discussion

49. There are two issues, one substantive and one administrative, regarding how the Applicant has applied the Interim Sediment Quality Guideline-High in its proposed consent conditions. Condition 6 states "[t]he activities authorised by these consents must not result in an exceedance of any Interim Sediment Quality Guideline-High ("ISQG-High") value in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 ("ANZECC 2000"), or any subsequent versions thereof, at any of the ten monitoring sites identified in Schedule 2."
50. The administrative issue is that the ANZECC 2000 guidelines have been replaced by the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018. Likewise, the ISQG-High criteria are now referred to as 'GV-high' values.
51. The substantive issue is that ISQG-High/GV-high values are misapplied in the Application. The 2018 guidelines clearly state:
    a. The upper guideline values (GV-high) provide an indication of concentrations at which you might already expect to observe toxicity-related adverse effects.
    b. As such, the GV-high value should only be used as an indicator of potential high-level toxicity problems, not as a guideline value to ensure protection of ecosystems.
    c. The use of multiple lines of evidence as part of the weight-of-evidence process is recommended to better assess the risk to a sediment ecosystem if a default guideline value is exceeded.
52. To provide acceptable ecological protection against the possibility of metals within sediment proving to be at toxic levels, the criteria referenced in this condition should be the DGV criteria provided in Table 1 of the 2018 guidelines[18], and not the GV-high criteria. As quoted above from the guidelines, "the sediment DGVs indicate the concentrations below which there is a low risk of unacceptable effects occurring, and should be used, with other lines of evidence, to protect aquatic ecosystems".

8.2 Recommendations

53. Council recommends the Expert Panel:
    t. Amend draft Condition 6 by making reference to 'the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 ("ANZECC 2018"), and not the 2000 guidelines.
    u. Amend draft Condition 6 by deleting any reference to the 'ISQG-High' values in the ANZECC 2000 guidelines, and instead requiring the applicant to demonstrate compliance with the DGV criteria in the ANZECC 2018 guidelines (or any future update).

9. Incident response

9.1 Rescue or salvage availability

54. There is an absence of consideration in the Application of the availability of, or means of assistance for, rescue or salvage procedures in the eventuality of any serious mishap to any of the vessel fleet. The Applicant has provided some detail around measures and corresponding consent conditions for the safe operation and movement of mining vessels and ancillary vessels (e.g. Attachment 1: Proposed Restricted Activities and Consent Conditions: conditions 25, 30, 33-34). However, given the mining

[18] Table 1 Recommended toxicant default guideline values for sediment quality, at Toxicant default guideline values for sediment quality

activities involve up to three heavy vessels (any two of which will be at any time working in relatively close proximity), a lee shoreline and relatively shallow and frequently turbulent waters, this omission warrants further attention.

55. The 2022 *Emergency Towing and Emergency Salvage Study* (ETESS) prepared for Maritime New Zealand is an important reference point. It considered a number of plausible scenarios, such as dragging anchor, loss of propulsion in adverse conditions adjacent to a lee shore, loss of propulsion or steerage, and mooring breakout. A key finding was:

    With the risk of a maritime emergency not having decreased since the ETESS 15 report, statistically New Zealand is due another significant maritime incident. A finding of this report is that there are limited available vessels that could be used promptly to prevent the escalation of a maritime incident in all but the most benign conditions, principally because the main dedicated towing assets, harbour tugs, are not designed for emergency towage tasks. The report also finds that while there are numerous salvage-capable marine service providers located in New Zealand, none would be capable of conducting a significant salvage event' (ETESS 2022, Executive Summary).

56. Further, a history of shipping mishaps involving the Taharoa Express, a bulk iron ore carrier highlights the risks. The Taharoa Express exported ironsand ore from an offshore loading terminal off Kawhia. From 2003 to 2009 it was involved in at least 4 different incidents, two of which resulted in formal investigations[19]. This does not establish any likelihood regarding the Application but reinforces that operations are not certain to remain incident-free.

57. A mishap involving any of the primary mining vessels would be an adverse event of potentially highly significant scale. For example, the fuel storage capacity of the IMV and FSO are given as 35,000 tonnes and 20,000 tonnes of HFO respectively. The IMV is to have a length of 345 metres, the FSO a carrying capacity of 60,000 tonnes, and the CEV a cargo capacity of 180,000 tonnes. To provide context, the Rena disaster involve a much smaller vessel. It was 246 metres long, had a total deadweight (cargo plus fuel carrying capacity) of 47,000 tonnes. It was carrying 1,700 tonnes of HFO at the time of the grounding, with an estimated 350 tonnes being discharged into the sea. The Rena salvage operation cost $700 million[20].

58. Council does not suggest the extraction and trans-shipment operations will be conducted with anything other than due care and competence. However, the possibility of a low or extremely low probability event, but with potentially high regional and national consequences, necessitates greater consideration of appropriate precautions.

9.2 Insurance

59. The Applicant proposes insurance cover of "public liability insurance of not less than NZ$500,000,000 (2025-dollar value) for any claim or series of claims arising from our operations to cover costs of environmental restoration and damage to the marine environment, assets of existing interests or infrastructure in the STB as a result of an unplanned event occurring during operations." (Application report, executive summary). Council notes that Section 5.13.1.3 of the Application report refers to proposed condition 83 and $100,000,000 of public liability cover. Condition 83 in the Application does not refer to public liability cover, but condition 107 refers to at least $500,000,000 worth of public liability insurance.

60. Regardless of the specific sum, comparison with the Rena disaster indicates the $500 million figure is inadequate by a significant margin. The Application involves much larger vessels with HFO carrying

[19] Report 07-207, Transport Accident Investigation Commission, 2007; Inquiry 09-210, Transport Accident Investigation Commission, 2009; Stricken ship will be towed to Japan, NZ Herald, 2003; Ship diced with danger last year, NZ Herald, 2004.

[20] Reflecting on ten years since the Rena grounding and oil spill response, Maritime NZ, 2021.

capacities that are an order of magnitude greater than the Rena. Accordingly, greater consideration is needed on what an appropriate public liability insurance requirement would be.

61. Consideration should also be given to if a requirement for professional indemnity insurance is appropriate. In particular, the Application makes extensive use of certification processes led by technical experts in the proposed consent conditions[21]. A requirement for professional indemnity insurance for relevant technical experts would provide reassurances that the tax or rate payer will not be left with the cost of addressing any issues.

9.3 Oil spill response

62. The Application report sets out the approach to providing oil spill response planning. This includes identification of the possibility of oil spillage in section 4.1.3, and a fuller discussion of oil spill planning and management in section 5.14.3. Modelling of the trajectory of an oil spill from the mining area has estimated that "some 92.4 to 97.8% of oil spill events are predicted to result in a beaching outcome of some sort[22]". That is, any spillage of oil is almost certain to result in a shoreline impact within the STB.
63. Council is concerned that the modelling done by the Applicant is only based on a 'worse case' oil spill of 100 metric tonnes over a two-hour period. This seems insufficient in the context of the IMV and FSO vessels with their respective 35,000 and 20,000 tonne HFO capacity. Further, the Application contains no information on why that scenario was chosen and what operational event it might equate to.
64. Effective oil spill scenario planning and assessment should be based on a range of scenarios, including catastrophic failure – even if that is a very low probability event. Further work is needed to determine what these scenarios would look like and the associated adverse effects.
65. Through conditions 33 and 34 the Applicant has committed to developing an oil spill response plan in consultation with Maritime New Zealand (MNZ) for their approval. However, these conditions do not explicitly require the Company's oil spill contingency plan to be prepared and approved prior to the commencement of any on-site activity by the Applicant.
66. Further, the Application and draft conditions make no mention of any input from the Taranaki oil response team into the preparation of the contingency plan, including alignment with the Taranaki Regional Council Marine Oil Spill Contingency Plan. The Taranaki team is:
    a. comprised of staff from the Regional Council, Port Taranaki, and regional on-shore and off-shore oil hydrocarbon extraction and processing industries;
    b. exercises frequently (both desktop and field deployment);
    c. is trained by MNZ to current good oil spill response practice; and
    d. has considerable experience in the management of oil and oil spills to draw on.
67. Acknowledging that MNZ has the exclusive role of contingency plan approval, nevertheless seeking and incorporating input from the local team and the regional plan into the drafting of the operational plan for the mining operation would be prudent. It also ensures that the regional response team would have an immediate and intimate awareness of the part they would be called upon to play in conjunction with MNZ staff, in the eventuality of any spill in the STB. It is inevitable that the regional team, together with the oil spill containment and recovery equipment held at Port Taranaki, will be

[21] These include matters related to the impacts of noise on marine mammals (condition 13), the pre-commencement environmental monitoring plan (condition 48), review of the numerical suspended sediment concentration limits (condition 51), operation sediment plume model (condition 52), environmental management and monitoring plan (condition 55), post-extraction benthic recovery monitoring (condition 57), seabird effects mitigation and management plan (condition 65), marine mammal management plan (condition 66), collision (loss of position) contingency management plan (condition 67), and biosecurity management plan (condition 70).

[22] Application report, section 5.14.3.2.

called upon in the event of a spill. Proactive, rehearsed, and co-operative engagement between all parties is sensible. Similar alignment with the oil spill team and plan within the Manawatu-Wanganui region should also be considered.

68. Finally, further consideration should be given to make sure New Zealand has the response capacity needed to respond to a large-scale incident associated with the Project. If not, consent conditions should provide for those capacity gaps to be addressed,

9.4 Recommendations

69. Council recommends the Expert Panel:

v. Require the Applicant to provide appropriate analysis and a verifiable protocol setting out:
   i. identified and secured capacity for assistance, towage, rescue, or salvage, as needs be, for the mining and ancillary vessels involved in the seabed mining operation;
   ii. confirming matters such as potential assistance vessels and staffing, constraints upon availability, mobilisation time, and suitability for large vessel assistance; and
   iii. that the protocol is to be submitted to EPA (and other statutory agency or agencies as appropriate) for certification.

w. Seek clarification from the Applicant on the rationale behind using 100 metric tonnes for oil spill modelling and consider the need for further modelling and effects assessment, including of a catastrophic failure scenario.

x. Review the level of public liability insurance cover offered by the Applicant, in order to establish a meaningful extent of cover.

y. Consider if a requirement for professional indemnity insurance from relevant technical experts referenced in the proposed consent conditions is appropriate.

z. Amend proposed conditions 33 and 34 to:
   x. explicitly require MNZ approval of the oil spill contingency plan to be obtained by the Applicant prior to the commencement of any on-site extraction operations; and
   xi. require consultation by the Applicant with representatives of the Taranaki marine oil spill response team and the Manawatu-Wanganui marine oil spill response team (subject to their availability), in the preparation and exercising of the oil spill contingency plan.

aa. Consideration be given to New Zealand's capacity to respond to a large-scale oil spill incident associated with the Project, and if potential gaps exist, these be addressed through consent conditions.

10. Liability and post-extraction monitoring

10.1 Discussion

70. The Applicant commits to monitoring the state of the seabed and the wider marine environment for a period of 5 years following the cessation of ironsand extraction[23]. De-commissioning, and the environmental risks and their management during de-commissioning, are discussed in section 8.3.19. In context, this is in respect of benthic recovery or re-instatement following the cessation of extraction.

71. Condition 8 would require post-closure monitoring and reporting on any need for and means of intervention if this is found necessary to achieve recovery of the macroinfauna benthic community. Conditions 57 and 58 provide further details of the post-extraction recovery monitoring design and reporting requirements. Conditions 107 and 108 refer to the public liability insurance requirements discussed earlier.

[23] Application report, section 6.7.

72. Council notes there is no specific obligation placed upon the Applicant to accept responsibility for undertaking recovery. The closest provision is that the post-extraction monitoring plan is to identify how recovery of identified residual impacts might occur. It appears that the financial or operational obligation to take such steps as are necessary to deliver that recovery is omitted. This is particularly so if the recovery is still yet to satisfactorily occur after the 5-year post-extraction monitoring period has ended.
73. There is also no discussion of any mechanism for triggering the release of the public liability funding. Clear criteria are needed by which the insurance cover would be released to facilitate recovery. Assuming the insurance cover would be payable only to the Applicant as policy holder, there is no description of any mechanism by which the Applicant might agree to meet costs incurred by any other parties in respect of remedial and rehabilitation works. In their absence, it would seem that court action might be required for any third-party cost recoveries. This would be costly and time-consuming.
74. Finally, there is no guarantee of the continuing existence and financial viability of the Applicant, or of the continuation of the public liability insurance cover, at and following the cessation of the extraction operations. If the company were to be dissolved at that point, to surrender its marine mining consents, to be found to be insolvent, to have had its consents cancelled, or even simply to cancel the public liability cover, then the responsibility and costs for any intervention to bring about benthic (or shoreline) recovery and restoration are at risk of falling on the tax and rate payer.

10.2 Recommendations

75. Council recommends the Expert Panel:
    bb. Review the certainty, integrity, geographic coverage and term of the current assurances and consent conditions concerning the intention and capacity of the Applicant to ensure post-extraction recovery of the wider marine environment, and impose such additional measures, mechanisms, and criteria as it finds necessary to guarantee delivery of such capacity even in the case of default by the Applicant.
    cc. In giving effect to the above recommendation, give consideration to the following potential requirements:
        xii. progressive payments during mining operations into a trust fund, to be accessible as need is found once extraction ceases, and any residual to be returned to the Applicant at the end of the five-year period or the end of reinstatement works whichever comes later;
        xiii. the public liability insurance to be arranged such that EPA is recognised as a co-beneficiary for the purpose of environmental reinstatement cost recovery;
        xiv. public liability cover for the full five-year period following cessation of extraction to be certified prior to the cessation of extraction; or
        xv. a bond, despite the Applicant's objections to such a provision.

11. Cultural protocols

11.1 Discussion

76. In Section 8.3.6.7 of the Application Report, the Applicant acknowledges the low but not non-existent likelihood of a discovery of archaeological sites such as a shipwreck. The Applicant has therefore addressed this possibility by including within proposed conditions, a protocol to be followed should such an eventuality arise (Conditions 19-23).
77. However, there is no recognition within the application of the possibility of discovery of human remains or human artefacts such as bones, clothing, or other human adornments and utensils during extraction or processing. In the Council's view, it is highly desirable that such a protocol be prepared through

consultation with appropriate agencies and parties. This would require engagement with at least Police, Heritage New Zealand Pouhere Taonga, and iwi.

78. The Application also does not acknowledge that from time to time a rahui might be declared on the shoreline and near coastal waters. It is suggested that as a matter of respect and recognition of customary practice, a protocol could usefully be prepared in consultation with the relevant hapū and iwi authorities, prescribing appropriate levels of acknowledgement by the operator.

11.2 Recommendations

79. Council recommends the Expert Panel:

dd. Set conditions following the template of those relating to the discovery of archaeological sites, and applying to the discovery of human remains or human artefacts.

ee. Set a condition requiring the development of a protocol for the operator to implement in case of declaration of a rahui in the general vicinity of extraction operations.

12. Planning analysis

12.1 Discussion

80. As discussed under the legislative application section, the Expert Panel must take into account the nature and effect of the RMA regime, including the Taranaki Coastal Plan. This does not require a full analysis against relevant provisions, as you would for an application under the RMA. Rather, the focus is on the "nature and effect". Council has interpreted this to be a focus on key objectives and particularly policies that establish bottom lines.

81. In order to assess whether the proposed activity is consistent with these matters, a sufficient understanding of its potential adverse environmental effects is required. Based on the PDP Report and the other analysis contained in these written comments, Council considers there is currently insufficient information to enable an informed evaluation of the scale and significance of potential adverse effects. It is then not possible to determine whether the proposed activity aligns with nature and effect of the RMA, including the NZCPS and the Taranaki Coastal Plan. Appendix 3 contains the full text of the relevant objectives and policies from the NZCPS, Taranaki Regional Policy Statement 2010, Taranaki Coastal Plan, and descriptions of relevant scheduled sites[24].

82. Despite these limitations, and in light of Council's consideration that bottom line related policies are still highly relevant to the Expert Panel's decision making, we have outlined below key policies of the Taranaki Coastal Plan and some commentary for the Expert Panel to consider:

a. Policy 3[25] requires the adoption of precautionary approach. It is possible that if a decision on the Application was required without any further information, the Application would contravene this policy, which could be interpreted as a kind of bottom line, and therefore be inconsistent with the nature and effect of the Taranaki Coastal Plan.

b. Policy 9 requires the avoidance of adverse effects on the values and characteristics of scheduled sites. This includes both Project Reef and the North and South Traps. The following values and characteristics for these sites are likely to be particularly important:

i. important kelp (*Ecklonia radiata*) beds;

ii. diverse ranges of fish and encrusting sponge species;

iii. nursery ground functions for blue cod regarding Project Reef;

[24] The lists of scheduled significant indigenous biodiversity, scheduled significant indigenous biodiversity areas, and scheduled taonga species are not included due to their length. But can be found in schedules 4A, 4B, and 5.
[25] Policy 3 duplicates the NZCPS Policy 3(1).

iv. valuable cray fish habitat; and

v. human activity is minimal and the experience of these sites maintains a high sense of wilderness and remoteness.

Where an adverse effect cannot be avoided, the activity would likely be inconsistent with the nature and effect of the Taranaki Coastal Plan.

c. Policy 15[26] requires the avoidance of adverse effects on indigenous taxa identified in Schedule 4A. Of particular relevance to the Application are the following scheduled species: Fairy prion, Northern blue penguin (i.e. Little penguin)[27], Common bottlenose dolphin, Hector's dolphin, Māui dolphin, New Zealand fur seal, and the Pygmy blue whale. Failure to avoid adverse effects on these species – or any other scheduled species – would breach a bottom line and therefore likely be inconsistent with the nature and effect of the Taranaki Coastal Plan.

d. Policy 15 also requires the avoidance of adverse effects on scheduled indigenous ecosystems. This includes the area of the STB identified in the Taranaki Coastal Plan as a significant seabird area for pelagic seabirds feeding, breeding and passage – which includes the full area adjacent to the project site and within the expected plume. Adverse effects on this scheduled ecosystem would breach a bottom line and therefore would likely be inconsistent with the nature and effect of the Taranaki Coastal Plan.

e. Policy 15 also requires the avoidance of adverse effects on areas set aside for full or partial protection of indigenous diversity under legislation, Council consider this likely includes the West Coast North Island Marine Mammal Sanctuary that covers the Taranaki CMA. This reinforces the importance of considerations of potential adverse effects on marine mammals and their habitats, especially Hector's and Māui dolphins.

f. Policy 17 requires the avoidance of significant adverse effects on the habitat of taonga species, unless the avoidance of adverse effects is not practicable and adverse effects are remedied or mitigated to the extent practicable. This includes all species of marine mammals, but also lists specific species, which of particular relevance to the Application, includes be the Hector's and Māui dolphins.

g. Policy 43 requires that deposition on to the seabed within areas managed or held under other acts for statutory protection must not occur. It is possible this captures the West Coast North Island Marine Mammal Sanctury and could then require deposition not to occur within the Taranaki CMA. This was not the intent of this policy originally, and Council is currently exploring a plan change to address the potential issue. This is yet to be notified.

12.2 Recommendations

83. Council recommends the Expert Panel:

ff. Note Council considers it currently has insufficient information to make a judgement on if the Application is consistent with the nature and effect of the RMA and Taranaki Coastal Plan.

gg. Note that policies 9 and 15 and possibly 43 in the Taranaki Coastal Plan establish relevant bottom lines that should be given close consideration by the Expert Panel, while the requirement to take a precautionary approach in Policy 3 could also be contravened.

hh. Note that Council is able to provide further advice on consistency with key planning instruments as the decision-making process progresses.

[26] Policy 15 follows the form of NZCPS Policy 11.

[27] The specific sub-species of Little penguin scheduled in the Taranaki Coastal Plan is *Eudyptula minor iredale*. Even if the Panel considers this does not capture all sub-species of Little blue that might be relevant to the Application, Council notes others would be covered under Policy 11 of the NZCPS.

13. Conclusion

84. Taranaki Regional Council (Council) considers that the final determination of the Expert Panel to grant or decline the Taranaki VTM Project application (the Application) is likely to be finely balanced. On one hand, the project would likely have significant gross economic benefits to the nation and region, and this must be given greater weight under the Fast Track Approvals Act 2024 (FTAA). On the other, the eventuality that the activities' adverse effects are sufficiently significant to be out of proportion with the project's regional or national benefits cannot be ruled out. This is primarily due to the considerable uncertainty regarding adverse effects and the presence of both vulnerable and highly valued ecosystems and species in the South Taranaki Bight (STB).
85. Regarding uncertainty, the significant information deficiencies for adverse effects on marine mammals, seabirds, and the effects of the sediment plume identified by the Supreme Court in the 2016 application remain highly relevant. The limited work done by the Applicant since that Supreme Court decision has done little to address these gaps.
86. Resolving if the adverse effects are sufficiently out of proportion or not will likely hinge on how the Expert Panel takes into account the requirement to favour caution and environmental protection. The FTAA necessitates a judgement on extent of adverse effects, even in the face of considerable uncertainty. Council considers in such circumstances the Expert Panel should assume a plausible worst-case scenario for uncertain effects. If the Expert Panel agrees with this approach, caucusing amongst respective technical experts will likely be needed to determine what a plausible worst-case is in the context of seabirds, marine mammals and the sediment plume. This can then inform further analysis against relevant statutory criteria, including under the Resource Management Act 1991 and the Taranaki Coastal Plan (2023).
87. Council has also highlighted additional concerns with the application that we recommend the Expert Panel consider. These are the lack of assessment of environmental effects associated with the air discharges, misuse of the ISQG-High criteria, apparent gaps in the assessment and proffered consent conditions regarding incident response, and the Applicant's proposed approach to liability.
88. Council thanks the Expert Panel for the opportunity to provide its written comment. We look forward to further engagement throughout this process and can provide any further advice or information that may assist the Expert Panel in its deliberations[28].

[28] Council has provided advice on proposed consent conditions at points throughout this document. This is not a comprehensive treatment of consent conditions. If the Expert Panel decides to grant the application, detailed commentary on consent conditions from Council will be provided under section 70 of the FTAA.

14. Appendix 1: Market Economoics Taranaki VTM Report – Economic Review

Refer separate attachment.

15. Appendix 2: PDP Technical Assessment of Fast Track Application

Refer separate attachment.

16. Appendix 3: Relevant RMA objectives, policies and other material

NZCPS policies of particular relevance	
Policy	**Text**
3	1) Adopt a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse. 2) In particular, adopt a precautionary approach to use and management of coastal resources potentially vulnerable to effects from climate change, so that: a) avoidable social and economic loss and harm to communities does not occur; b) natural adjustments for coastal processes, natural defences, ecosystems, habitat and species are allowed to occur; and c) the natural character, public access, amenity and other values of the coastal environment meet the needs of future generations.
11	To protect indigenous biological diversity in the coastal environment: a) avoid adverse effects of activities on: i. indigenous taxa that are listed as threatened or at risk in the New Zealand Threat Classification System lists; ii. taxa that are listed by the International Union for Conservation of Nature and Natural Resources as threatened; iii. indigenous ecosystems and vegetation types that are threatened in the coastal environment, or are naturally rare; iv. habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare; v. areas containing nationally significant examples of indigenous community types; and vi. areas set aside for full or partial protection of indigenous biological diversity under other legislation; and b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on: i. areas of predominantly indigenous vegetation in the coastal environment; ii. habitats in the coastal environment that are important during the vulnerable life stages of indigenous species; iii. indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands, intertidal zones, rocky reef systems, eelgrass and saltmarsh; iv. habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes; v. habitats, including areas and routes, important to migratory species; and vi. ecological corridors, and areas important for linking or maintaining biological values identified under this policy.
13	1) To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use, and development: a) avoid adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character; and b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on natural character in all other areas of the coastal environment; including by: i. assessing the natural character of the coastal environment of the region or district, by mapping or otherwise identifying at least areas of high natural character; and ii. ensuring that regional policy statements, and plans, identify areas where preserving natural character requires objectives, policies and rules, and include those provisions.

	2) Recognise that natural character is not the same as natural features and landscapes or amenity values and may include 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 or setting.
15	To protect the natural features and natural landscapes (including seascapes) of the coastal environment from inappropriate subdivision, use, and development: a) avoid adverse effects of activities on outstanding natural features and outstanding natural landscapes in the coastal environment; and b) avoid significant adverse effects and avoid, remedy, or mitigate other adverse effects of activities on other natural features and natural landscapes in the coastal environment; including by: c) identifying and assessing the natural features and natural landscapes of the coastal environment of the region or district, at minimum by land typing, soil characterisation and landscape characterisation and having regard to: i. natural science factors, including geological, topographical, ecological and dynamic components; ii. the presence of water including in seas, lakes, rivers and streams; iii. legibility or expressiveness—how obviously the feature or landscape demonstrates its formative processes; iv. aesthetic values including memorability and naturalness; v. vegetation (native and exotic); New Zealand Coastal Policy Statement 2010 vi. transient values, including presence of wildlife or other values at certain times of the day or year; vii. whether the values are shared and recognised; viii. cultural and spiritual values for tangata whenua, identified by working, as far as practicable, in accordance with tikanga Māori; including their expression as cultural landscapes and features; ix. historical and heritage associations; and x. wild or scenic values; d) ensuring that regional policy statements, and plans, map or otherwise identify areas where the protection of natural features and natural landscapes requires objectives, policies and rules; and e) including the objectives, policies and rules required by (d) in plans.
22	1) Assess and monitor sedimentation levels and impacts on the coastal environment. 2) Require that subdivision, use, or development will not result in a significant increase in sedimentation in the coastal marine area, or other coastal water. 3) Control the impacts of vegetation removal on sedimentation including the impacts of harvesting plantation forestry. 4) Reduce sediment loadings in runoff and in stormwater systems through controls on land use activities.
23	1) In managing discharges to water in the coastal environment, have particular regard to: a) the sensitivity of the receiving environment; b) the nature of the contaminants to be discharged, the particular concentration of contaminants needed to achieve the required water quality in the receiving environment, and the risks if that concentration of contaminants is exceeded; and c) the capacity of the receiving environment to assimilate the contaminants; and: d) avoid significant adverse effects on ecosystems and habitats after reasonable mixing; e) use the smallest mixing zone necessary to achieve the required water quality in the receiving environment; and

	f) minimise adverse effects on the life-supporting capacity of water within a mixing zone. 2) In managing discharge of human sewage, do not allow: a) discharge of human sewage directly to water in the coastal environment without treatment; and b) the discharge of treated human sewage to water in the coastal environment, unless: i. there has been adequate consideration of alternative methods, sites and routes for undertaking the discharge; and ii. informed by an understanding of tangata whenua values and the effects on them. 3) Objectives, policies and rules in plans which provide for the discharge of treated human sewage into waters of the coastal environment must have been subject to early and meaningful consultation with tangata whenua. 4) In managing discharges of stormwater take steps to avoid adverse effects of stormwater discharge to water in the coastal environment, on a catchment by catchment basis, by: a) avoiding where practicable and otherwise remedying cross contamination of sewage and stormwater systems; b) reducing contaminant and sediment loadings in stormwater at source, through contaminant treatment and by controls on land use activities; c) promoting integrated management of catchments and stormwater networks; and d) promoting design options that reduce flows to stormwater reticulation systems at source. New Zealand Coastal Policy Statement 2010 5) In managing discharges from ports and other marine facilities: a) require operators of ports and other marine facilities to take all practicable steps to avoid contamination of coastal waters, substrate, ecosystems and habitats that is more than minor; b) require that the disturbance or relocation of contaminated seabed material, other than by the movement of vessels, and the dumping or storage of dredged material does not result in significant adverse effects on water quality or the seabed, substrate, ecosystems or habitats; c) require operators of ports, marinas and other relevant marine facilities to provide for the collection of sewage and waste from vessels, and for residues from vessel maintenance to be safely contained and disposed of; and d) consider the need for facilities for the collection of sewage and other wastes for recreational and commercial boating.

Taranaki Regional Policy Statement policies of particular relevance	
Policy	**Text**
UDR 1	Recognition will be given in resource management processes to the role of resource use and development in the Taranaki region and its contribution to enabling people and communities to provide for their economic, social and cultural wellbeing.
CNC 2	The protection of the natural character of the coastal environment shall be achieved by having regard to the following criteria in determining appropriate subdivision, use, development or occupation of the coastal environment: a) the degree and significance of actual or potential adverse effects on the natural character of the coastal environment, including cumulative effects, and the efficacy of measures to avoid, remedy or mitigate such effects; b) the extent to which the subdivision, use, development or occupation recognise and provide for the relationship of tangata whenua and their culture and traditions with their ancestral lands, water, sites, wāhi tapu and other taonga; c) the degree to which adverse effects on those historic heritage values that can contribute to natural character can be avoided, remedied or mitigated; d) the need for development or occupation to occur in the coastal environment;

	e) where it is likely that an activity will result in significant adverse effects on the environment, any possible alternative locations or methods for undertaking the activity, and where the activity involves the discharge of any contaminant, any possible alternative methods of discharge; f) the degree to which the subdivision, use, development or occupation will avoid adverse effects at alternative non-coastal locations; g) the degree of existing modification of the coastal environment from its natural character; h) the degree to which the subdivision, use, development or occupation will disrupt natural processes or will be threatened by, or will contribute to, the occurrence of natural hazards, particularly coastal erosion; i) the degree to which the subdivision, use, development or occupation can be accommodated near existing developments and in spatially compact forms and the extent of further modification of the natural character of the coastal environment through sprawling and sporadic development; j) the provision of adequate services, particularly the disposal of wastes; k) the need to protect habitat (in the coastal marine area) of species including mobile species and those that are important for commercial, recreational, traditional or cultural purposes; l) the benefits to the community of the use, development or occupation of the coastal marine area; m) the degree to which financial contributions associated with any subdivision, use and development can be used to off set potential or actual unavoidable adverse effects arising from those activities; and n) the benefits to be derived from the use and development of renewable energy sources, including national, regional and local benefits.
CNC 4	Areas in the coastal environment of importance to the region will be identified and priority given to protection of the natural character, ecological and amenity values of such areas from any adverse effects arising from inappropriate subdivision, use and development. In the assessment of areas of importance, matters to be considered will include: a) wetlands, estuaries or coastal lagoons and coastal turf, forest and shrublands of regional, national or international importance; b) their importance for marine mammals or birds, invertebrates and lizards for breeding, roosting or feeding, or habitats of threatened indigenous bird species; c) the existence of regionally or nationally outstanding ecosystems or communities or nationally threatened plant or animal species; d) scenic sites and recreational sites of outstanding or regional or national significance; e) historic heritage values, including archaeological sites of national or outstanding significance; f) the existence of nationally significant or outstanding coastal and marine landforms, landscapes, scientific features and associated processes; g) the cultural and spiritual values of tangata whenua; h) wāhi tapu and sites of importance to tangata whenua; and i) the existence of marine protected areas.
CWQ 2	Avoid, remedy or mitigate, to the fullest practicable extent, adverse effects on coastal water quality arising from ship or offshore installation discharges and maintenance.
BIO 2	Adverse effects on indigenous biodiversity in the Taranaki region arising from the use and development of natural and physical resources will be avoided, remedied or mitigated as far as is practicable.
BIO 3	Priority will be given to the protection, enhancement or restoration of terrestrial, freshwater and marine ecosystems, habitats and areas that have significant indigenous biodiversity values.
MIN 1	Provision will be made to enable appropriate use and development of the region's mineral resources in a way that avoids, remedies or mitigates adverse effects on the environment.

Taranaki Coastal Plan objectives and policies of particular relevance	
Objective Number	**Text**
2	Natural and physical resources of the coastal environment are used efficiently, and activities that have a functional need or an operational need, that depend on the use and development of these resources, are provided for in appropriate locations.
4	The life-supporting capacity and mouri of coastal water, land and air are safeguarded from the adverse effects, including cumulative effects, of use and development of the coastal environment.
5	Water quality in the coastal environment is maintained where it is good and enhanced where it is degraded.
6	The natural character of the coastal environment is preserved and protected from inappropriate subdivision, use and development and is restored where appropriate.
7	The natural features and landscapes of the coastal environment are protected from inappropriate subdivision, use and development.
8	Indigenous biodiversity in the coastal environment is maintained and enhanced and significant indigenous biodiversity in the coastal environment is protected.
Policy Number	**Text**
General policies	
1	Manage the coastal environment in a way that recognises that some areas have values, characteristics or uses that are more vulnerable or sensitive to the effects of some activities, or that have different management needs than other areas. In managing the use, development and protection of resources in the coastal marine area under the Plan, recognition will be given to the following coastal management areas (identified in Schedule 1) and their distinguishing values, characteristics and uses: a) Outstanding Value: refers to those areas listed in Schedule 1(a) and are identified as having outstanding natural character and/or outstanding natural features or landscape values. These areas characteristically: i. contain values and attributes that are exceptional, including in relation to landforms, land cover, biodiversity, cultural and heritage associations, and visual qualities identified in Schedule 2 (refer corresponding Policy 9); ii. contain marine areas with legal protection, including Parininihi Marine Reserve, Ngā Motu/Sugar Loaf Islands Marine Protected Area and Tapuae Marine Reserve (identified in Schedule 1); and iii. are iconic to the region's identity and sense of place. b) Estuaries Unmodified: refers to those estuaries that are permanently open to tidal movements and listed in Schedule 1(b). These areas do not include estuaries identified in (a) or (c) of this policy and characteristically: i. have high natural character, provide a natural focal point for human activity, but are generally not significantly modified and are surrounded by minimal urban development and unmodified environments;

	ii. have significantly different and more complex natural processes than the open coast; iii. provide important habitats, migration paths, breeding areas and nursery areas for marine and bird life; and iv. are valued by Māori for taonga species, and cultural, spiritual, historical and traditional associations. c) Estuaries Modified: refers to the Pātea, Waiwhakaiho and Waitara estuaries that are permanently open to tidal movements and listed in Schedule 1(c). These areas characteristically: i. have been modified by flood protection works and placement of structures; ii. are surrounded by urban, extensively modified environments; iii. have significantly different and more complex natural processes than the open coast; iv. provide important habitats, migration paths, breeding areas and nursery areas for marine and bird life; and v. are valued by Māori for taonga species, and cultural, spiritual, historical and traditional associations. d) Open Coast: refers to remaining areas of the coastal marine area not identified in (a), (b), (c) and (e) of this Policy that characteristically: i. are subject to a high energy westerly wave environment and the coastal land behind the foreshore is generally naturally eroding; ii. include marine systems and habitat, including migration paths, breeding areas and nursery areas for marine mammals and seabirds; iii. include marine systems and marine life valued by Māori for mahinga kai; iv. include nationally and regionally important surf breaks identified in Schedule 8 (refer corresponding Policy 22); and v. contain fisheries that are recreationally, culturally and commercially valuable. e) Port: refers to the operational management area of Port Taranaki. The area is a highly modified environment that characteristically: i. enables people and communities to provide for their economic well-being; ii. contains regionally important infrastructure; iii. contains port related activities that are accepted as appropriate uses of this coastal management area; and iv. has a low level of natural character, although is located adjacent to an area of outstanding value.
3	Adopt a precautionary approach where the effects of any activity on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse.
5	Consider whether subdivision and use and development of the coastal environment is in an appropriate location and form, and within appropriate limits, by having regard to (but not limited to) the following: a) the functional need or operational need for the activity to be located in the coastal marine area. Activities that do not have a functional need or operational need to be located in the coastal marine area generally should not be located there (unless the non-marine related activity complements the intended use and function of the area); b) whether the activity relates to the use, operation, maintenance and alteration of regionally important infrastructure; c) the benefits to be derived from other activities at a local, regional and national level, including the existing and potential contribution of agriculture, petroleum and mineral resources, and the potential contribution of aquaculture and renewable energy resources; d) the appropriateness of the proposed design, methodology, location or route of the activity in the context of the receiving environment and any possible alternatives, including best practicable options for preventing or minimising adverse effects on the environment; e) the degree to which the activity will recognise and provide for the relationships, uses and practices of Māori and their culture and traditions with their lands, water, sites, wāhi tapu, and other taonga in the coastal environment such as mahinga kai, tauranga waka (canoe landing sites), nga toka (rocks) and tauranga ika (fishing grounds); f) the degree to which the activity will be subject to unacceptable risks or exacerbate coastal hazards, or public health and safety with particular reference to Policy 23; g) the degree to which the activity contributes to the maintenance, enhancement or restoration of natural or historic heritage including by buffering areas and sites of historical heritage value;

	h) the degree to which the activity contributes to the maintenance, enhancement or restoration of appropriate public access or public use of the coast including for recreation; i) whether any landward component, development or use of land-based infrastructure or facilities associated with the activity can be appropriately provided for; j) whether the activity is for scientific investigation or educational study or research; and k) the degree and significance of actual or potential adverse effects of the activity on the environment, including consideration of: i. cumulative effects of otherwise minor activities; ii. the sensitivity of the environment; and iii. the efficacy of measures to avoid, remedy or mitigate such effects, or provide environmental compensation where effects cannot be avoided remedied or mitigated.
9	Protect the visual quality and the physical, ecological and cultural integrity of coastal areas of outstanding value identified in Schedules 1 and 2 from inappropriate subdivision, use and development by: a) avoiding adverse effects of activities on the values and characteristics including those identified in Schedules 1 and 2 that contribute to areas: i. having outstanding natural character; and/or ii. being outstanding natural features and landscape; and iii. within or adjoining coastal management area – Outstanding Value; and b) maintaining significant seascapes and visual corridors associated with outstanding natural features and landscapes, including views from within the landscapes or features, and views of the landscapes and features.
12	Maintain coastal water quality where it is good or enhance coastal water quality where it is degraded by avoiding, remedying and mitigating the adverse effects of activities on: a) the life-supporting capacity of coastal water; b) the mouri and wairua of coastal water; c) the integrity and functioning of natural coastal processes; and d) the ability of coastal water to provide for existing and anticipated future use by the community.
15	Protect significant indigenous biodiversity in the coastal environment by: a) avoiding adverse effects of activities on: i. indigenous taxa that are nationally threatened or at risk, or regionally distinctive, including those identified in Schedule 4A; ii. taxa that are internationally threatened including those identified in Schedule 4A; iii. indigenous ecosystems and vegetation types that are threatened in the coastal environment, or are naturally rare, including those identified in Schedule 4A; iv. habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare; v. areas containing nationally significant examples of indigenous community types; and vi. areas set aside for full or partial protection of indigenous biological diversity under other legislation; b) avoiding significant adverse effects and avoiding, remedying and mitigating other adverse effects of activities on: i. areas of predominantly indigenous vegetation in the coastal environment; ii. habitats in the coastal environment that are important during the vulnerable life stage of indigenous species including: i. estuaries; ii. spawning areas (e.g. snapper-trevally spawning area in the North Taranaki Bight between Mōhakatino River and Pariokariwa Point); iii. areas that provide passage for diadromous species; iv. marine mammal resting, feeding and breeding areas; and

	v. bird roosting and nesting areas; iii. indigenous ecosystems and habitats found only in the coastal environment and which are particularly vulnerable to modification including estuaries, lagoons, coastal wetlands, dunelands, intertidal zones, rocky reef systems, eelgrass, saltmarsh, and sensitive marine benthic habitats including those identified in Schedule 4B; iv. habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes; v. habitats, including areas and routes, that are important to migratory species; and vi. ecological corridors and areas important for linking or maintaining biological values identified under this policy; and (c) avoiding, remedying or mitigating the adverse effects of activities in significant marine animal and seabird areas consistent with (a) and (b) above.
16	Maintain or enhance indigenous biodiversity generally in the coastal environment by: a) avoiding, remedying and mitigating the adverse effects of activities on indigenous biodiversity; and b) when assessing adverse effects on indigenous biodiversity, having regard to the extent of effects, including consideration of: i. the size and sensitivity of the ecological site and/or values; ii. the association of the ecological site and values with other interrelated, but not necessarily contiguous, ecological sites and values; iii. the nature, location, extent and design of the proposed development and the effects of these factors on indigenous biodiversity; and iv. the degree to which indigenous biodiversity values will be lost, damaged, destroyed, or enhanced, recognising that: i. transitory, discrete, localised or otherwise minor effects may be acceptable; ii. long-term and/or irreversible effects are less likely to be acceptable; and iii. there may be more than minor cumulative effects that arise from minor or transitory effects described in i.
17	Maintain or enhance taonga species as identified in Schedule 5 by: a) avoiding significant adverse effects of activities on the habitat of taonga species, mahinga kai, tāiapure or mataitai and customary uses and values unless: the activity is necessary for the provision of regionally important infrastructure, avoidance of adverse effects is not practicable and adverse effects are remedied or mitigated to the extent practicable; and b) avoiding, remedying or mitigating other adverse effects of activities on taonga species habitat, mahinga kai, tāiapure or mataitai
21	Maintain and enhance significant amenity values by avoiding, remedying or mitigating adverse effects on those qualities and characteristics that contribute to amenity values in: c) coastal areas of outstanding value identified in Schedules 1 and 2; d) coastal sites with significant amenity values identified in Schedule 7 including: i. beaches; ii. reefs; and iii. estuaries and river mouths; e) surf breaks identified in Schedule 8; f) coastal sites with significant indigenous biodiversity identified in Schedule 4, taonga species identified in Schedule 5, or historic heritage identified in Schedule 6A and B and Appendix 2; and g) other areas of the coastal environment with significant amenity values not identified in the Schedules referred to in (a), (b), (c) and (d).
Activity specific policies	
25	Discharges of water or contaminants to water in the coastal marine area must: a) be of an acceptable quality with regard to:

	i. the sensitivity of the receiving environment and associated uses and values; ii. the nature and concentration of the contaminants to be discharged and the efficacy of reduction, treatment and disposal measures; and iii. the capacity of the receiving environment to assimilate the contaminants and achieve the required water quality, taking into account the potential for cumulative or synergetic effects; b) avoid the accumulation of persistent toxic contaminants in the environment; c) adopt the best practicable option for the treatment and discharge to prevent or minimise adverse effects on the environment, having consideration to: i. discharging contaminants onto or into land above mean high water springs as an alternative to discharging contaminants into coastal waters; ii. the use of constructed wetlands or other land-based treatment systems as an alternative to discharging directly to water unless there is no other practicable option; iii. the nature of the discharge and sensitivity of the receiving environment; iv. the capital, operating and maintenance costs of alternative technical options to reduce the effects of the discharge, the effectiveness and reliability of each option, and the relative benefits to the receiving environment offered by each option; and v. the weighting of costs in proportion to any benefits to the receiving environment offered by each option; d) be required, where appropriate, to reduce adverse environmental effects through a defined programme of works, over an appropriate timeframe, set out as a condition of consent for either new resource consents or during a renewal or review process for existing resource consents; e) use the smallest mixing zone necessary to achieve the required water quality in the receiving environment and minimise as far as practicable the adverse effects on the life supporting capacity of water within the mixing zone; and f) avoid, remedy or mitigate adverse effects, after reasonable mixing.
43	Disturbance of, or deposition on, the foreshore or seabed or the extraction of natural material must not occur in areas managed or held under other Acts for statutory protection (including Parininihi Marine Reserve, Ngā Motu/Sugar Loaf Islands Marine Protected Area and Tapuae Marine Reserve identified in Schedule 1) apart from that associated with: a) recreational activities including boating and anchoring; b) scientific or educational study or research; and c) the placement and maintenance of boundary marker buoys
47	Extraction of sand, shingle, shell and other natural material from the foreshore or seabed, or deposition of material on the foreshore or seabed, not provided for by Policies 43, 44 and 46 must: a) be undertaken in an appropriate manner and location by having regard to the values and sensitivity of the environment potentially affected and the degree and significance of effects; b) generally not occur in coastal management areas – Outstanding Value, Estuaries Unmodified and Estuaries Modified; c) not occur close to moderate or high relief offshore reefs; d) have regard to the surface area and volumes of material to be extracted or deposited over the duration of the activity, composition of the material and method of extraction or deposition, and the resulting effects on water quality, sediment quality and ecology; e) where applicable, have regard to the volumes of material to be extracted over the duration of the activity and where appropriate: i. the natural rate of sediment being deposited over sediment lost from the area where extraction is proposed; and ii. the interaction of sediment within the extraction site with the nearshore littoral system; h) use methods and engineering controls to minimise adverse effects on the form of the foreshore or seabed, and benthic communities adjacent to the area of extraction or deposition; i) where applicable and appropriate, ensure that the deposited material is of a similar size, sorting and parent material as the receiving sediments; and

	j) not be for the purpose of disposing spoil from land-based activities unless significant environmental benefit can be demonstrated.

Taranaki Coastal Plan Areas of Outstanding Natural Character		
Natural character attributes	**Values and characteristics**	**Degree of natural character**
Project Reef: The Project Reef is an unusually hard and shallow (23 m) structure for its distance offshore (11 km). The clear offshore waters and shallow depth enable the growth of important kelp beds. The reef provides complex habitat supporting a diverse range of marine invertebrates and fish. The unmodified seascape provides exceptional biophysical values with a high sense of wilderness. Map 42.		
Abiotic	• High relief reef comprised of unusually hard cemented concretionary shelly sandstone surrounded by shell hash • Shallow depth considering the distance offshore providing an excellent light climate less prone to influence from cliff erosion, river events and other land-based activities • Unmodified and diverse marine habitats including cracks, crevices, caves and overhangs	Very high
Biotic	• Unusually high diversity of encrusting sensitive benthic invertebrates including dense assemblages of sponges, hydroids and bryozoa, providing valuable biogenic habitat for other invertebrates and fish • Important kelp (*Ecklonia radiata*) beds • Abundant and diverse fish assemblages with evidence the reef provides an important nursery ground for blue cod • Complex habitat supporting crayfish (*Jasus edwardsii*), eels, rays, carpet shark (*Cephaloscyllium isabella*) and many species of reef fish	Very high
Perceptual and experiential	• Human activity is minimal associated with low impact recreation use • The experience maintains a high sense of wildness and remoteness	Very high
Overall rating		Outstanding
North and South Traps: The North and South Traps comprise a large reef system located approximately 6 km offshore from Pātea. Map 41.		
Abiotic	• Two large adjoining pinnacle reefs – unusual features on a shelf region dominated by sand	Very high

Biotic	• Important kelp (*Ecklonia radiata*) beds • Diverse range of fish and encrusting sponge species • Valuable habitat for crayfish	Very high
Perceptual and experiential	• Human activity is minimal associated with low impact recreational use • The experience maintains a high sense of wilderness and remoteness	Very high
Overall rating		Outstanding
Taranaki Coastal Plan Areas that are Outstanding Natural Features and Landscapes		
Natural character attributes	**Values and characteristics**	**Degree of natural character**
North and South Traps: The North and South Traps are two high-relief rocky reef systems that form a distinctive seascape and contribute significant ecological, cultural and recreational values. Map 41.		
Biophysical	• Two adjoining reef systems comprising tall underwater pinnacles – a rare feature for the sandy coast • Biotic values, particularly kelp (*Ecklonia radiata*) beds, diverse fish and sponge communities and valuable habitat for crayfish • Significant ecological values including kelp beds (*Ecklonia radiata*) and a diverse range of fish and sponge communities and species • Important habitat for crayfish	Very high
Sensory	• Unique marine feature for this part of the coast • Strikingly colourful reef walls due to a diverse range of different encrusting organisms including seaweeds, sponges and anemones • Seascape is largely unmodified by human intervention and comprises a naturally functioning and healthy ecosystem • Presence of wildlife throughout different times of the day and year • Climatic changes influence seawater clarity affecting the perception of aesthetic values	Very high

Associative	• Popular recreational fishing and diving area • Perceptual and experiential values including a high sense of wildness and remoteness; minimal human activity associated with low impact recreation use • This area was and still is known by the local iwi and hapū as a rich fishing ground • Source of kaimoana including crayfish	Very high
Overall rating		Outstanding

Taranaki VTM Report – Economic Review

m.e consulting

Prepared for

Taranaki Regional Council

Document reference:	TRC 002.25
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Contents

1 Introduction

1.1 Objective

This Report is a review of the economic impact assessment of the proposed Taranaki VTM Project for iron sand mining in the South Taranaki Bight. The economic impact assessment (EIA) was prepared by NZIER.

1.2 Approach

Market Economics Ltd has examined the EIA, and the Project report prepared by Trans-Tasman Resources (TTR). The Project Report contains a summary of the EIA, which is presented in full as Attachment 2.

We have considered:

a. the economic impact analysis, which estimates the effect of the iron sand mining operation on local, regional and national economies, measured by standard economic indicators (output, value added/GDP, and employment).

b. the scope of the EIA, having regard to the range of effects identified in the VTM Project Report. While NZIER's assessment focused on the impacts of VTM expenditure through the economy, the main Report also identifies effects on sedimentation and water quality, coastal processes, benthic ecology, primary productivity, fished species, seabirds, marine mammals, noise, human health (from marine discharge), visual impacts, seascape, natural character, air quality, and existing interests.

c. whether the Project will deliver significant economic benefits to the region, which is a key matter under Section.22(2)(a)(iv) of the Fast-track Approvals Act 2024, including an assessment of proportionality of effects under Section 85(3) of the Act.

2 Assessment

This section addresses the three matters – the economic impact analysis as undertaken, the scope of that analysis, and whether the Project is likely to deliver significant economic benefits.

2.1 Economic Impact Analysis

The first matter is the economic impact analysis *per se*.

2.1.1 Standard I-O Approach

The EIA employs a standard input-output (I-O) model, to examine how capital investment and ongoing mining operational expenditure can be expected to flow through the economy.

This methodology quantifies the direct project spending, indirect supply chain effects and flow-on impacts at both regional and national levels.

NZIER's application of the model first identifies direct expenditures by sector and location, then applies appropriate multipliers to estimate indirect (supply-chain) and induced (wage-spending) effects - a sound approach given how economic impacts vary across different sectors and geographic areas.

2.1.2 Direct and Total Impacts

Without detailed sector- and location-specific expenditure data, it is not possible to cross-check the modelled inputs. However, in our view, the estimated capital and operational expenditures appear reasonable and plausible.

The multiplier analysis follows standard practice and is appropriate. The multipliers used to calculate the indirect and induced impacts on the economy are well-founded, and the resulting total impact estimates are reasonable and plausible.

2.1.3 Impacts over time

The EIA does not identify cumulative impacts over time, focusing on the annual impacts in the Proposal's operational phase assuming 20 years of extraction.

2.1.4 Geography

The direct and flow-on effects of the project can be expected to benefit both the Taranaki and Whanganui-Manawatu regions (regional council areas). On that basis, we consider it appropriate to evaluate the combined impacts on the broader Taranaki-Whanganui regions. NZIER's method for estimating this combined regional effect is sound and provides a sufficiently accurate assessment.

2.1.5 Significance in the economy

The EIA does not specifically provide a view as to the significance of the Proposal in the economy. However, it does provide estimates of the economic impact, in relation to the total size of the local and regional economy, and the national economy, and it is a short step to utilise that information[1] to indicate that its annual operation would represent an addition of 0.34% to GDP in the south Taranaki-Whanganui area, and an addition of 0.87% to GDP in the Taranaki-Whanganui region. It would be an addition of 0.07% to New Zealand's GDP.

[1] Table 9 (p12), Table 11(p12), Table 13 (p13).

The Project Report draws on the information in Attachment 2 stating "*as it will provide both national and regional benefits by significantly increasing New Zealand's and the Taranaki and Manawatu - Whanganui Regions' Gross Domestic Product ("GDP") and employments numbers "*[2]. It does not detail whether the conclusion of "*significantly increasing*" is based on the dollar values, or the economic impacts as a share of the total GDP in Taranaki-Whanganui, or New Zealand. We have noted the focus on annual impacts, as distinct from a cumulative impact from the additional economic activity occurring each year for 20 years.

We consider that although the GDP impact may appear small in percentage terms, the estimates of an annual contribution of $221.76m at regional level (around $4,435m over 20 years, undiscounted), and $265.24m at national level (around $5,304m over 20 years, undiscounted) does represent a significant economic impact.

2.1.6 Impact vs Benefit

The Project Report appears to conflate economic impact with economic benefit. The distinction between these terms is important, particularly in the context of the legislative framework for assessing referrals.

Under the Fast-track Approvals Act 2024, Section 22 - Criteria for assessing referral application (s22(1)(a) states that:

s22(1)(a): *"the project is an infrastructure or development project that would have significant regional or national benefits;"*

and allows the Minister to consider under **s22(2)(a)(iv):**

"(a) whether the project ... (iv) will deliver significant economic benefits."

We note the clause 22 provisions apply only to referral applications. However, we have drawn on those provisions as guidance here, as they refer to regional and national benefits, and economic benefits, which are an important aspect of project appraisal generally.

In the economic literature, a clear distinction is made between economic impact and economic benefit. Economic impact reflects the gross scale of economic activity generated — such as spending, wages, and output — whereas economic benefit refers to positive outcomes for wellbeing or economic efficiency, such as enhanced employment, productivity gains, or improved access to services.

Importantly, neither economic impacts nor economic benefits are necessarily net of costs. For example, economic impact assessments may report large activity figures (e.g., capital expenditure or job creation), but these do not account for what activity is displaced, whether the resources are used efficiently, or whether they generate lasting gains. Similarly, while benefits such as increased employment or income may be identified, they are not considered net economic benefits unless they exceed the associated costs or opportunity costs.

For example, operating costs and wages are necessary production inputs. While wages contribute to household income, they are not automatically considered economic benefits unless they lead to improved employment outcomes or broader social wellbeing.

On this basis, it is important to make clear distinction between:

a. the **economic impact** of the proposal, which is what the NZIER report has examined. That is limited to consideration of the proposal as an operating entity in the economy in terms of output, employment and contribution to value added, but does not extend beyond those matters.

b. The **gross economic benefit** of the project. This is the benefit component arising from the economic impact. This is a lesser value than the economic impact, since not all of that impact equates to actual

[2] Project Report at p1

benefits for people and the economy. Realising that impact incurs costs in resources and peoples' time and effort.

c. The **net economic benefit**. This is generally the gross economic benefit less the economic costs of the project. That determination of the net benefit, taking relevant matters into account, is a key part of the Panel's work. In this regard, we also note the decision of the Environment Court in the Okura Holdings Ltd appeal (2019) which held that:

In terms of benefits and costs, we find that the ***non-market costs of the effects*** *of the OHL development on the biophysical environment at Okura (including landscapes, avifauna, freshwater and marine ecology) should be taken into account* ***in the overall economic evaluation*** *of the proposed development. This approach is consistent with the findings of the Court in the TKC Holdings case referred to in the Council's opening legal submissions.*[3] *(emphasis added).*

2.1.7 Caveats

The EIA has been prepared on the basis that the Project will proceed as indicated, and remain in operation for 30 years. It also assumes that the operation is successful in all aspects, particularly the movement and operation of iron sand vessels, and onshore facilities. The EIA Report does not allow for any different outcomes from the project, with the iron sand extraction and export continuing for some 30 years.

In particular, it does not allow for potential costs of any interruptions to the operation, for example through mishap to the dredging/mining equipment, or the vessels themselves. Although it is reasonable to assume that the operation would very likely continue without major mishap throughout the period, it is pertinent to at least indicate a range of magnitude for the effects of a mishap, in the seascape of the South Taranaki Bight, or on the shoreline of the Bight.

The RMA defines effect as any positive or adverse effect (3(a)) and includes any potential effect of low probability which has a high potential impact (3(f)).

In the NZIER Report, there is no mention of adverse effects.

2.1.8 EIA Findings

We consider that the economic impacts of the Proposal reported in the NZIER report are an accurate representation of how the Project can be expected to affect activity in the Taranaki-Whanganui regional economy, and the national economy. This is in terms of the impacts of the estimated Project expenditure.

We note the EIA does not specifically estimate the benefits of the Proposal, although from the estimates of economic impact we consider the benefits would be substantial.

The EIA does not draw information from the Project Report to consider in the economic assessment any effects other than those from the mining operation, including possible adverse effects from the Project.

It does not consider an outcome other than the successful operation of the proposed mining activity occurring without significant mishap which may give rise to adverse effects, including effects on the biophysical environment.

[3] Decision No. [2018] NZEnvC 78

2.2 Scope of the EIA

The second matter to be addressed is the scope of the NZIER economic assessment, with regard to the range of effects identified in the VTM Project Report.

The main Project Report identifies that there will be a range of impacts, particular on the marine environment. including the impact on sedimentation and water quality, coastal processes, benthic ecology and primary productivity, fished species, seabirds, marine mammals, noise, human health (from marine discharge), visual, seascape, natural character, air quality, and 'Existing interests'.

The NZIER assessment is limited to the impacts of the expenditure of the VTM project through the economy, which would arise from the mining operation and the associated shipping activity. It does not consider the other effects identified.

2.2.1 Economic Assessment

An important issue is that economics is concerned with the relative benefits and costs, of policies, actions, and so on. An economic assessment typically examines the benefits and costs of relevant matters. It is defined by the nature of the assessment, rather than the subject matter. Accordingly, an economic assessment to examine relative benefits and costs of a Proposal, may encompass environmental, social and cultural aspects, and is not limited to matters which may be monetised, and shown in dollar terms.

This holistic assessment approach is consistent with the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ Act), which provides for the sustainable management of natural resources in the EEZ and continental shelf. Section 10 (Purpose) states that:

"The purpose of this Act is to promote the sustainable management of the natural resources of the exclusive economic zone and the continental shelf."

It goes on to define sustainable management as including the obligation to:

"avoid, remedy, or mitigate any adverse effects of activities on the environment."

Under Section 59(2), when considering an application for a marine consent, the decision-maker must have regard to a range of factors, including:

- s 59(2)(a): *"any effects on the environment or existing interests of allowing the activity"*
- s 59(2)(b): *"the effects on the environment or existing interests of other activities undertaken in the area"*
- s 59(2)(c): *"the effects on the environment or existing interests of other activities that may be undertaken in the area at a later time"*
- s 59(2)(d): *"the extent to which imposing conditions under section 63 might avoid, remedy, or mitigate the adverse effects of the activity"*
- s 59(2)(f): *"the economic benefit to New Zealand of allowing the activity"*
- s 59(2)(h): *"the nature of the environment that may be affected by the activity and the significance of those effects*

This statutory framework ensures that economic impacts—such as GDP and employment contributions quantified in this assessment—are considered alongside environmental effects, including potential impacts on marine ecosystems, sedimentation processes, and other matters identified in the Project Report.

The 'economy' is holistic in that it encompasses (is encompassed by) the biophysical environment, and social and cultural matters, and all aspects of economic activity (people activity, typically as businesses and households) within it. Accordingly, the extent of an economic assessment of a policy or proposal should encompass the positive and negative effects which are material to an outcome or a decision.

Although an 'economic assessment' is in some instances identified as applying only to business activity or other aspects of people activity, its scope is broader than consideration of just monetary benefits and costs, and it includes social, cultural and environmental effects.

This is important because it means that the positive and negative effects of the VTM on those other matters would normally be part of a broader economic assessment even if not monetised, including because such effects may influence peoples' wellbeing and behaviours and therefore influence economic activity.

One matter is the materiality of those effects, and whether such effects might influence the overall findings of the economic assessment. However, in our view it is important to identify those effects, and set out why they have not been included in the economic assessment.

On that basis, the NZIER economic impact assessment is incomplete. The other effects identified in the Project report are not considered in the NZIER EIA. That would commonly be done through a cost and benefit analysis, or equivalent evaluation framework which would draw the costs and benefits into one place for comparison. This reflects a common approach in project assessment, to examine the nature of the project, identify the likely effects (environmental, social and so on) and undertake specific technical assessments of those effects to understand their significance. The technical/specialist assessment of effects is commonly the first step, with a second step to consider how those effects may be expected to have impact more widely across a community and economy, to consider them individually and in combination, and to evaluate whether or not those effects would likely be material to the community and the economy.

Moreover, the Act sets out a broader framework for assessment in s85 and the matter of Proportionality.

2.3 Significant Economic Benefits

The third matter addressed is the criteria for assessment, and the framework in which that assessment occurs.

The legislation S.22(2)(a)(iv) sets the criteria for assessment, of which the critical question of whether the project will deliver significant economic benefits to the region. It also considers whether (b) referring the project to the fast-track approvals process (i) would facilitate the project, including by enabling it to be processed in a more timely and cost-effective way than under normal processes; and (ii) is unlikely to materially affect the efficient operation of the FastTrack approvals process.

We have examined the likely significance of the proposed project within the regional and national economies, in terms of additional GDP and income, and employment. We have also addressed the question of the extent to which the economic impact may be considered a benefit.

If the sole criterion in S22 were to meet the test of significant economic benefit, the Proposal would do that. The limitation is that in the economic assessment, other effects including adverse effects were not included, and as an economic assessment the EIA is not complete. That conclusion would apply in a standard cost and benefit framework such as RMA s32.

However, the legislation does not have an evaluation framework based on direct comparison of costs and benefits, and instead evaluation occurs according to proportionality.

2.3.1 Proportionality

The Act sets out the evaluation structure in terms of conditions for a panel to decline an approval, in s85, clause 3.

s85 When panel must or may decline approvals.

> *(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.*

The critical evaluation structure in the Act is in terms of whether "*those adverse impacts are sufficiently significant to be out of proportion to the project's regional or national benefits".* s85 is the only evaluation structure in the legislation, and the Act contains no reference to cost and benefit analysis or equivalent. The term "*out of proportion*" is not defined.

s85 is the replacement structure for cost and benefit analysis. The underlying arithmetic in cost and benefit analysis is whether costs outweigh benefits or *vice versa*, by direct comparison. The criterion in s85 is whether adverse effects and benefits are seen to "*be out of proportion".*

That structure provides wide scope for interpretation. This means that adverse effects may outweigh regional or national benefits without necessarily providing a rationale to decline an application. While adverse effects may be relatively minor compared to regional or national benefits, decision-makers may still consider whether those effects are acceptable in the context of the affected environment and the purpose of the EEZ Act, including the requirement to avoid, remedy, or mitigate adverse effects where practicable.

The Project Report concludes that "*the Project is expected to generate substantial economic benefits whether that is viewed at a regional or national scale. Those benefits (as addressed in Section 5.1 of this IA) are so large that it is in fact the benefits that are out of proportion (i.e. far exceed) the adverse impacts of the Project.*[4]*"*

The nature of s85 is such that it is difficult to challenge what is in effect a qualitative assessment of whether adverse effects are "out of proportion" to benefits.

3 Conclusions

The economic assessment of the Taranaki VTM Project, conducted by NZIER using standard input-output methodology, demonstrates significant potential economic impacts. The analysis appropriately quantifies direct, indirect and induced effects, showing annual contributions of 0.34% to South Taranaki-Whanganui's GDP, 0.87% to the broader Taranaki-Whanganui region, and 0.07% nationally. These translate to substantial absolute benefits ($222 million regionally and $265 million annually) with cumulative impacts exceeding $4.4 billion (regional) and $5.3 billion (national) over 20 years.

While NZIER's expenditure-focused assessment follows conventional practice and provides credible impact estimates, it does not fully evaluate broader economic benefits (as distinct from impacts) or account for potential adverse environmental/social effects identified in the Project Report. The Proposal meets the legislative threshold for "significant economic benefits" under Section 22(2)(a)(iv) of the Fast-track Approvals Act 2024, but the proportionality assessment under Section 85(3) remains qualitative, lacking quantification of risks like marine ecosystem disruption or operational contingencies.

[4] Project Report p361

Technical assessment of Fast Track Application (FTAA-2504-1048 Taranaki VTM Project)

Prepared for

Taranaki Regional Council

August 2025

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Quality Control Sheet

TITLE	Technical assessment of Fast Track Application (FTAA-2504-1048 Taranaki VTM Project)
CLIENT	Taranaki Regional Council
ISSUE DATE	26 August 2025
JOB REFERENCE	HB011420001

Revision History

REV	Date	Status/Purpose	Prepared By	Reviewed	Approved
1	26/8/2025	Final	Becky Shanahan Wayne Westcott Anna Madarasz-Smith	Hayden Easton	Hayden Easton

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Limitations:

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Taranaki Regional Council. PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This report has been prepared by PDP on the specific instructions of Taranaki Regional Council for the limited purposes described in the report. PDP accepts no liability if the report is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

Executive Summary

Trans-Tasman Resources Limited (TTR) have applied for a marine consent under the Fast-track Approvals Act 2024 to allow for activities associated with iron sand extraction. The proposed project site lies 22 to 36 km offshore, beyond the 12 nautical miles (nm) Territorial Sea boundary, and covers an area of 65.76km^2 in water depths ranging from 20 to 50 m.

Taranaki Regional Council (TRC) engaged Pattle Delamore Partners Limited (PDP) to provide technical advice on the potential environmental effects of the proposed activity that may support the Council to provide informed feedback when sought for comment by the Environmental Protection Authority (EPA). Specifically, PDP were asked to focus on the following key areas:

- Current state of knowledge of benthic habitats of the Pātea Bank and Pātea Shoals and whether this has been accurately reflected in the current application and assessment of effects.
- Information on the updated optical effects and effects of primary production and the assessment of ecological effects for areas within the Taranaki coastal marine area, specifically for sensitive rocky outcrop communities including those identified in the Taranaki Regional Coastal Plan (Project Reef, North and South Traps).
- Potential effects of the proposed activity on seabirds, marine mammals, and flow on effects of the reduction in food sources (polychaete worms) in the mining area.

To undertake this review, PDP has reviewed considerable information supporting the application through the various stages of approvals, and hearings within time and budget provisions.

The review has identified several areas where information is considered insufficient to make an informed determination on the expected levels of effects on the areas described above.

In reviewing the TTR application and associated evidence, we consider it important that the expert panel reflect on the extent to which current gaps in information constrain the ability to confidently determine the scale and significance of potential impacts. Specifically, we highlight the following areas where uncertainty may limit the robustness of conclusions. These areas are:

Environmental Setting

- It remains unclear whether the current application adequately addresses potential impacts on newly identified reefs, particularly under the latest worst-case scenario testing for optical and primary production effects (Pinkerton et al., 2017).

- In addition, there is uncertainty around whether the most appropriate sediment plume modelling approach has been applied. As noted by Dr Michael Dearnaley (2024, para. 18), if new reefs located near Pātea Shoals fall within approximately 3 km of the mining operations, then potential impacts on these reefs would be more accurately informed by near-field plume modelling rather than the far-field approach undertaken by NIWA.
- The panel may wish to consider how these uncertainties regarding reef identification and modelling approaches affect confidence in conclusions about the scale of potential impacts on reef ecosystems.

Sediment plume – Optical, primary production and sedimentation effects

- The calibration of the sediment plume model across different years and timeframes introduces potential uncertainty. The panel may need to weigh how this affects confidence in whether the model accurately reflects oceanic conditions.
- There remains a lack of clarity around the interaction of two sediment discharge sources, particularly the mechanism by which de-ored sand is expected to trap finer sediment. The panel may need to reflect on how this uncertainty affects the weight given to conclusions about sediment dispersal.
- The size and extent of the depositional area is not fully defined, limiting the ability to accurately assess the magnitude of sedimentation effects on the receiving environment.
- The absence of an updated assessment of localised impacts on reef habitats and associated species (e.g., Morrison, 2022) creates uncertainty that the panel may wish to consider in its evaluation of ecological effects.

Seabirds

- The 2017 Decision-Making Committee (DMC) noted "a lack of detailed knowledge about habitats and behaviour of seabirds in the STB," and there is little indication that these knowledge gaps have been substantially filled since the 2016 application. The panel may wish to consider how this limits confidence in assessing potential impacts.
- Based on the evidence provided, there does not appear to be sufficient information to fully and confidently assess the impacts of the mining activity on seabirds in the South Taranaki Bight (STB).
- Site-specific data on seabird presence, distribution, foraging areas, and behavioural patterns remain limited, which makes it difficult to quantify potential population-level or long-term impacts.

- There are potential mitigations available to reduce the attractiveness of the mining vessel to birds.

Marine mammals

- The panel may wish to consider whether the existing baseline data on marine mammal populations and behaviours are sufficient to evaluate the potential impacts of the proposed mining activities.
- The panel may wish to take into account that the described uncertainty could influence the ability to fully assess the magnitude and significance of potential noise-related impacts on marine mammals.

Legislative Context

Notwithstanding the specific policies in each of the following documents that provides for extraction of minerals (outside of the current scope), the uncertainty noted above needs to be considered in the context of determining whether the proposed activity is consistent with:

New Zealand Coastal Policy Statement (2010)

- Policy 11 – Indigenous biological diversity.
- Policy 13 – Preservation of natural character.
- Policy 15 – Natural features and natural landscapes.
- Policy 22 – Sedimentation.
- Policy 23 – Discharge of contaminants.

Taranaki Regional Policy Statement (2010)

- CNC Policy 2 – The protection of natural character.
- CNC Policy 4 – Protection of areas of importance to the region.
- CWQ Policy 2 – Discharges from ships and other installations.
- BIO Policy 2 – Adverse effects on indigenous biodiversity.
- BIO Policy 5 – Ecosystems, habitats or areas with indigenous biodiversity values.

Taranaki Regional Coastal Plan (2023)

- Policy 1(a) – Coastal management areas of outstanding value.
- Policy 1(d) – Coastal management areas of the open coast for marine systems and habitats.
- Policy 3 – to adopt a precautionary approach where effects are uncertain, unknown or little understood but potentially significantly adverse.

- Policy 9 (a) – avoiding adverse effects of activities on the values of areas identified in Schedules 1 & 2.
- Policy 15 & 16 – Indigenous biodiversity.

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Appendices

1.0 Introduction

Trans-Tasman Resources Limited (TTR) have applied for a marine consent under the Fast-track Approvals Act 2024 to allow for activities associated with iron sand extraction. The proposed project site lies 22 to 36 km offshore, beyond the 12nm Territorial Sea boundary, and covers an area of 65.76 km^2 in water depths ranging from 20 to 50 m.

TTR was originally granted consent by the Environmental Protection Agency (EPA), however the decision was subsequently appealed to the High Court, the Court of Appeal and ultimately to the Supreme Court who quashed the consent and referred the matter back to the EPA for reconsideration.

Pattle Delamore Partners Limited (PDP) understands that the primary technical issues raised in appeals related to the adequacy of information supporting the application, including but not limited to:

- The potential impacts of the sediment discharge resulting from the activity.
- The extent that seabirds and marine mammals may be affected by proposed mining activities.

2.0 Scope

Taranaki Regional Council (TRC) engaged PDP to provide technical advice on the potential effects of the proposed activity that may support the Council in providing informed comment on the proposal when sought by the EPA.

PDP has been requested to undertake a targeted review of the technical assessments completed during the initial EPA application process, and incorporate any additional information obtained in the intervening years that may be relevant to understanding the environmental effects of the proposed activity.

TRC has specifically asked PDP to focus on the following key areas:

- The description of the receiving environment provided in the application in comparison to current knowledge of the receiving environment.
- Sites scheduled under the Taranaki Regional Coastal Plan.
- The potential ecological effects of reduced visibility and light penetration due to the sediment plume, and the implications of this on primary production and the wider food web. The potential effects of the sediment plume and deposition of fine sediments on sensitive rocky outcrop communities including the North and South Traps. This

is with specific reference to recent information on the occurrence of subtidal reefs within the South Taranaki Bight (STB).

- Any potential effects on marine mammals and seabirds.
- Any potential effects of a reduction in polychaete worms in the proposed mining area.

This review was completed within the time and budget constraints agreed with TRC. PDP considered a substantial body of information from the application, focusing on the key areas identified by TRC. Given the volume of material, a full review of all available information was not feasible.

2.1 Structure

There is extensive literature that support the TTR application. To assist TRC in understanding the relevant information from the literature reviewed, the following assessment has been structured to address potential effects related to the aspects described in Section 3.0.

While there are overlaps across potential effects, this assessment informs the following:

- Is the information provided sufficient to ascertain the effects of the activity?
- Are the conclusions reached supported by the data presented?
- Are there any areas outstanding that need addressing?
- Are there any recommendations for future monitoring/investigations that would assist in understanding the effect of the activity on the receiving environment?

PDP has reviewed considerable information supporting the application through the various stages of approvals, and hearings. Considering this, the information sources referenced in this document may not be exhaustive and additional sources are listed under section 8.0.

2.2 Taranaki Regional Council

TRC has statutory functions under the Resource Management Act (RMA) 1991, including regulatory oversight of the Coastal Marine Area (CMA), which extends from the mean high-water springs (MHWS) out to 12 nautical miles (nm) offshore. In addition to its regulatory role, TRC has a responsibility to advocate on matters of regional significance and concern.

TRC is required by the RMA to prepare a Regional Coastal Plan that sets out how activities in the CMA are managed to promote sustainable management of the area's natural and physical resources. TRC's second generation Coastal Plan

become operative in 2023, and has key objectives regarding the environment including (amongst others):

- The life-supporting capacity and mauri of coastal water, land and air are safeguarded from the adverse effects.
- Water quality in the coastal environment is maintained where it is good and enhanced where it is degraded.
- Indigenous biodiversity in the coastal environment is maintained and enhanced and significant indigenous biodiversity in the coastal environment is protected.
- The public's use and enjoyment of the coastal environment, including amenity values, traditional practices and appropriate public access to and within the coastal environment, is maintained and enhanced.

TRC's CMA includes the South Taranaki Bight (STB), an area characterised by a shallow continental shelf that extends over 40 km offshore. This area includes known reef habitats such as the Traps and Project Reef, which are listed as Areas of Outstanding Natural Character (both areas) and Outstanding Natural Landscapes and Features (Traps only) in TRC's Coastal Plan (Figure 1).

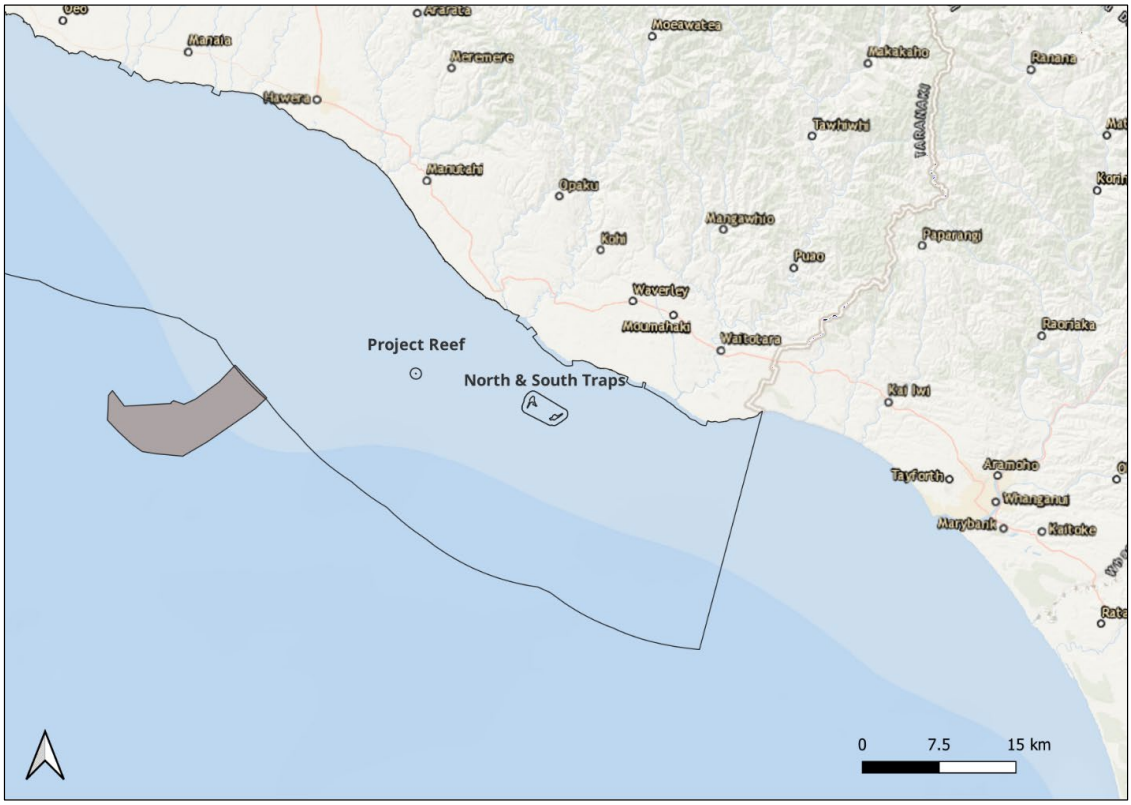

Figure 1-1. Map of southern end of Taranaki Regional Council's CMA (black boundary) including the proposed mining area (grey) and Areas of Outstanding Value; Project Reef and The Traps.

Although the proposed mining area sits adjacent to the 12 nm territorial sea, within the exclusive economic zone (EEZ), it is such that actual and/or potential adverse effects may arise in the Taranaki CMA due to movement of the sediment plume in currents and motile fauna within the STB.

PDP understands that the primary technical issues raised in previous Council submissions related to the adequacy of information supporting the application, including but not limited to:

- Potential impacts of the sediment plume on primary productivity.
- Potential impacts of the sediment plume on sensitive benthic habitats; and
- Whether the effects considered recent information on the offshore subtidal rocky reef habitats on Pātea Bank.

2.3 The proposed activity

TTR proposes to extract up to 50 million tonnes (Mt) of seabed material annually, with 10% (5 Mt) retained as iron concentrate for export. The remaining material would be redeposited roughly four metres above the seabed within the extraction zone. The company is seeking a 35-year consent term, during which the extraction vessel would operate for up to 6,200 hours per year (approximately 258 days or 71% of each year) over a 20-year operational period. The remaining 15 years of the consent term would be allocated to pre- and post-extraction monitoring and decommissioning activities.

Each designated extraction block is approximately 300 by 300 metres in size. Up to six blocks can be extracted before the vessel's anchors must be repositioned to access the next planned area. Annually, the total area directly impacted by extraction is approximately 5 km². This is achieved by working within multiple 900 by 600 metre blocks (0.54 km² each), with each block typically extracted over a 30-day period.

The proposed extraction methodology is detailed in TTR's Fast-track application, however a brief summary is provided below.

TTR will initiate the mining process with the first phase of grade drilling. Grade drilling is closely spaced seabed sampling to further define the extraction area and understand the seabed characteristics. The process is a single pass drilling system that requires a drill rig that uses air and water to control the drill head. The second phase of the mining is the extraction of seabed sediments. Targeted material will be extracted using seawater jets to mobilise free flowing sediment in front of the submerged subsea sediment extraction device / seabed crawler (SBC) (Figure 1-2). The maximum depth of sediment recovered will be no more than 11 m, but, on average, will be 5 m. Material will be extracted in a single pass from the seabed and delivered from the SBC to the Integrated Mining Vessel (IMV). The IMV will remain in place during the course of the extraction operation and can run uninterrupted up to a four-metre significant wave height. On the IMV, recovered sediment is screened by size, removing anything greater than 3.5 mm. Magnets separate out the iron ore in a first pass. Larger particles are sent to a grinding circuit that mills material to a smaller size where is it passed through magnets a second time. De-ored sediment is then sent down a deposition pipe which will be 4 m above the seabed. Material will be redeposited near the area it was extracted from. Product recovered from the seabed is dewatered and transferred to the Floating Storage and Offshore Vessel (FSOV) for further processing and then on to export.

The primary potential direct environmental effects of the proposed mining activities can be summarised as:

- Removal of the top 5 m of the seabed on average, or up to 11 m maximum, for onboard metal extraction causing loss and physical disturbance of seabed habitat and the associated mortality of captured faunal communities.
- Deposition of de-ored material approximately 4 m above the seabed, leading to smothering of benthic communities in previously undisturbed areas, with potential effects on respiratory and feeding structures.
- Creation of an operational sediment plume causing potential effects on optical properties affecting photosynthetic organisms, potential effects on predator behaviour.
- Noise and light pollution of the largely permanent IMV and SBC disrupting current marine fauna and seabirds foraging, breeding and migratory patterns.

In addition to the direct loss and modification of benthic habitats, the proposed extraction has the potential to generate indirect ecological effects through persistent changes to the optical environment and sedimentary regime. Changes in benthic habitat structure and sediment composition may reduce habitat suitability for recolonising invertebrate and fish species, affecting food-web dynamics beyond the immediate extraction blocks. Smothering of adjacent habitats could lead to shifts in community composition over time, favouring more sediment-tolerant taxa.

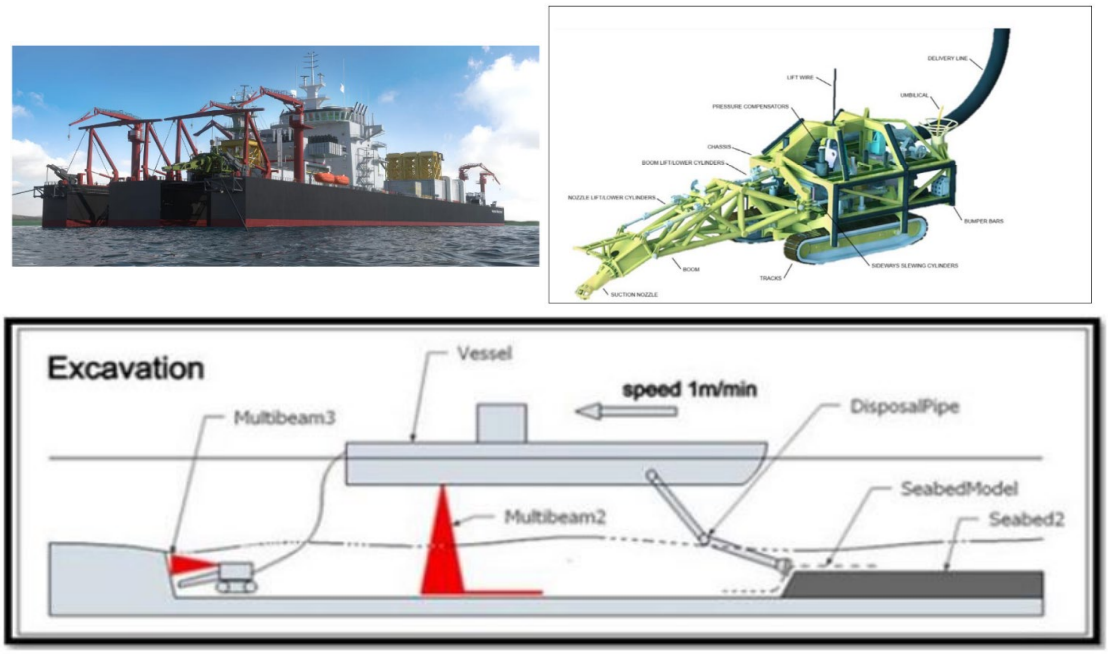

Figure 1-2. Seabed extraction vessels and process (taken from TTR's Fast-track application). Top left is the integrated mining vessel (IMV), top right is the seabed crawler (SBC), and the bottom shows the process for the sediment from extraction to re-deposition.

3.0 The South Taranaki Bight receiving environment

TRC's CMA includes the STB which is characterised by a shallow continental shelf that extends over 40 km offshore. Habitats in the STB (particularly rocky reefs) are relatively unique in New Zealand (NZ), particularly reefs that are distant to the coastline.

The STB includes known reef habitats such as the Traps and Project Reef, both cited as Areas of Outstanding Value (Schedule 1 & 2), and Significant Outstanding Biodiversity Areas (Schedule 4B) in TRC's Coastal Plan due to their high biodiversity, minimal human activity, and high sense of wilderness and remoteness (Taranaki Regional Council, 2023). An significant biodiversity area exists for pelagic seabirds in the area from South Taranaki Bight to the Cook Straight (Taranaki Regional Council, 2023)

Under the Taranaki Regional Coastal Plan, Project Reef is listed as an area of Outstanding Natural Character due the complex habitat that supports a diverse range of marine invertebrates and fish. This area is considered to have a 'very high' degree of biotic natural character, notably due to the clear offshore waters and shallow depth which provides for the growth of beds of *Ecklonia radiata*. This area is also considered of 'very high' natural character due to the minimal human activity and sense of wilderness and remoteness.

Similarly, North and South Traps are listed as areas of Outstanding Natural Character and Outstanding Natural Features or Landscape due the complex habitat that supports a diverse range of marine invertebrates and fish. These areas are considered to have a 'very high' degree of biotic natural character, notably due to the clear offshore waters and shallow depth which again provides for the growth of beds of *E. radiata*. This area is also considered of 'very high' natural character due to the minimal human activity and sense of wilderness and remoteness, and naturally functioning and healthy ecosystems.

Several policies in the Taranaki Regional Coastal Plan outline the region's approach to resource management in a way that maintains or enhances specific values within the coast.

Policy 9 addresses the protection of the *visual quality* and the *physical, ecological* and *cultural integrity* of coastal areas of outstanding value identified in Schedules 1 and 2 (Project Reef – ONC 6, and North and South Traps – ONC 7). Significant adverse effects are required to be avoided, and adverse effects are required to be avoided, remedied or mitigated at those areas identified in Schedule 4B(15iii).

Given that the proposed activity has potential to impact these values, specific consideration is given to these sites in the assessment below.

Application description of the environmental setting

The 2025 application outlines the environmental setting for the proposed activity. It is acknowledged that considerable work has been undertaken to describe the baseline state of the proposed activity area, covering the geological setting, climate, oceanography (including wave climate, currents and suspended sediment concentrations), seabed morphology and sediments including sediment chemistry, natural features, landscapes and seascapes, benthic ecosystems, primary productivity, fish, marine mammals and seabirds.

The existing environmental setting is detailed in the original ecological impact assessment by AES (2016), and again in the 2025 application (Trans-Tasman Resource Ltd, 2025). Both documents describe the seabed habitat types within the Pātea Shoals (Figure 4-1).

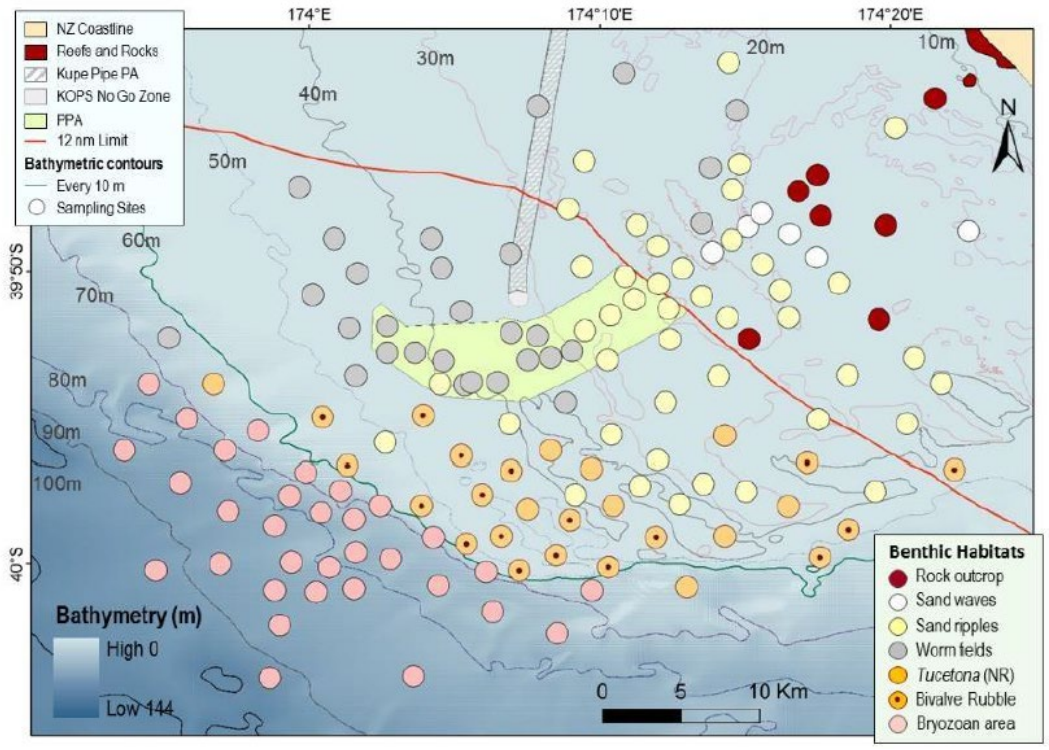

Figure 3-1 Map of the South Taranaki Bight benthic habitats with the location of TTR's Proposed Project Area (PPA) beyond the 12 nm limit and location of reefs (from AES, 2016).

In addition to the surveys undertaken for the original consent application, further mapping and characterisation of subtidal reefs in the South Taranaki Bight (STB) have been conducted. In 2020, following engagement with the Project Reef citizen science team, NIWA extended an existing research programme on juvenile blue cod habitats to include previously uncharted reef systems on the Pātea Bank (Morrison et al., 2020).

Field sampling and mapping events in 2020 and 2021 revealed a 'mosaic' of individual reefs with rich biodiversity (fish, invertebrates, and macroalgae; Morrison et al., 2022). These reefs contain extensive biogenic habitats including macroalgae (*Ecklonia* forests, *Caulerpa* meadows, and mixed macroalgal meadows), bryozoan fields, and sponge garden (areas of higher sponge cover more than 5 m in width). They also support several fish species including blue cod, scarlet wrasse, butterfly perch, leatherjackets and terakihi. Other species are likely to be common (e.g., snapper, trevally, kingfish, and kahawai).

The 2022 mapping demonstrated that subtidal reefs are relatively common along the Pātea Bank and noted that there are likely many more that have not yet been identified (Morrison et al., 2022). The Benthic Terrain Model presented in the report provides evidence of reefs that form 'extensive, linear features several kilometres long'. The report concludes that the reefs are unusual in their distance offshore, making them relatively unique in a New Zealand context, and therefore worthy of careful management (Morrison et al., 2022).

The Pātea Shoals have been identified as a potential Habitat of Particular Significance by Fisheries New Zealand (Fisheries New Zealand, 2024) due to its ecological importance. It "supports diverse benthic and suspension feeding assemblages" and is a "known nursery ground for some finfish species and may also be a spawning ground for some finfish species, including John Dory."

While the studies supporting the TTR application have been comprehensive, the 2025 application does not appear to include more recent information on the presence of offshore subtidal rocky reef habitats on Pātea Bank (*outlined in* Morrison et al., 2022). Concluding that rocky reef habitat is more common and widespread on the Pātea Banks than previously documented, it is important that the presence of subtidal rocky reef habitat within, and adjacent to, the application area is defined and subsequently considered, given the potential effects of the proposed activity on these systems.

The potential for significant ecological impact to occur if large reefs were identified close to the proposed mining site (within 1-2 km of the near field plume modelling area) was agreed in the Joint Statement of Experts in the Fields of: Sediment plume modelling; and effects on benthic ecology (2024). This agreement in paragraphs 51-52, is followed by agreement that additional survey effort around PPA is necessary to identify sensitive benthic habitats within 2 km of the mining area (para. 53).

4.0 Potential Effects – Sediment Plume

As part of the mining operation, de-ored sediment is returned to the seabed in two ways. One is from the hydro-cyclone overflow (a discharge of mostly fine sediment with a large flow (8.8 m^3/s) of water) and the other is the de-ored sand discharge (de-watered, de-ored fine-medium sand being released from a pipe with a view to depositing it as compactly as possible, usually into a pit that has been excavated earlier). These two discharges will be close together to minimise the spatial footprint of the impact. The sediment laden water and deposited sediment can affect suspended sediment concentrations (SSCs), visual clarity and light climate, and the dispersal of sediment across the water column.

4.1 Suspended sediment concentrations

Once mining is underway, a sediment plume will be generated. As part of its application, TTR has modelled the potential sediment plume from its operation including its concentration (in mg/L), distance and direction of travel given different scenarios (environmental conditions, extraction practices, and sediment properties; Hadfield & Macdonald, 2015; Macdonald & Hadfield, 2017), and optical effects (Cahoon, et al., 2015; Pinkerton, 2017; Pinkerton & Gall, 2015). The sediment model has considered both the <63 µm sediments coming from the hydro-cyclone overflow and the de-ored sand discharge. Modelling was over a nested grid setup and the focal Sediment Modelled Domain (SMD) was a large area from Cape Egmont to Kapiti (13,000 km^2). While the model provides a useful tool to help understand the potential effects of the sediment plume, the true plume dimensions and scale, and therefore impact, can only be predicted until the mining activity commences.

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.

Modelling of the potential effects of the proposed project on optical properties was informed by applying the mining activity to two primary sites within the project area for plume dispersion: Site A, located adjacent to the coastal marine area boundary at a depth of 31 m, and Site B, situated on the seaward side of the project area at a depth of 42 m (Figure 4-1).

According to the sediment model (Hadfield and MacDonald, 2015), the prevailing winds and residual currents will direct the plume in an east-southeasterly direction, meaning that the majority of the plume will drift into the Taranaki Coastal Marine Area. At times, the plume may also pool around the mining site or move west or south. The sediment modelling states that the greatest impact of the sediment plume is nearest to the mining site (2-3 km), however net differences between 'background' and 'extraction plus background' at the two model sites (Site A and Site B) were also assessed for locations 2km, 8km and 20km from the extraction locations. These data show:

- An increase in median suspended sediment concentrations (SSC) at the 2km location from 0.4 to 1.5 mg/L and an increase at the 99th percentile from 5.5 to 6.8 mg/L.
- An increase in median SSC at the 8 km location from 0.5 to 1.3 mg/L and an increase at the 99th percentile from 6.9 to 7.1 mg/L.
- An increase in median SSC at the 20 km location from 0.9 to 1.4 mg/L and an increase at the 99th percentile from 10.5 to 10.8 mg/L. (TTR, 2025 - section 5.3.2.3).

Updated worst-case model (Maconald and Hadfield, 2017; Figure 3-5), describes changes in SSC at specific locations of interest including:

- An increase in median SSC at **Project Reef** from 1.6 to 2.2 mg/L and a decrease[1] at the 99th percentile from 12.3 to 11.7 mg/L.

[1] It is unclear how a reduction in SSC is achieved.

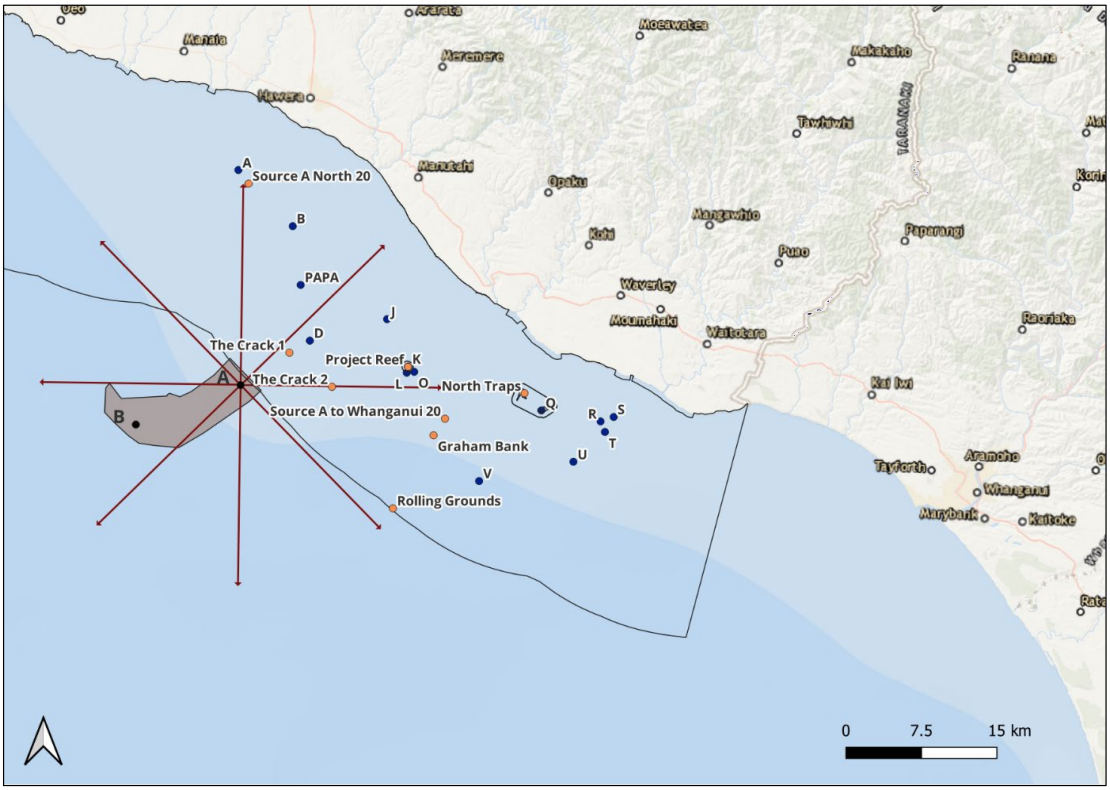

Figure 4-1. Map of project area and sites of interest. Proposed mining site is grey. Red lines are 20km distance in all directions from Site A to understand potential scale of impact on reefs. Blue dots represent known rocky reef sites from Morrison et al., 2022. Orange dots are sites with modelled optical effects from Pinkerton (2017).

4.2 Visibility and light penetration from the sediment plume

Impacts on optical properties of the sediment plume and the associated impacts on primary productivity were assessed in Pinkerton & Gall (2015), Cahoon et al. (2015), and then further updated by request of the Decision-Making Committee (DMC) in Pinkerton (2017).

Optical properties of the water are of specific relevance to TRC due to the linkage between water quality and the habitat forming species present in the Areas of Outstanding Value, and more recently identified reef structures. The reefs contain extensive biogenic habitats including macroalgae (*Ecklonia* forests, *Caulerpa* meadows, and mixed macroalgal meadows), bryozoan fields, and sponge garden (areas of higher sponge cover more than 5 m in width), and support several fish species including blue cod, scarlet wrasse, butterfly perch,

leatherjackets and terakihi. Other species are likely to be common (e.g., snapper, trevally, kingfish, and kahawai).

The persistence of these features, particularly macroalgal growth, are highly reliant on water clarity that sufficiently provides for light penetration and photosynthesis.

As expected, effects were shown to be greatest close to the mining operation and decrease with distance from the project area with mining at Site A creating a greater impact.

While the original (Pinkerton and Gall, 2015) mean reductions in light in the water column were estimated to range across a 1km^2 cell from a maximum of 27% (from mining at Site B) to 46% (from mining at Site A), new estimates based on the worst case scenario altered this to range from a maximum of 32% (from mining at Site B) to 52% (from mining at Site A) (Pinkerton, 2017).

When averaged across the SMD, the original reductions of 1.6% (at Site B) and 1.9% (at Site A), increased to a reduction of 2.4% from mining at site B and 2.9% from mining at site A.

Similarly, the reduction in light at the seabed was modelled, and updated with worst case estimates in Pinkerton (2017). As expected, reductions in the original model were most significant at the location of the mining, from 91% at Site B and 95% at Site A. However, these appear to reduce in the updated modelling to 87% at Site B and 92% at Site A. This may be accounted for by the increased movement of sediments away from the site as the average reductions in light at the seabed increase from the original reductions of 16% (at Site B) and 23% (at Site A), to 21% (at Site B) and 30% (at Site A) (Pinkerton, 2017).

Pinkerton (2017) also included impacts of optical effects on key sites in TRC's CMA. These results are collated in Tables 1 to 4 below. The following effects were included:

- The euphotic zone (vertical distance) is the depth in the water which allows enough light for photosynthesis. Generally, deeper euphotic zones are expected further from the coast over deeper water because the higher suspended sediment load on the coast (Aksnesa & Ohman, 2009) and high phytoplankton in shallower water (Pinkerton, 2017) decrease visibility in the water column at shallower depths close to the shore.
- The proportion of time that light at the seabed exceeds 1% gives an indication of time for potential benthic primary production.
- Horizontal visibility is a measure of water clarity using a black disk.
- "Good visibility days" are the number of days horizontal visibility is more than 5 m

Optical effects at all key stations were 2.19 times greater mining at Site A compared to Site B (except for at Rolling Grounds).

4.3 Assessment of ecological effects from the sediment plume

TTR have undertaken a number of studies, and models have been developed to attempt to understand the impact of its mining operation on the environment including characterising the substrate of the mining site and soft sediment habitats in the surrounding area. These studies have also used complex models to determine the sediment plume suspended sediment concentrations and its optical effects to try and understand the potential impacts on the benthic ecology.

4.3.1 Is the information provided sufficient to ascertain the effects of the activity?

Optical effects

The Manawatu-Wanganui region, managed by the Horizons Regional Council (HRC), is the southern neighbour to the Taranaki region. HRC's regional plan, One Plan, has a coastal water quality target of no change in visual clarity greater than 20% or less than 1.6 m (Horizons Regional Council, 2014). Horizons One Plan also contains provision for no change of greater than 10% in the euphotic zone, however this refers to the region's estuaries rather than the open coastal waters. It is this change in euphotic zone that is likely to have the most impact on values associated with the indigenous biodiversity of the scheduled sites, Project Reef and the Traps.

While there is no specification of visibility or euphotic depth outlined in TRC's Coastal Plan, this target is a reasonable guideline for interpreting mining impacts on water clarity, particularly for habitats with important biodiversity features. Mining would exceed that limit at six of the eight sites investigated.

TTR asserts in both its application and supporting documents that because the STB is an energetic environment, primary producers are used to short-term fluctuations in light availability (Trans-Tasman Resources Ltd Consent Application: Ecological Assessments, 2016). Dr. Cahoon highlights that the STB is affected by several processes including, "coastal currents driven by Tasman Sea circulation as well as flows through Cook Strait, tidal flows, river discharges, and storm events" (C*ahoon*, 2016). The exact direction of the plume will change in its direction and intensity depending on the conditions on the day. However, rocky reefs are spread throughout the southern side of the CMA in the predicted predominant direction of the sediment plume. This means reefs may be impacted regardless of minor shifts in the plume direction. Additionally, unlike the frequent changes in processes affecting the STB, the mining operation is proposed to run for 24 hours a day, 7 days a week, 258 days per year for

20 years. This presents a steady concentration of sediment and reduces a species ability to recover in between pulses of sediment. An intermittent input of sediment from to a river discharge from a high rainfall event, for example, allows for communities to recover between pulses of sediment. This is unlikely to be the case given the consistent inputs from the proposed activity, and given that the discharge is occurring from offshore, an area with typically greater water clarity than the nearshore environment.

Cahoon, et al. (2015) states that optical effects are likely to cease quickly after mining stops. When suspended sediment from mining has been flushed out of the STB region (a process expected to take a few months) optical properties may be expected to return to pre-mining levels within a few days (Pinkerton & Gall, 2015). Considering the planned run time of the operation, it's 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. If that were the case, it would allow for the few months necessary to flush the sediment from the STB. Without that consecutive down time, the optical effects are proposed to last throughout the majority of the 20-year operation. Additionally, that consecutive 'down time' would mean that the plume would persist for 258 days continuously which is likely to provide chronic sediment impacts on the receiving environment.

Primary production

Primary productivity regulates key ecological processes in the coastal ocean including nutrient cycling, variability in trophic structure, and climate change (Salgado-Hernanz et al., 2022). Coastal primary productivity supports the first order of consumers whose abundance influences species at the top of the food chain (Fermepin et al., 2024). The production on continental shelves supports 90% of global fishing (Pauly et al., 2002) and can support populations of marine mammals and seabirds (Cox et al., 2018; Poupart et al., 2017).

Pinkerton (2017) presented updated optical property results at key sites with TRC's CMA. However, TTR's evaluation of the impacts on primary production were not updated following Cahoon, et al. (2015) and the AES ecological assessment. Even though optical properties were modelled at a higher resolution, TTR interpreted the impacts on primary production over the 13,000 km^2 SMD. The justification for this approach was that the resolution for the model is 1 km and any smaller resolution would result in higher impacts to optical properties. Therefore, "mean change in water column light averaged over a large region is a more reliable measure of the predicted effect of mining on primary production in the water column." While this approach allows for an assessment of primary productivity across the SMD, averaging across a large area makes it challenging to detect localised impacts of mining, as the effects of mining become diluted over the wider region. It is noted that this has been

consistent feedback on the approach taken since the application was lodged (*see also* Chiffings, 2016).

Given the patchy nature of rocky reefs in the CMA, determining localised impacts is key to understanding the impacts of mining on biodiversity.

Another implication of averaging the impact on primary production across the SMD is that averaging across such a large area makes the overall impact appear reduced. For example, the reduction in light in the water column ranges from 27% (mining at Site B) to 46% (at Site A). When averaged across the SMD, those reductions become 1.6% (mining at Site B) and 1.9% (at Site A).

Despite averaging across the SMD, TTR's assessment concludes that benthic primary production by the microphytobenthos (MPB) will be reduced by 19% (mining at Site A) and 13% (mining at Site B). It also states that the "median plume" moving east over the Pātea Banks is expected to reduce carbon flux to the benthos by up to 40% which could impact higher trophic levels.

TTR also states that the amount of light reaching the seabed in the SMD varies naturally by an average of 32-36% meaning receiving communities are predisposed to variability in photosynthesis like that expected from mining (15-23%; Cahoon, et al., 2015). For communities not adapted to low light conditions, a persistent sediment plume is likely to have adverse impacts. Communities in turbid environments have either been reduced to species that can tolerate that environment or can adapt. However, communities not adapted to long-term sediment disturbance, are unlikely to be predisposed and will be highly impacted by a persistent reduction in light reaching the seabed. Furthermore, differences in localised impacts on light in the water columns are relevant for patch reefs containing *E. radiata* (kelp). It has been demonstrated that a 63% decrease in light in the water column resulted in a 95% decline in kelp productivity (Blain et al., 2021).

TTR's assessment on primary production impacts based on optical modelling states that mining will have small effects on macroalgal production. This assessment is based on two factors. One is that the distribution of macroalgae is poorly known, but where it exists (i.e., the Traps) the impacts from mining are predicted to be small (Cahoon, et al., 2015). Given the updated information regarding macroalgal distribution, and its proximity to the project area, localised assessments of macroalgal primary productivity from the sediment plume are warranted (see Table 1). The second factor is that macroalgae on continental shelves have mechanisms to adapt to low light by, for example, storing photosynthetic products (*Cahoon* 2016). However, increasing turbidity reduces productivity and biomass accumulation of kelp, having implications for successful carbon storage with most of it going to growth and then eroded away (Blain et al., 2021).

Table 1: Adapted summary of macroalgae observations from Morrison et al. (2022), including reefs where *Ecklonia radiata* was present, and reefs where macroalgal species (including E. radiata) were present in sufficient abundance and extent to be considered biogenic landscape elements (i.e. forests and meadows) based on a semi-quantitative assessment of towed video recordings.

Site	Ecklonia radiata presence (section 3)	Ecklonia forest (Table 14)	Caulerpa meadow (Table 14)	Macroalgae meadow (Table 14)
Site A	Yes	Yes	Yes	-
Site B	Yes	-	-	Yes
Site Papa	-	-	-	-
Site D	*	-	-	-
Site J	Yes	-	-	Yes
Site K (Project Reef)	Yes	-	-	-
Site L	Yes	Yes	-	-
Site O	Yes	Yes	-	Yes
Site Q (South Trap)	Yes	Yes	-	-
Site R	Yes	Yes	Yes	-
Site S	Yes	-	Yes	-
Site T	Yes	-	-	-
Site U	Yes	Yes	-	Yes
Site V	Yes	-	-	-

Note:
** Drift plants observed*

4.3.2 Potential effects on macroalgae

As described above, optical properties are highly relevant to the growth and persistence of the 'important kelp (*Ecklonia radiata*) beds' identified in ONC 6 – Project Reef and ONC 7 – North and South Traps).

Given its dependence on adequate water clarity and its role as a habitat-forming species, *E. radiata* is both ecologically significant and sensitive to increases in suspended sediment and reductions in underwater light climate, making it a key indicator for assessing the ecological consequences of the proposed mining plume on Areas of Outstanding Value identified in the Taranaki Coastal Plan.

Most species of large brown macroalgae are typically restricted to depths where irradiance is 0.7 – 1.4% of the surface irradiance, and therefore reductions in the

amount of time that these conditions are met or exceeded may affect the growth and coverage of these species.

In the assessment on the impacts of changes in seabed light on macroalgae, Cahoon et al. (2015) uses the applied optical model (Pinkerton and Gall, 2015) on the sediment transport model (Hadfield and MacDonald, 2015) to assess the impact on macroalgae. It is noted that given that the model predictions suggest that this area will be reduced to approximately 50% of the background irradiance during mining at site A and 75% during mining at site B, though the shallowest parts of Graham Bank will continue to receive more than 1 mol m-2 d-1, on average. Cahoon et al., 2015 conclude that "*Mining impacts can thus at times be expected to significantly impact on growth of any macroalgae on Graham Bank, though elimination is unlikely".*

Cahoon et al, 2015 also note that the impact of mining on the area of the Traps is expected to reduce the median number of days that more than 1% of incident light reaches the seabed from 138 days/year (background) to 106 days/year (mining at site A) and 127 days/year (mining at site B – taken from Pinkerton and Gall, 2015). Cahoon et al, 2015 conclude that "*some reduction in macroalgae and coverage may occur at the Traps*".

The amount of time that incident light reaches the seabed is an important factor in photosynthetic production versus respiration loss. At lower levels photosynthetic production matches respiratory losses, and species have the potential to reach net negative production. Light availability that exceeds respiratory losses is required for growth and persistence. Additionally, different algae have different light requirements, suggesting that species specific consideration should be given to the key habitat forming species growing within, and down plume, of the proposed site.

Given this conclusion, it is not immediately clear why these predicted effects were not updated to reflect the worst-case scenario modelling, which increased the predicted reductions in incident light days at Areas of Outstanding Value from a background of 141 median days/year (background) to 96 and 124 days (mining at sites A and B respectively) at North Trap, and an increase in the reduced incident light days from 140 median days/year (background) to 76 and 111 days (mining at sites A and B respectively) at Project Reef (Appendix 1 – Table 2).

The potential effects on macroalgal primary productivity resulting from the reductions of incident light days on reefs closer to the operations than Project and North and South Traps, have not been considered.

It is noted that although an update to the assessment was not undertaken, Dr Cahoon did provide supplementary evidence in April of 2017 that considered the Pinkerton, 2017 report. However, in contrast to the previous assessment, no comment was made on benthic macroalgae (Cahoon, 2017).

The AES ecological assessment states that, "There would be some reduction in growth of macroalgae but because most of these are found inshore where background suspended sediment concentrations are high, any effects are likely to be no more than minor and indistinguishable from background." However, the location of the macroalgae in TRC's CMA has not been fully determined, with increasing evidence of unique offshore reefs (Morrison et al., 2022), and specific tolerances of algal species to light level reductions do not appear to have been considered.

4.3.3 Are the conclusions reached supported by the data presented?

High sediment loads can have major impacts on rocky reef species growth, survival and/or photosynthetic activity which can result in distinct morphological or life history traits, weakened species interactions, or direct smothering (Airoldi, 2003). Sediment can also cause indirect effects including limiting a predator's ability to see their prey (Airoldi, 2003).

The AES ecological assessment highlights some limits of periodic SSCs for species in the STB. However, some of these species are located within the intertidal zone (*Zeacumantus lutulentus*) or less than 10 m depth (*Paphies australis*) and do not adequately represent species likely to be affected by the sediment plume.

TTR states that, "For larvae of rocky reef species that occur near-shore, the mining will only slightly increase suspended sediment concentrations or decrease light conditions in the water column thus effects will be minimal on their larval and adult populations." However, it's unclear which species they are referring to and how the impacts of increasing SSCs and/or decreased light conditions are assessed to determine the impact is minimal.

Sediment deposition effects have been assessed as, "virtually indistinguishable from naturally occurring background levels and will have negligible, if any, effects on benthic communities outside the excavation pit and immediate surrounding area." However, as mentioned in TTR's application, "attachment of [macroalgal] germlings can be impacted by a light dusting of sediment (Schiel et al., 2006)." Additionally, Wernberg et al. (2019), found that while adult kelp (*E. radiata)* can survive under a range of sediment loads, attachment and burial of microscopic stages is limited by sediment and competition from more sediment tolerant, but less habitat forming turfing algae (Connell, 2007). This implies that a large area impacted by depositional thicknesses less than 0.05 mm could result in reduced algal recruitment and cover over time, impacting biodiversity on subtidal reefs.

There are current gaps in information which constrain the ability to confidently determine the scale and significance of potential impacts. The lack of updated primary production assessment based on information regarding the presence of key reef features along the STB, and in conjunction with worst-case scenario

testing, has resulted in insufficient detail to assess the scale and magnitude of effects on the growth and persistence of important kelp forests on these reefs.

4.3.4 Are there any areas outstanding that need addressing?

The sediment model setup is complex and includes many data sources. The oceanographic data was collected at 10 sites in and around the mining area (Macdonald et al., 2015). The deployments lasted for 7 months in total with uneven coverage across seasons and variable conditions across a year (i.e., all of spring and summer, 6 weeks of autumn and one month of winter). Oceanographic conditions are known to vary across seasons (de Burgh-Day et al., 2019), and within larger temporal scales such as oscillation and interdecadal scales. Additionally, not all sites were sampled at the same time. Conditions at Site A and Site B were observed at different times of the year and for different length surveys which suggests the sediment plume modelling is calibrated to different conditions across sites.

The AES ecological assessment specifies that, "at the local scale close to the site, reductions in benthic primary production would exceed natural variability and there could be localised flow on effects, but productivity would return to previous levels once activities ceased." This highlights the importance of determining localised impacts, particularly for areas not considered in previous assessments.

The size of the depositional area is not provided, except that it is, "extensive." The figures used in the application are at too coarse of a scale to determine the total area size and location. This makes it difficult to assess the impact of the sediment deposition on the receiving environment.

TTR's application mentions the presence of rocky reefs in their Environmental Setting section but does not address the impact on these reefs in the assessment of effects or provide evidence relevant to species on those reefs. Morisson et al., (2022) and evidence from TTR's court proceedings state that areas of rocky reefs are common and are highly likely present but have yet to be formally mapped. Members of the community have shared their fishing and diving spots with TRC include some reefs that have not been formally mapped. These are in the potential path of the plume.

Summary - Reefs and modelling approach:

- The current application does not appear to fully address potential impacts on reefs identified since the initial assessment of effects, or whether these have been assessed under the latest worst-case scenario testing for optical and primary production effects (Pinkerton et al., 2017) and using the most appropriate plume modelling approach (e.g., near-field versus far-field).

- This issue is highlighted in the rebuttal evidence of Dr Michael Dearnaley (2024, para. 18), who notes that new reefs have been identified in proximity to the Pātea Shoals. If these reefs fall within approximately 3 km of the mining operations, their potential exposure to effects would be more appropriately considered using near-field plume modelling, rather than the far-field approach adopted by NIWA.
- The calibration of the sediment plume model across different years and timeframes introduces potential uncertainty. The panel may need to weigh how this affects confidence in whether the model accurately reflects oceanic conditions.
- There remains a lack of clarity around the interaction of two sediment discharge sources, particularly the mechanism by which de-ored sand is expected to trap finer sediment. The panel may need to reflect on how this uncertainty affects the weight given to conclusions about sediment dispersal.
- The size and extent of the depositional area is not fully defined, limiting the ability to accurately assess the magnitude of sedimentation effects on the receiving environment.
- The absence of an updated assessment of localised impacts on reef habitats and associated species (e.g., Morrison 2022) creates uncertainty that the panel may wish to consider in its evaluation of ecological effects.
- The panel may therefore wish to consider how this uncertainty regarding reef locations and the modelling framework affects confidence in conclusions about potential impacts on reef ecosystems.

This will assist consideration against the following policies:

New Zealand Coastal Policy Statement (2010)

- Policy 11 – Indigenous biological diversity
- Policy 13 – Preservation of natural character
- Policy 15 – Natural features and natural landscapes
- Policy 22 – Sedimentation
- Policy 23 – Discharge of contaminants

Taranaki Regional Policy Statement (2010)

- CNC Policy 2 – The protection of natural character
- CNC Policy 4 – Protection of areas of importance to the region
- CWQ Policy 2 – Discharges from ships and other installations
- BIO Policy 2 – Adverse effects on indigenous biodiversity

- BIO Policy 5 – Ecosystems, habitats or areas with indigenous biodiversity values

Taranaki Regional Coastal Plan (2023)

- Policy 1(a) – Coastal management areas of outstanding value
- Policy 1(d) – Coastal management areas of the open coast for marine systems and habitats.
- Policy 3 – to adopt a precautionary approach where effects are uncertain, unknown or little understood but potentially significantly adverse.
- Policy 9 (a) – avoiding adverse effects of activities on the values of areas identified in Schedules 1 & 2.
- Policy 15 &16 – Indigenous biodiversity

5.0 Wider ecological effects (incl. benthic ecology)

5.1 The effects on seabirds

As part of the TTR application, Thompson (2013; updated 2015) investigated how artificial lighting from the vessels associated with the activity might affect fish, squid, and seabird species in the project area. MacDiarmid et al. (2015) explored the project's ecological impacts on seabirds, with an emphasis on species such as Gibson's albatross, Westland petrel, sooty shearwater, red-billed gull, and little blue penguin. Thompson (2023) provided updated information on seabirds and the potential effects of mining activities, sediment plumes, and commercial fishing operations. Several joint statements in the field of "effects on seabirds" were convened and the most recent and relevant information is discussed below.

There has been general consensus that the STB is within the Cook Strait Important Bird and Biodiversity Area and is, therefore, of international significance for the conservation of seabirds, containing a number of 'threatened' and 'at risk' taxa (as defined by the New Zealand Threat Classification System), occurring within the STB (conservatively ten and 24 taxa, respectively) year-round or seasonally. Furthermore, the area from South Taranaki to Cook Strait is recognised as a 'Significant Seabird Area' under section 4B of the Taranaki Coastal Plan. Many of the species that utilise the South Taranaki Bight are also listed in section 4A as Threatened, At Risk, or Regionally Distinctive. Together, these schedules provide the basis for Policy 15, which seeks to protect significant indigenous biodiversity within the Taranaki coastal environment.

It was identified by the experts that no systematic surveys had been undertaken with regard to seabirds in the STB, and that relevant information (a 2014 list of seabirds from Dr Paul Schofield) had not been included in the 2017 evidence, and the unique characteristics of the STB as a key area for seabirds is now more

widely recognised. The designation by the IUCN of the Cook Strait and Marlborough Sounds key biodiversity areas (KBAs; "the most important places in the world for species and their habitats") was not included in evidence presented to the DMC in 2017, despite the two species that trigger the KBA status, the grey faced petrel (*Pterodroma macroptera gouldi*) and the Bullers shearwater (*Puffinus bulleri*), also appearing in schedule 4A of the Taranaki Coastal Plan. These KBAs include all the waters of the STB, Cook Strait, and the inner waters of Marlborough Sounds.

Potential effects on seabirds, including the little penguin (*Eudyptula minor*) who travel to feed in the STB, and the relict fairy prions (*Pachyptila turtur*) were inconclusive, with experts unable to agree on the magnitude of effects. These effects were primarily considered to relate to displacement, the effect of the sediment plume on foraging, noise, lighting and potential oil/fuel spills.

The Integrated Mining Vessel (IMV) is large measuring >300 m length and will be a permanent feature in the STB over approximately 20 years. It is likely to become attractive for migratory and nearby seabirds (e.g., creating an artificial island attracting seabirds, specifically at night and during bad weather), which may lead to increased mortality.

However, it is expected that with appropriate mitigations for lighting (e.g., downward facing and specific tones) these potential effects may be able to be reduced. That said, the effect of the sediment plume on foraging activity remains an area of contention between experts.

Based on updated evidence provided by Dr David Thompson in May 2023, a total of 45 seabirds and 11 shorebirds are likely to occur in or adjacent to the South Taranaki Bight (STB). Of these, 11 seabirds and two shorebirds are classified as 'Threatened', and 24 seabirds and seven shorebirds as 'At Risk' (Robertson, et al., 2021). The list contains seven species classified as 'Endangered' and eight as 'Vulnerable' by the IUCN Red List[2] which fall in the IUCN 'Threatened categories'[3]. Adverse effects of activities on these species must be avoided in accordance with Policy 11 of the New Zealand Coastal Policy Statement (NZCPS) (2010).

5.1.1 Is the information provided sufficient to ascertain the effects of the activity?

Based on the information provided there does not appear to be sufficient information to fully and confidently assess the impacts of the mining activity on seabirds in the South Taranaki Bight (STB).

[2] https://www.iucnredlist.org/

[3] https://www.iucnredlist.org/about/faqs

The 2017 Decision-Making Committee (DMC) already noted "a lack of detailed knowledge about habitats and behaviour of seabirds in the STB". In response to this, TTR filed primary and rebuttal evidence of Dr David Thompson addressing the potential effects of the activity on seabirds, however no further information was obtained. This is despite Dr Thompsons earlier statement that "detailed, systematic and quantitative information on the at-sea distribution of virtually all species is currently lacking" (Thompson, 2015).

Site-specific data on seabird presence, distribution, foraging areas, and behavioural patterns remain limited, which makes it difficult to quantify potential population-level or long-term impacts, and there is little indication that these knowledge gaps have been substantially filled since the 2016 application.

How the proposed activity is able to 'avoid adverse effects of activities on indigenous taxa that are listed as threatened or at risk' under Policy 11a of the NZCPS (2010), should also be considered given that the experts agreed that "large numbers of seabirds may be present in the STB at night, including the proposed mining area, and that there is potential for significant mortality of seabirds attracted to mining vessel lights" in the Joint Statement of Effects in 2017 and 2024.

Summary - Seabirds:

- Based on the evidence, there does not appear to be sufficient information to fully and confidently assess the impacts of the mining activity on seabirds in the South Taranaki Bight (STB).
- The 2017 Decision-Making Committee (DMC) already noted "a lack of detailed knowledge about habitats and behaviour of seabirds in the STB," and there is little indication that these knowledge gaps have been substantially filled since the 2016 application.
- Site-specific data on seabird presence, distribution, foraging areas, and behavioural patterns remain limited, which makes it difficult to quantify potential population-level or long-term impacts.
- There are potential mitigations available to reduce the attractiveness of the IMV to birds.

The following policies are relevant when considering the impacts of the proposed activity on seabirds:

New Zealand Coastal Policy Statement (2010)

- Policy 11 – Indigenous biological diversity
- Policy 13 – Preservation of natural character
- Policy 23 – Discharge of contaminants

Taranaki Regional Policy Statement (2010)

- CWQ Policy 2 – Discharges from ships and other installations
- BIO Policy 2 – Adverse effects on indigenous biodiversity
- BIO Policy 5 – Ecosystems, habitats or areas with indigenous biodiversity values

Taranaki Regional Coastal Plan (2023)

- Policy 1(d) – Coastal management areas of the open coast for marine systems and habitats.
- Policy 3 – to adopt a precautionary approach where effects are uncertain, unknown or little understood but potentially significantly adverse.
- Policy 15 & 16 – Indigenous biodiversity

5.2 The effects on marine mammals

A range of scientific reports and evidence has been used to inform the assessment of potential effects on marine mammals associated with the proposed activity. The evaluation draws on systematic aerial surveys conducted over a two-year period (Martin Cawthron Associates, 2013), Department of Conservation (2023) marine observer records, published literature (MacDiarmid et al., 2013), habitat modelling studies (Torres et al., 2013; Derville et al., 2016), marine mammal distribution analyses (MacKenzie et al., 2016), and cetacean species distribution modelling (Stephens, 2020a; 2020b).

Joint statement of experts in the field of "effects on marine mammals" were convened in 2014 and 2017, with a third on 19 February 2024. The 2017 Joint Statement formed the starting point of the 2024 discussion. The main effects consideration related to the effects of noise, vessel strike, and the effects of the sediment plume on foraging and wider food web disturbance.

A total of 41 marine mammal species were recorded in the STB within the DoC sighting and stranding database (Childerhouse, 2023). This includes several 'Threatened' and 'At Risk' species including bottlenose dolphin, Hector's dolphin, Maui dolphin, leopard seal, New Zealand sea lion, pygmy blue whale, killer whale (orca) and southern right whale, which are also listed in the Taranaki Regional Coastal Plan Schedule 4A. These species meet the criteria specified in Policy 11 (a) of the NZCPS (2010) and adverse effects on these species must be avoided. Childerhouse (2023) confirms that the STB region is an area of high marine mammal diversity, and some parts represent important habitat and foraging areas.

Of the species recorded via DoC sightings, only one record was within the proposed mining area, and six within a 5 km buffer and 6 within a 10 km buffer around the proposed mining area. The updated information still does not

provide useful information about the marine mammals that occur with the proposed mining area and how they use it (Childerhouse, 2023).

It is also worth noting that since this application was submitted, a new sighting of two dolphins of the *Cephalorhynchus* genus (which could have been either Hector's or Maui dolphins) was recorded in the South Taranaki Bight near the Kaūpokonui Stream mouth in approximately 8 metres water depth (approximately 20 km northwest of Hāwera and 40 km northwest of Pātea). This sighting took place on 25 April 2025 and has since been verified and included DOC's Maui and Hector's dolphin database. The dolphins were travelling south along the coastline (Jesu Valdes, pers. comm.).

Additionally, the STB is an important habitat and foraging area for blue whales, of which Antarctic blue whales are 'Endangered' and pygmy blue whales are classed as 'Data deficient' by IUCN. It is also understood that that blue whales use STB for courting and mating in addition to foraging, and that calves have been observed in the STB.

Based on the information provided in the TTR application, the assessment of noise effects on marine mammals primarily relies on modelling of the Integrated Mining Vessel (IMV) and seabed crawler operations, rather than any in situ measurements. 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 or endangered species such as blue whales, Hector's and Maui dolphins, and New Zealand sea lions.

There was general agreement between the experts in the 2024 caucusing that careful consideration is required when determining the magnitude and scale of effects of an activity on species, especially those that are close to extinction. Several agreements were also made about the uncertainty of the underpinning datasets for the marine mammal modelling, which were derived from incidental sightings.

5.2.1 Is the information provided sufficient to ascertain the effects of the activity?

Based on the information provided throughout the application, it is difficult to assess the potential for effects on marine mammals. This is also noted in the Supreme Court decision (para 129), which recognises that paucity in information about effects cannot be conditioned out due to the fact that given 'the uncertainty of the information, it was not possible to be confident that the conditions would remedy, mitigate or avoid the effects'.

Summary marine mammals:

- The panel may wish to consider whether the existing baseline data on marine mammal populations and behaviours are sufficient to evaluate the potential impacts of the proposed mining activities.
- The panel may wish to take into account that the described uncertainty could influence the ability to fully assess the magnitude and significance of potential noise-related impacts on marine mammals both directly and during foraging.

The following policies are relevant when considering the impacts of the proposed activity on marine mammals:

New Zealand Coastal Policy Statement (2010)

- Policy 11 – Indigenous biological diversity
- Policy 13 – Preservation of natural character
- Policy 23 – Discharge of contaminants

Taranaki Regional Policy Statement (2010)

- CWQ Policy 2 – Discharges from ships and other installations
- BIO Policy 2 – Adverse effects on indigenous biodiversity
- BIO Policy 5 – Ecosystems, habitats or areas with indigenous biodiversity values

Taranaki Regional Coastal Plan (2023)

- Policy 1(d) – Coastal management areas of the open coast for marine systems and habitats.
- Policy 3 – to adopt a precautionary approach where effects are uncertain, unknown or little understood but potentially significantly adverse.
- Policy 15 & 16 – Indigenous biodiversity

5.3 The ecological effects of a reduction in polychaete worms in the mining area

The proposed activity has generated considerable information on the subtidal ecology of the STB. Beaumont et al. (2013) conducted underwater video and still images at 144 locations to describe seabed habitats and macrobenthic communities, 331 surface sediment samples, including infaunal organisms, were collected from 103 sites. Additionally, benthic dredging at 116 sites yielded specimens of benthic macrofauna and macroflora. Anderson et al. (2013) conducted assessments of the benthic habitats, macrobenthos and surficial sediments at 36 nearshore and cross-shelf sites of the SBT. These and supplementary evidence (McClary, 2014; MacDiarmid, 2016) and 'Joint

Statement of Experts in the fields of: benthic ecology (2017), and sediment plume modelling and effects on benthic ecology (2024) were used to assess the potential effects of the proposed mining activities on polychaete worms ("wormfields") in the TTR application (2025).

Wormfields occurred at 20% (approx. 29 sites) of the 144 samples sites (Beaumont et al., 2013) (Figure 5-1). The dominant infaunal species, an undescribed sabellid tubeworm, referred to as *Euchone* sp. A, accounted for 34% of all polychaetes and 15% of total infauna. It was widespread across the central and northern mid-shelf in fine to medium sands, though it remains unclear whether sediment type influences its distribution or vice versa. Anderson et al. (2013) did not report the same abundance and dominance of polychaetes within the nearshore zone.

Previous studies related to the Kupe gas line to the north of the proposed mining site (Page et al., 1992) demonstrated a similar density of *Euchone* sp. A to that found within the current project site. However new taxa associated with the wormfields were identified in Beaumont et al. (2013), and it is outlined that it is unknown whether the new taxa are unique to the proposed mining area, or Pātea Shoals, as the shallow benthic environments along the west coast have to date been very poorly studied. This highlights both the sensitivity and the lack of knowledge around worm species of the STB area.

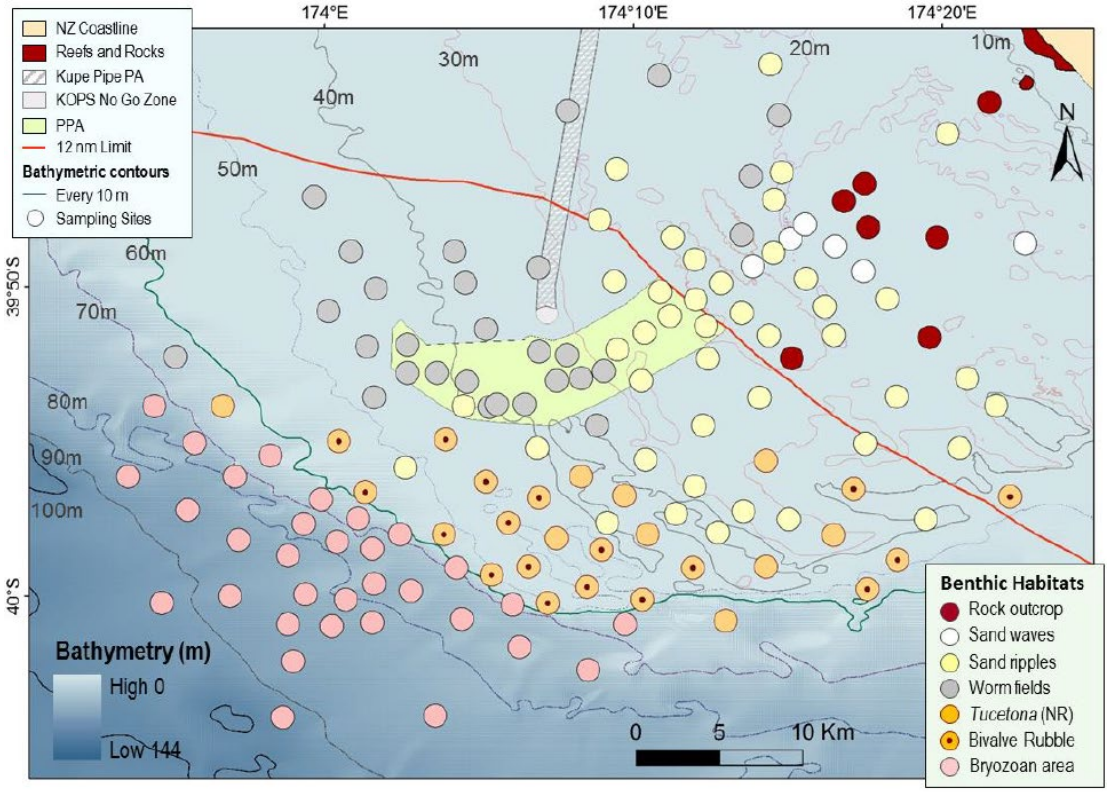

Figure 5-1: Seabed habitat types recorded at the 144 Beaumont et al. (2013) sampling sites.

Joint Statement of Experts in the fields of benthic ecology (2017); and sediment plume modelling and effects on benthic ecology (2024) were convened. However this was not specific to polychaetes, and therefore information with respect to the impacts of the proposed activity on polychaetes was taken more broadly from these discussions.

It is considered likely that given the small spatial footprint of the mining area at any one time (approximately 0.3% of the STB between 20 to 40 m depth), that recolonisation of seabed biota would occur, and flow on effects on food webs may be minimal. Timescales for this recovery have been estimated as 'months to a year' (MacDiarmid, 2023), although this is likely to vary significantly based on species generation times and how the mining operation is undertaken. For example, if large patches of the seafloor are mined in consecutive stages, recolonisation will be inhibited as adjacent areas will also be depauperate. Benthic fauna will need to have source populations within range to enable recolonisation.

Euchone and other opportunistic polychaete species identified in the area are considered early-stage colonisers and are relatively short-lived genera (MacDiarmid, 2016). Evidence provided by and McClary (2014) indicates that

recolonisation of benthic communities, specifically polychaetes, in areas previously disturbed by dredging or similar (i.e., Hauraki Gulf & Lyttleton Harbour) was rapid (between 4 to 12 months). Therefore, recolonisation, provided sufficient source populations are present in sufficient density in proximity, is likely to be within the range described above.

5.3.1 Is the information provided sufficient to ascertain the effects of the activity?

There is a large amount of information provided on the benthic ecology of the proposed area, and in general the statements made are generally supported by the data. Despite this, there was broad agreement among experts that additional survey effort is necessary to identify sensitive benthic habitats within 2 km of the proposed mining area.

With regard specifically to polychaetes, given the small spatial footprint of the mining area at any one time (approximately 0.3% of the STB between 20 to 40 m depth), it is likely that recolonisation of seabed biota would occur, and flow on effects on food webs may be minimal.

Caveats to that statement include the presence of novel species where ecology is unknown, and that recolonisation potential relies on source populations within proximity to the area for recolonisation.

6.0 Conclusions

TTR has undertaken an extensive array of technical investigations and modelling to support previous applications for consent. The current application under the Fast-track Approvals Act (2024) has also benefited from further work requested by, and as responses to questions raised by the DMC.

There are, however, areas where further consideration and/or information may be required to accurately assess the impacts of the proposed activity, particularly on the sensitive benthic habitats that have recently been identified by TRC.

The review has identified several areas where further information is considered to not be of a sufficient resolution or scale for a determination on the magnitude of effects to be determined.

7.0 Application documents reviewed

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Cahoon, L. B., Pinkerton, M., & Hawes, I*. (2015). Effects on primary production of proposed iron-sand mining in the South Taranaki Bight region. NIWA (Prepared for Trans-Tasman Resources, Ltd.).*

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Cahoon, L.B. (2017). Supplementary Expert evidence of Dr. Lawrence Cahoon on behalf of Trans-Tasman Resources Limited: Hearing before the Environmental Protection Authority (2016).

Chiffings, T. (2016). Lodgement review of the effects on plankton, fish and marine mammals. DHI report prepared for the Environmental Protection Agency *In the matter of Applications by Trans-Tasman Resources Ltd marine consent application.*

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Appendix 1: Optical Effects Tables

Table 1. Median euphotic zone depth for background levels versus modelled from Pinkerton (2017). Sites are listed by approximate proximity to Site A.

Site	Km from Site A	Background (m)	Mining at Site A (m)	Change when mining at Site A	Mining at Site B (m)	Change when Mining at Site B
The Crack 1	6	24.3	15.3	-36.90%	20.6	-14.90%
The Crack 2	9	24.9	14.2	-42.90%	20.2	-18.90%
Project Reef	17	20.2	14.7	-27.30%	18.1	-10.30%
Graham Bank	20	23.2	15.5	-33%	19.3	-17%
Rolling Grounds	20	27.9	26.7	-4.30%	24.8	-11.10%
Source A to North 20	20	16.8	15.9	-5.10%	16.5	-1.90%
Source A to Whanganui 20	20	23.1	15.4	-33.10%	19.5	-15.40%
North Traps	28	15	12.2	-19.20%	14	-6.90%

Table 2. Median days per year of >1% light at the seabed for background levels versus modelled from Pinkerton (2017). Sites are listed by approximate proximity to Site A.

Site	Km from Site A	Background (days)	Mining at Site A (days)	Change when mining at Site A (days)	Mining at Site B (days)	Change when Mining at Site B (days)
The Crack 1	6	142	47	-95	98	-44
The Crack 2	9	140	24	-117	87	-54
Project Reef	17	140	76	-64	111	-29
Graham Bank	20	205	81	-125	141	-64
Rolling Grounds	20	-1	-4	-4	-2	-1
Source A to North 20	20	132	114	-18	125	-8
Source A to Whanganui 20	20	200	84	-116	147	-53
North Traps	28	141	96	-45	124	-17

Table 3. Median good visibility days per year for background levels versus modelled from Pinkerton (2017). Sites are listed by approximate proximity to Site A.

Site	Km from Site A	Background (days)	Mining at Site A (days)	Change when mining at Site A (days)	Mining at Site B (days)	Change when Mining at Site B (days)
The Crack 1 - Midwater	6	229	108	-121	192	-37
The Crack 1 - Seabed	6	211	86	-124	171	-40
The Crack 2 - Midwater	9	220	87	-133	179	-41
The Crack 2 - Seabed	9	211	73	-138	166	-45
Project Reef - Midwater	17	189	119	-70	166	-22
Project Reef - Seabed	17	176	106	-70	155	-21
Graham Bank - Midwater	20	208	114	-94	171	-37
Graham Bank - Seabed	20	197	102	-95	160	-37
Rolling Grounds – Midwater	20	262	254	-8	239	-23
Rolling Grounds – Seabed	20	255	247	-8	223	-32
Source A to North 20 - Midwater	20	146	133	-13	138	-7
Source A to North 20 - Seabed	20	113	99	-14	104	-9

Table 3. Median good visibility days per year for background levels versus modelled from Pinkerton (2017). Sites are listed by approximate proximity to Site A.

Site	Km from Site A	Background (days)	Mining at Site A (days)	Change when mining at Site A (days)	Mining at Site B (days)	Change when Mining at Site B (days)
Source A to Whanganui 20 - Midwater	20	211	120	-92	180	-32
Source A to Whanganui 20 - Seabed	20	203	109	-94	169	-35
North Traps - Midwater	28	134	100	-34	122	-12
North Traps - Seabed	28	126	91	-35	112	-14

Table 4. Median horizontal visibility per year for background levels versus modelled from Pinkerton (2017). Sites are listed by approximate proximity to Site A.

Site	Km from Site A	Background (m)	Mining at Site A (m)	Change when mining at Site A	Mining at Site B (m)	Change when Mining at Site B
The Crack 1 - Midwater	6+B48:G63	6.9	3.2	-54.50%	5.3	-23.60%
The Crack 1 - Seabed	6	6.2	2.8	-54.40%	4.7	-24.60%
The Crack 2 - Midwater	9	6.7	2.9	-57.30%	4.9	-27.10%
The Crack 2 - Seabed	9	6.2	2.6	-57.90%	4.5	-27%
Project Reef - Midwater	17	5.2	3.4	-34.10%	4.4	-14.90%
Project Reef - Seabed	17	4.7	3.1	-34.20%	4	-15.70%
Graham Bank - Midwater	20	6.1	3.3	-45.20%	4.6	-23.30%
Graham Bank - Seabed	20	5.7	3.1	-46.10%	4.3	-24.50%
Rolling Grounds – Midwater	20	9.1	8.4	-7.30%	7	-22.70%
Rolling Grounds – Seabed	20	8.3	7.7	-7.30%	6.3	-24%
Source A to North 20 - Midwater	20	3.8	3.5	-6.70%	3.6	-4.30%
Source A to North 20 - Seabed	20	3.1	2.9	-5.90%	3	-3.20%

Table 4. Median horizontal visibility per year for background levels versus modelled from Pinkerton (2017). Sites are listed by approximate proximity to Site A.

Site	Km from Site A	Background (m)	Mining at Site A (m)	Change when mining at Site A	Mining at Site B (m)	Change when Mining at Site B
Source A to Whanganui 20 - Midwater	20	6.5	3.4	-47.10%	4.9	-24.60%
Source A to Whanganui 20 - Seabed	20	5.9	3.2	-45.30%	4.6	-22.60%
North Traps - Midwater	28	3.4	2.6	-24.80%	3.1	-7.90%
North Traps - Seabed	28	3.2	2.4	-23.70%	2.9	-9.70%

Fast-track

Te Kāwanatanga o Aotearoa
New Zealand Government

MINUTE 3 OF THE EXPERT PANEL
Invitation to comment Taranaki VTM Project [FTAA-2504-1048]

(8 September 2025)

[1] This minute addresses invitations to comment on the application under section 53 of the Fast-track Approvals Act 2025 (the Act).

[2] In accordance with section 53(2) of the Act, the Expert Panel must invite comments from persons listed in sections 53(2) (a) to (n) of the Act. The Panel notes that section 53(2)(m)(v) applies for this application (marine consent) which requires persons listed in section 46(1)(b)(ii) of the EEZ Act to also be invited to provide written comments. The Panel considers the persons identified in Appendix 1 and 2 must be invited for comment.

[3] The Panel may also invite written comments from any other person that the Panel considers appropriate under section 53(3) of the Act. The Panel considers it appropriate to invite comments from the person or groups identified under 53(3) in appendix 1.

[4] Section 54(1) of the Act requires that the Panel must specify in the invitation a date for when comments must be received by the EPA on behalf of the Panel (which must be 20 working days after the date on which the invitation is given under section 53.

[5] The date invitations to comments will be given will be Monday, 8 September 2025. Comments must be made to the EPA:

(a) by email to substantive@fasttrack.govt.nz;
(b) by post to Private Bag 63002, Wellington, 6140, New Zealand; or
(c) in person to Stewart Dawson's Corner, 366 Lambton Quay, Wellington 6011

[6] Comments must be received by **Monday, 6 October 2025**.

[7] To assist the panel in efficiently considering the comments received, commenters are encouraged, where possible, to collaborate with others who may share similar views or concerns. Making joint comments that consolidate overlapping issues can help ensure that the panel receives a comprehensive yet streamlined set of comments. This approach not only reduces duplication but also supports a more effective review process within the tight timeframes set out under the Act.

[8] The application form includes a checklist of matters outlined by the applicant in their Assessment of Environmental Effects (AEE) document found on the fast-track website -https://www.fasttrack.govt.nz/projects/taranaki-vtm/substantive-application. Commenters are encouraged to use this checklist to identify the specific area(s) of the application they wish to comment on. Selecting the relevant field(s) will help the panel to quickly understand the focus of each comment and group-related feedback for consideration.

Hon. Kit
Toogood KC
Expert panel chair

Appendix 1
Person prescribed under section 53(2)

53(2)(a) relevant local authorities Taranaki Regional Council Horizons Regional Council South Taranaki District Council Whanganui District Council New Plymouth District Council Horowhenua District Council [email from Monique Davidson to EPA 17 March 2025] Rangitikei District Council [letter from Andy Watson to EPA 19 March 2025]
53(2)(b) and (c) the relevant iwi authorities and treaty settlement entities Te Kāhui o Taranaki Trust Te Korowai o Ngāruahine Trust Te Rūnanga o Ngāti Ruanui Trust Te Kaahui o Rauru Trust Ngā Tāngata Tiaki o Whanganui Whanganui Land Settlement Negotiation Trust Ngā Wairiki-Ngāti Apa Charitable Trust Te Ohu Kaimoana Te Rūnanga o Ngāti Tama Te Rūnanga o Ngāti Mutunga Te Kotahitanga o Te Atiawa Trust Maru (Taranaki) Fisheries Trust
Section 53(2)(d), (e) and (f) any relevant protected customary rights groups, applicant groups under the Takutai Moana Act, and ngā hapū o Ngāti Porou (if applicable) N/A - The project area is beyond the boundaries of the common marine and coastal area as it is beyond the 12 nautical miles from the low water mark.

53(2)(g) the tangata whenua of any taiāpure-local fishery, mātaitai reserve, or area subject to Part 9 Fisheries Act bylaws or regulations within the project area

The section 18 report identifies the following tāngata whenua:

Te Rūnanga o Ngāti Tama

Te Rūnanga o Ngāti Mutunga

Ngāti Maru (Taranaki) Fisheries Trust

Te Kotahitanga o Te Atiawa Trust

Te Rūnanga o Ngāti Ruanui

Ngā Hapū o Ngāruahine Trust

Te Kāhui o Taranaki Trust

Te Kaahui o Rauru

Ngā Tāngata Tiaki o Whanganui

Te Rūnanga o Ngā Wairiki

Te Patiki Holdings Ltd representing Ngāti Hauiti

Te Ohu Tiaki o Rangitāne Te Ika a Māui

Muaūpoko Tribal Authority

Ātiawa ki Whakarongotai Charitable Trust

Raukawa ki te Tonga Trust

Te Rūnanga o Toa Rangatira Inc

Te Atiawa Poneke.

53(2)(h) and (i) the owners and occupiers of the land subject to the application and adjacent land

N/A

53(2)(j) the Minister for the Environment and other relevant portfolio Ministers

Minister for the Environment

Minister for Oceans and Fisheries

Minister for Conservation

Minister for Resources

Minister for Māori Development

Minister for Māori Crown Relations

Attorney-General

Minister for Climate Change

Minister for Regional Development

Minister for Economic Development

Minister for Transport Minister for Trade and Investment Minister for Justice Minister for Land Information Minister for Biosecurity Minister for Infrastructure
53(2)(k) relevant administering agencies Ministry for the Environment Environmental Protection Authority
53(2)(l) any requiring authority that has a designation on land to which the substantive application relates or on land adjacent to that land N/A
53(2)(m) if the approvals sought in the substantive application include (v) an approval described in section 42(4)(k) (marine consent), the persons listed in clause 5 of Schedule 10: For the purposes of section 53(2)(m)(v), 5(a) the persons are those listed in section 46(1)(b)(ii) of the EEZ Act; Note, section 46(1)(b)(ii) of the EEZ Act must be read as if references to the EPA were references to the panel. See following rows which include 46(1)(b)(ii)(A-G)
46(1)(b)(ii)(A) every other Minister with responsibilities that may be affected by the activity for which consent is sought: (see those listed against 53(2)(j)) Minister for the Environment Minister for Oceans and Fisheries Minister for Conservation Minister for Resources Minister for Māori Development Minister for Māori Crown Relations Attorney-General Minister for Climate Change Minister for Regional Development Minister for Economic Development Minister for Transport Minister for Trade and Investment Minister for Justice Minister for Land Information

Minister for Biosecurity Minister for Infrastructure
46(1)(b)(ii)(B) Maritime New Zealand: Maritime New Zealand
46(1)(b)(ii)(C) iwi authorities that the Panel considers may be affected by the application: Te Kāhui o Taranaki Trust Te Korowai o Ngāruahine Trust Te Rūnanga o Ngāti Ruanui Trust Te Kaahui o Rauru Trust Ngā Tāngata Tiaki o Whanganui Whanganui Land Settlement Negotiation Trust Ngā Wairiki-Ngāti Apa Charitable Trust
46(1)(b)(ii)(D) customary marine title groups that the Panel considers may be affected by the application: MAC-01-10-005 / CIV-2017-485-183 Ngā Rauru Kiitahi; MAC-01-10-006 / CIV-2017-485-293 Ngāti Hāua hapū, Ngaruahinerangi iwi; MAC-01-10-009 / CIV-2017-485-300 Ngāti Tamaahuroa and Titahi Hapū- Oeo Pā Trustees; MAC-01-10-019 / CIV-2017-485-282 Te Rūnanga o Ngāti Ruanui Trust; MAC-01-10-001 / CIV-2017-485-210 Araukuuku Hapū; MAC-01-10-010 / CIV-2017-485-213 Ngāti Tu; MAC-01-10-013 / CIV-2017-485-212 Te Kāhui o Taranaki Iwi; MAC-01-10-017 / CIV-2017-485-243 Ngā Hapū o Ngāruahine; MAC-01-10-018 / CIV-2017-485-254 Te Patutokotoko; MAC-01-10-009 / CIV-2017-485-301 Te Awa Tupua and Ngā Hapū me ngā Uri o Te Iwi o Whanganui; CIV-2011-485-797 Ngāti Manuhiakai; CIV-2011-485-803 Okahu Inuawai hapū; and CIV-2011-485-814 Kānihi Umutahi me Ētahi hapū
46(1)(b)(ii)(E) protected customary rights groups that the Panel considers may be affected by the application: MAC-01-10-005 / CIV-2017-485-183 Ngā Rauru Kiitahi; MAC-01-10-006 / CIV-2017-485-293 Ngāti Hāua hapū, Ngaruahinerangi iwi; MAC-01-10-009 / CIV-2017-485-300 Ngāti Tamaahuroa and Titahi Hapū- Oeo Pā Trustees; MAC-01-10-019 / CIV-2017-485-282 Te Rūnanga o Ngāti Ruanui Trust; MAC-01-10-001 / CIV-2017-485-210 Araukuuku Hapū; MAC-01-10-010 / CIV-2017-485-213 Ngāti Tu; MAC-01-10-013 / CIV-2017-485-212 Te Kāhui o Taranaki Iwi;

MAC-01-10-017 / CIV-2017-485-243 Ngā Hapū o Ngāruahine; MAC-01-10-018 / CIV-2017-485-254 Te Patutokotoko; MAC-01-10-009 / CIV-2017-485-301 Te Awa Tupua and Ngā Hapū me ngā Uri o Te Iwi o Whanganui; CIV-2011-485-797 Ngāti Manuhiakai; CIV-2011-485-803 Okahu Inuawai hapū; and CIV-2011-485-814 Kānihi Umutahi me Ētahi hapū
46(1)(b)(ii)(F) other persons that the Panel considers have existing interests that may be affected by the application: See appendix 2
46(1)(b)(ii)(G) regional councils whose regions may be affected by the application. Taranaki Regional Council Horizons Regional Council
53(2)(n) any persons or groups specified by the Minister under section 27(3)(b)(iii). N/A - this is a listed project
53(3) Comments may be invited from any other person the panel considers appropriate. Te Tōpuni Ngārahu Trust (Ngā Iwi ō Taranaki Collective) Parihaka Papakāinga Trust Climate Justice Taranaki Kiwis Against Seabed Mining Inc. Greenpeace Aotearoa Inc. Parkwind NV Royal Forest and Bird Protection Society of New Zealand Taranaki Offshore Partnership Environmental Defence Society Parliamentary Commissioner for the Environment Ngatitamarongo/Ngatikahumate Māori land blocks Ōkahu Inuāwai me etehi atu Hapū Taipakē Marae and uri of Ngāti Tamareheroto Whenuakura Marae Sanford Limited Talley's Group Ltd Sealord Limited Aotearoa Fisheries Ltd Raukura Moana Seafoods Ltd Ngai Tahu Seafood Resources Ltd Ngati Porou Seafoods Ltd

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Pupuri Taonga Ltd
Egmont Seafoods
Nelson Vessels
Fluffy Duck Charters Ltd
Hy-jinks Fishing Charters
Cape Egmont Boat Club
Ngāti Koata

Appendix 2

46(1)(b)(ii)(F) - other persons that the Panel considers have existing interests that may be affected by the application (as defined by the EEZ act)

Section 4(1)(a) any lawfully established existing activity, whether or not authorised by or under any legislation, including rights of access, navigation, and fishing:

Oil and Gas Operators

Beach Energy Resources NZ (Kupe) Limited – Permit number 38146

Westside New Zealand Limited – Permit number 38155 and 38151

OMV New Zealand Limited – Permit number 381012 and 38160

MBIE – Permit number 38158

Minerals Prospecting Permit

Tectoniq Pacific Limited - Permit Application number - 61389.01

Fisheries groups

Seafood New Zealand

SNZ Deepwater Council

Te Ohu Kaimoana

FishServe

Moana New Zealand

NZ Rock Lobster Industry Council

Fisheries Quota Holders and ACE Holders (FMA 8)

818 identified

Navigation and Access

Port Taranaki Ltd

Whanganui Port Limited Partnership

Recreational groups

Bodyboard Surfing New Zealand

Cape Egmont Boat Club

Cape Egmont Sea Rescue Trust

Dive New Zealand

East End Surf Life Saving Club

Fitzroy Surf Life Saving Club

KASK (Kiwi Association of Sea Kayakers)

Kaupokonui & District Beach Society Inc

Mokau Fishing Club New Plymouth Sportfishing and Underwater Club New Zealand Tournament Waterski Association Inc New Zealand Underwater Association NP Old Boys Surf Club NZ Sport Fishing Council Inc Ohawe Boating and Angling Club Opunake Boardriders Opunake Boating & Underwater Club Inc Opunake Surf Lifesaving Club Opunake Surfcasting and Angling Club Patea & Districts Boating Club South Taranaki Coastguard South Taranaki Fishing Charters South Taranaki Underwater Club Surf Life Saving New Zealand Surfing New Zealand Surfing Taranaki Inc Taranaki Windsurf Club Triathlon New Zealand Urenui Boat Club Waitara Boating Club Inc Waitara Offshore Fishing Club Waitara Swimming & Surf Lifesaving Club Waka Ama NZ (Nga Kaihoe o Aotearoa Inc) West Coast North Island marine mammal sanctuary Windsurfing New Zealand Yachting New Zealand
Section 4(1)(b) any activity that may be undertaken under the authority of an existing marine consent granted under section 62: Beach Energy Resources NZ (Kupe) Limited OMV New Zealand MBIE (took over from Tamarind Taranaki Ltd)
Section 4(1)(c) any activity that may be undertaken under the authority of an existing resource consent granted under the Resource Management Act 1991: N/A
Section 4(1)(d) and (e) Settlements under the Treaty of Waitangi Act 1975 including Treaty of Waitangi (Fisheries Claims Act) Settlement Act 1992: Te Kāhui o Taranaki Trust, PSGE for Taranaki Iwi Claims Settlement Act 2016 and MIO for Taranaki Iwi;

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Te Korowai o Ngāruahine Trust, PSGE for Ngāruahine Claims Settlement Act 2016 and MIO for Ngāruahine; Te Rūnanga o Ngāti Ruanui Trust, PSGE for Ngāti Ruanui Claims Settlement Act 2003 and MIO for Ngāti Ruanui; Te Kaahui o Rauru Trust, PSGE for Ngaa Rauru Claims Settlement Act 2005 and MIO for Ngā Rauru Kītahi; 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; Ngā Wairiki-Ngāti Apa Charitable Trust, PSGE for Ngāti Apa (North Island) Claims Settlement Act 2010 and MIO for Ngā Wairiki Ngāti Apa; Te Ohu Kaimoana, under the Treaty of Waitangi (Fisheries Claims) Settlement Act 1992, Maori Fisheries Act 2004; Te Rūnanga o Ngāti Tama, MIO for Ngāti Tama (Taranaki); Te Rūnanga o Ngāti Mutunga, MIO for Ngāti Mutunga (Taranaki); Te Kotahitanga o Te Atiawa Trust, MIO for Te Ātiawa (Taranaki); and Maru (Taranaki) Fisheries Trust, MIO for Ngāti Maru (Taranaki)
Section 4(1)(f) a protected customary right or customary marine title recognised under the Marine and Coastal Area (Takutai Moana) Act 2011: MAC-01-10-005 / CIV-2017-485-183 Ngā Rauru Kiitahi; MAC-01-10-006 / CIV-2017-485-293 Ngāti Hāua hapū, Ngaruahinerangi iwi; MAC-01-10-009 / CIV-2017-485-300 Ngāti Tamaahuroa and Titahi Hapū- Oeo Pā Trustees; MAC-01-10-019 / CIV-2017-485-282 Te Rūnanga o Ngāti Ruanui Trust; MAC-01-10-001 / CIV-2017-485-210 Araukuuku Hapū; MAC-01-10-010 / CIV-2017-485-213 Ngāti Tu; MAC-01-10-013 / CIV-2017-485-212 Te Kāhui o Taranaki Iwi; MAC-01-10-017 / CIV-2017-485-243 Ngā Hapū o Ngāruahine; MAC-01-10-018 / CIV-2017-485-254 Te Patutokotoko; MAC-01-10-009 / CIV-2017-485-301 Te Awa Tupua and Ngā Hapū me ngā Uri o Te Iwi o Whanganui; CIV-2011-485-797 Ngāti Manuhiakai; CIV-2011-485-803 Okahu Inuawai hapū; and CIV-2011-485-814 Kānihi Umutahi me Ētahi hapū.

AGENDA AUTHORISATION

Agenda for the Policy and Planning Committee meeting held on Tuesday 16 September 2025.

Approved:

9 Sep, 2025 4:30:57 PM GMT+12

A D McLay

Director - Resource Management

Approved:

9 Sep, 2025 4:00:32 PM GMT+12

S J Ruru

Chief Executive