

BEFORE THE EXPERT PANEL

UNDER	the Fast Track Application Act 2024 (“the Act”)
IN THE MATTER	of the applications by Trans-Tasman Resources Limited (TTR) for marine and discharge consents to undertake iron sand extraction in the South Taranaki Bight (the ‘Taranaki VTM Project’ FTAA-2504-1048)
BETWEEN	Trans- Tasman Resources Limited Applicant
AND	Royal Forest and Bird Protection Society of New Zealand Incorporated Invited Person

**STATEMENT OF EVIDENCE OF NATASHA SITARZ ON BEHALF OF ROYAL
FOREST AND BIRD PROTECTION SOCIETY OF NEW ZEALAND INCORPORATED**

6 October 2025

Table of contents

Introduction	3
Qualifications and experience	3
Code of conduct	4
Preparation of evidence	4
PURPOSE AND SCOPE OF EVIDENCE	6
Executive Summary	8
Description of the proposal	9
Effects Assessment	10
Benefits of the proposal	11
Sediment Plume Modelling and Worst-Case Scenario modelling	15
<i>Key differences and matters of disagreement between experts</i>	18
Sediment effects on benthic values and rocky reefs	22
Conclusions on sediment plume modelling and effects on benthic ecology	28
Effects on marine mammals	28
Effects on seabirds	41
Requirements for Assessing Marine Consent applications under the FTA Act	47
Decision making framework	47
Assessment of applications under s81 and Schedule 10 FTA Act	49
Taking into account the purpose of the FTA Act	49
Taking into account the purpose of the EEZ Act	50
<i>Material harm and s10(1)(b) EEZ Act</i>	52
Taking into account s11 of the EEZ Act	54
Taking into account the matters under s59 of the EEZ	56
<i>Effects on the environment</i>	59
<i>The nature and effect of other marine management regimes s59(1)(h) EEZ</i>	63
<i>Conclusions on s59 of the EEZ</i>	69
Taking into account s60 of the EEZ Act	72
Taking into account s61 of the EZZ Act	72
<i>Best available information</i>	73
<i>Uncertainty, inadequacy, caution and environmental protection</i>	73
<i>An adaptive management approach</i>	75
Taking into account section 63 to 67 of the EEZ and s83 FTA on Conditions	77
Assessment of proposed conditions	79
<i>Pre-commencement monitoring conditions</i>	83
<i>Conditions relating to seabirds and marine mammals</i>	89
<i>Underwater noise related conditions</i>	95
<i>Sediment related conditions</i>	97
Conclusions on assessment of the application for the purposes of s81	102
When panel must or may decline approvals - s85 of the FTA Act	105
Appendix 1 – Material harm	107
Appendix 2 – Marine Management Regimes	110
Appendix 3 – JWS planning 27 February 2024 (Attached separately)	

STATEMENT OF EVIDENCE OF NATASHA LEIGH SITARZ

Introduction

1. My name is Natasha Leigh Sitarz. I am a Resource Management Planner for the Royal Forest and Bird Protection Society of New Zealand Incorporated (Forest & Bird).
2. I have been asked by Forest & Bird to provide planning evidence on the Trans-Tasman Resources Limited ("the Applicant" and "TTR") Taranaki VTM Project application under Fast-Track Approvals Act.¹ The purpose of this evidence is to inform and support the expert panel ("the Panel") appointed in accordance with the Fast Track Approvals Act in making its decision on this application.

Qualifications and experience

3. I have worked for Forest & Bird since February 2016 providing planning advice, assistance in drafting submissions and appeal processes, including providing planning evidence.
4. I hold a Bachelor of Resource and Environmental Planning from Massey University and over 20 years experience in the field of planning. Prior to working for Forest & Bird I worked for Waka Kotahi where my work included advising on a Roads of National Significance project that was heard by a Board of Inquiry. Previous to that I worked for Environment Canterbury on the development of regional plans.
5. I have prepared and presented a number of statement expert planning advice for Forest & Bird, including before the Environment Court on the Auckland Regional Landfill in the Dome Valley, the Te Kuha coal mining proposal on the West Coast (both in 2022) and on the McCallum Bros applications for sand mining of the coast at Pakiri in Auckland (in 2023).
6. In January 2017 I provided planning evidence on the Trans-Tasman Resources Limited (TTR) 2016 application to the EPA. Subsequent to that on 2 March 2017 I participated in expert conferencing on topic of Conditions and Planning.
7. In 2017 the Decision Making Committee (DMC) for the EPA made its decision to Grant consent. This was subsequently appealed by a number of parties including Forest & Bird.

¹ I have not been asked to consider effects on other activities or cultural matters as part of this evidence.

8. In October 2023 I provided planning evidence on the reconsideration of TTR's application which was referred back to the EPA after various High Court, Court of Appeal and Supreme Court² decisions. In February 2024 I participated in planning expert conferencing and am a signatory to the Joint Statement of Experts in the Field of Planning dated 27 February 2024. I had not yet presented my evidence before the DMC when TTR withdrew from the hearings in March 2024.

Code of conduct

9. I confirm that I have read the Expert Witness Code of Conduct in the Environment Court Practice Note 2023. I have complied with the Code of Conduct in preparing this evidence and agree to comply with it in relation to my participation in any matters relating to the Expert Panel's consideration of the application. This evidence is within my area of expertise, except where I state that I am relying on the evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.
10. In preparing my evidence I have relied on draft evidence (as set out below), I acknowledge that the opinion of those experts I refer to may change and that this may have some impact on the conclusions I have drawn in this evidence.

Preparation of evidence

11. In preparing this evidence I have considered the impact assessment (IA) in the Application document provided by the applicant, relevant appendices and attachments to the application including the evidence listed below.
12. I have reviewed the Fast Track Approvals Act 2024 (FTA Act) and the Exclusive Economic Zone and Continental Shelf Act 2012 (EEZ Act) as they relate to this application.
13. I have also considered the DMC 2017 decision³ and the decision of the Supreme Court⁴ relating to TTRs 2016 application to the EPA.
14. In preparing this evidence I have reviewed:

² *Trans Tasman Resources Ltd v Taranaki Whanganui Conservation Board* [2021] NZSC 127

³ Decision on Marine Consents and Marine Discharge Consents Application EEZ000011 for extracting and processing iron sand within the South Taranaki Bight, 3 August 2017

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

- 14.1. The 2017 decision of the Decision Making Authority (DMC) on the 2016 application from TTRL.
- 14.2. The decision of the Supreme Court (SC)⁵ on the 2017 decision of the DMC
- 14.3. The Memorandum of Counsel for the applicant dated 25 August 2023;
- 14.4. Minute 3 of the 2023 DMC⁶ relating to MMRs;
- 14.5. Expert evidence for the Applicant of:
 - i. Dr Humpheson on acoustics dated 16 February 2024
 - ii. Dr Childerhouse on marine mammals dated 19 May 2023 and 23 January 2024
 - iii. Dr Thompson on seabirds dated 19 May 2023 and 23 January 2024
 - iv. Dr Dearnaley on sediment dated 23 January 2024
 - v. Dr MacDiarmid on marine ecology dated 19 May 2023 and 23 January 2024
 - vi. Dr MacDonald on sediment plume modelling dated 19 May 2023 and 23 January 2024.
 - vii. NZIER. 2025. Economic impact assessment of TTRL's Taranaki VTM Iron Sands Project. A report for Trans-Tasman Resources Limited.
- 14.6. The evidence, including draft evidence, for KASM, Greenpeace and Forest & Bird of:
 - i. Dr Torres (draft dated 18 September 2025 and attached 6 October 2023 evidence) – Marine mammals (blue whale);
 - ii. Dr Cockrem (dated 19 May 2025) – Seabirds;
 - iii. Mr Greer (dated 8 May 2025) – sediment plume modelling;
 - iv. Prof Banks (draft dated 30 September 2025) – economic benefits
 - v. Dr Clement (draft dated 1 October 2025) – marine mammals.
- 14.7. The 2017 and 2024 Joint Witness Statements on the following topics:⁷

⁵ *Trans Tasman Resources Ltd v Taranaki Whanganui Conservation Board* [2021] NZSC 127

⁶ M03 – Minute and Directions of the Decision-making Committee (DMC) – 20 July 2023

⁷ Conferencing statements for the DMC hearings in 2017 and for the DMC hearings in 2024 on the 2016 TTR application can be found on the EPA website here: for the 2017 hearings, the planning

- i. Sediment plume modelling, including worst case modelling
 - ii. Effect on benthic ecology
 - iii. Effects on seabirds
 - iv. Effects on marine mammals
 - v. Economics
 - vi. Ecotoxicity effects
 - vii. Planning including conditions
15. I am also aware of and have previously considered evidence relating to TTRs previous application to the EPA under the EEZ Act, from:
- i. Dr Slooten on Marine mammals, dated 24 January 2016 and 6 October 2023;
 - ii. Dr Luick on sediment flocculation, dated 6 October 2023;
 - iii. Dr Barbara on marine ecology, dated 23 January 2017 and 29 September 2023;
 - iv. Mr Jorrison on sediment plume modelling, dated 23 January 2017 and 2 October 2023;
 - v. Mr Van Helden on whales / cetaceans, including dolphins and porpoises, dated 24 January 2017; supplementary evidence 30 March 2017; second supplementary evidence dated 19 May 2017 and third supplementary evidence dated 19 May 2017;
 - vi. Dr Humpherson on noise; Acoustics presentation 2017, response to questions 22 and 24 May 2017.
 - vii. Dr Mitchell on planning; dated 19 December 2016, 19 May 2023 and 23 January 2024.

PURPOSE AND SCOPE OF EVIDENCE

16. In this evidence I set out the requirements for considering the proposal under the FTA Act. I have considered how those requirements should be applied and assessed the

JWS are under External advice and reports – Conferencing Statement and other JWS can be found under Evidence <https://www.epa.govt.nz/database-search/eez-applications/view/EEZ000011/> For the 2024 hearings <https://www.epa.govt.nz/public-consultations/completed/trans-tasman-resources-limited-2023-reconsideration/expert-caucusing/>

proposal in the context of expert advice on adverse impacts and benefits. However, my evidence does not extend to assessment of effects on other activities or tikanga or assessment of cultural evidence.

17. I also consider the FTA Act direction on when a consent can or must be declined and on conditions which may be imposed where consent is granted.
18. In particular, I consider:
 - (a) Requirements for taking into account the purpose of the FTA Act;
 - (b) How the proposal should be assessed under the EEZ Act provisions which are to be taken into account. This includes consideration of:
 - i. How effects should be assessed in terms of material harm.
 - ii. The nature and effect of MMRs under the Resource Management Act and identify provisions in the nature of an environmental bottom line.
 - (c) The application of s63 to 67 of the EEZ Act relating to conditions required under the FTA Act
 - (d) Decision making under s85 of the FTA.
19. In preparing this evidence, I have considered the findings of the Supreme Court ⁸ (which I refer to as the SC in my evidence) with respect to adequacy of the conditions to avoid, remedy or mitigate adverse effects relating to seabirds, marine mammals, effects caused by the sediment plume and the associated conditions dealing with suspended sediment levels.

⁸ *Trans Tasman Resources Ltd v Taranaki Whanganui Conservation Board* [2021] NZSC 127 [130]/[131]

Executive Summary

20. The application remains similar to the proposed TTRL application in 2016 under the EEZ Act.
21. I consider that much of the evidence remains considered and provided for the 2016 application. As such the Joint Conference Statements of experts from 2017 and 2024 provide a useful basis on which to identify matters of agreement and disagreement as to the effects of the proposal.
22. The decision making committee's (DMC) findings of effects of sediment on rocky reef habitats in the 2017 decision on TTLs application to the EPA ...
23. I have generally agreed with the Impact Assessment approach on how the application is to be considered in terms of the Decision Making Framework. However, I have identified additional factors such as the consideration of extent of regional and national benefits under s81(4) as relevant and on the remaining importance, in my view, of bottom lines to the assessment of s59 EEZ Act provision which must be taken into account.
24. While there is disagreement on the extent and in some cases the potential for adverse effects, I find that there is evidence that adverse effects of the sediment plume would result in material harm. There is also evidence that effects of noise would result in adverse effects, potentially significant on marine mammals including threatened species.
25. I have considered material harm under the three step test determined by the SC with respect to the DMC 2017 decision on TTS 2016 application to the EPA. I find that the proposed conditions do not adequately address these effects and that with respect to sediment effects, the proposal does not avoid, mitigate or remedy harm so that it is not material. On this basis I have considered that the proposal would be inconsistent with the purpose of the EEZ Act.
26. I have found that, on the economic evidence of Prof. Banks, the extent of benefits of the proposal do not meet the purpose of the FTA Act and that this has implications for the assessment of provisions under Clause 6 of Schedule 10 and for decision making under s85(3) of the FTA Act.
27. I have concluded that the adverse impacts of the proposal are sufficiently significant to be out of proportion to the project's regional or national benefits such that the panel may decline the application under s85(3).

Description of the proposal

29. The Applicant, Trans-Tasman Resources Ltd (TTR) is seeking a marine consent and marine discharge consent to undertake extraction of iron sands containing vanadium and titanium, within the exclusive economic zone (EEZ) offshore from Taranaki and Manawatu-Wanganui Regions in an area known as the South Taranaki Bight (STB).
30. The project area for extraction activities encompasses an area of seabed approximately 65.76km² within the STB. This area (as shown in Figure 1.1 of the Application) is within the EEZ extending from 22km (where it is adjacent to the CMA boundary) to 36km offshore at water depths of between 20 and 50m. The application seeks to extract seabed material up to a maximum depth of 11m below the existing seabed with an average depth of 5m over the project area.
31. Extraction will occur via the seabed crawler (SBC) which sucks up seabed material loosened by saltwater jets in front of and adjacent to the SBC extraction nozzle. Discharge of unwanted material (about 90% of that extracted) will be via a pipe at approximately 4m above existing/pre-extraction seabed level. I understand that this discharge is the main contributor to suspended sediment and sediment plume as a result of the project activities.
32. The application describes each extraction pass as typical 900 m at which point the SBC will turn 180° and continue adjacent to the previous pass. It is not entirely clear what the length and width of each pass or lane will be. This may be important as I understand sediment will be discharged onto the unmined seabed as a mound at the start of each lane rather than within the mined bit where it may be more contained.
33. At the 2024 EPA hearing Dr Dearnaley for the applicant described that “on completion of a lane there'll be a mound at one end, 4 or 5 metres in height above the seabed over a width of 300 metres or so, and at the other end of the lane there will be a pit 5 metres or so deep below the seabed surface from where the last bit of the excavation has taken place.”⁹ Dr Dearnley's 2024 hearing presentation also describes that the crawler extracts material from a 24m wide mining face moving back and forth across the width of the

⁹ page 152, hearings transcript of 14 March 2024 - Reconsideration of Trans-Tasman Resources Limited (TTRL) Marine Consent Application EEZ000011

(900m) mining pit and that mining will be undertaken in lanes about 900m wide and typically several kilometres in length.¹⁰

34. The Application describes that extraction activities would occur over a 20 year period at from an average area of approximately 5km² per year. In terms of scale this is equivalent to about 100 Wellington cake tins (stadium bowl is 48000m² or 0.048 of a square kilometre) per year. Consents are sought for a period of 35 years to cover pre-commencement marine monitoring and research, 20-year extraction period, and post operation marine monitoring and decommissioning activities.
35. The full description is set out in section 2 of the Application. The approvals sought for consents which would others be required under the EEZ Act are set out in section 4 of the Application. I understand that in respect of TTRs 2016 application to the EPA there was consideration of whether consent would also be required from Horizons Manawatu-Wanganui Regional Council. TTR concluded that if consent was required it would be as a discretionary activity.¹¹

Effects Assessment

36. Schedule 10 clause 4 of the FTA requires an impact assessment prepared in accordance with section 39 of the EEZ Act and any requirements prescribed in regulations made under that Act. This includes a description of the proposal (as summarised above and set out in full in the Application), a description of the current state of the area of the proposal, consideration of existing interest and effects the environment, including biological diversity, marine species, ecosystems, alternative locations, methods and measures for that could be taken to avoid, remedy, or mitigate.
37. The applicant's description of the environment is set out in section 3 of the Impact Assessment (IA) for the Application. I have relied on this description, other than where expert evidence I have considered provides additional or different information.
38. An assessment of effects for the proposal is included in section 5 of the IA. I understand that assessment is informed by technical assessments and briefs of evidence (including

¹⁰ Slide 4, Dr Dearnaley presentation day 2 of the 2024 EPA hearings.

¹¹ Paragraph 251, Memorandum of Counsel for TTRL in response to Minute 3, addressing other marine management regimes, 20 August 2023.
<https://www.epa.govt.nz/assets/Uploads/Documents/Marine-Activities-EEZ/23.08.25-Memorandum-of-Counsel-concerning-MMRs.pdf>

those, where relevant, from the 2016 and 2024 EPA processes), which are attached separately in a supplementary technical package to the IA.

39. In addition to considering the effects assessment and related evidence provided by the applicant I have considered expert evidence on the benefits of the proposal, sediment effects and effects on marine mammals and seabirds, provided by experts for KASM, Greenpeace and Forest & Bird.
40. I have also considered the factual findings on effects by the DMC 2017 decision. I consider that these findings remain relevant as there has been little to no change in evidence on those matters.
41. My assessment of effects below focuses on:
 - (a) regional and national benefits of the proposal, including economic benefits to New Zealand;
 - (b) sediment effects and benthic values;
 - (c) effects on seabirds; and
 - (d) effects on marine mammals.

Benefits of the proposal

42. The FTA Act specifically makes provision for projects with significant regional or national benefits in its purpose (s10).
43. Requirements for consideration of the applications include assessing the extent of the projects benefit when taking into account the purpose of the FTA Act (s81(4)). The FTA Act itself does not define what matters are to be considered in assessing 'benefits' or prescribe any specific assessment process.
44. There is also a requirement to consider the economic benefits to New Zealand of allowing the application which are to be taken into account under s59(2)(f) of the EEZ Act.
45. A key difference in the statutory direction for the consideration of "benefits" under the FTA Act is that the word "economic" is not used in the s10 purpose or s81(4).
46. The economic effects assessment set out in the Application relies on an economic impact assessment by the New Zealand Institute of Economic Research (NZIER report). From what I understand, noting I am not an economics expert, this is a similar assessment

approach to that which was provided for the 2017 TTR application.¹² That is, it focuses on economic benefits of the project and is not a full benefit-cost assessment (BCA). While that approach may have been adequate in terms of the EEZ Act,¹³ whether that is the case under the FTA Act will need to be considered by the Panel.

47. My understanding is that the evidence from the Applicant, in the NZIER report,¹⁴ applies an economic impact assessment (EIA) to determine economic benefits, which is a different approach to the benefit-cost analysis considered in the evidence provided by Prof. Fleming and Mr Buckwell (the BCA report) for Kiwis Against Seabed Mining (KASM), Greenpeace Aotearoa Inc (Greenpeace).¹⁵ The evidence of Prof. Banks on behalf of Forest & Bird, provides an assessment on the extent of regional and national benefits based on his consideration of the NZIER report.

48. The TTR Application sets out that the project will deliver strong economic benefits to the Taranaki region and nationally. A summary of these benefits is set out page iii and iv of the Application.¹⁶ This includes:

(a) regional benefits in the order of:

- i. Directly employ over 300 high-value positions in Taranaki, with about 1,123 jobs to the regional economy of Taranaki and Whanganui for each year of the project's operation.
- ii. NZIER estimate positive economic impacts in the region with the Project increasing Taranaki's annual GDP by \$222 million.
- iii. provide \$50,000 per year Charitable Trust for community and cultural grants in South Taranaki, with additional flow-on indirect investment benefits.

(b) national benefits in the order of:

¹² I refer to mention of previous EIA by Martin Jenkins, page I, What we are asked to do, Economic Impact Assessment NZIER, Attachment 2 of the Application.

¹³ This matter was not agreed between experts on the 2017 application, as recorded in the Joint Statement of Experts in the Field of Economics, dated Monday, 20th February 2017.

¹⁴ Economic Impact assessment of TTRL's Taranaki VTM Iron Sands Project. NZIER (March 2025)

¹⁵ For reference the joint conferencing statement of economic experts from 2017 provides some useful discussion on the difference between an economic benefit analysis and full benefit-cost analysis (BCA).

¹⁶ Also see Tables 1 and 2 of the NZIER report which summarise the total economic impacts of the Project, Attachment 2 of the Application.

- i. in addition to regional jobs above, indirectly creating more than 1,365 jobs nationwide.
 - ii. NZIER estimate positive economic impacts with the Project, for the nation, boosting New Zealand's GDP by \$265 million.
 - iii. annual royalty payment for iron ore and vanadium is estimated to be between NZ\$36 million and NZ\$39 million in the Project's first seven years of operation, increasing to about NZ\$54 million per annum thereafter.
 - iv. NZ\$854 million (US\$496 million) of foreign exchange revenues annually from the export of high-value iron ore and vanadium concentrate contributing significantly to New Zealand's balance of trade and will be one of NZ's top 12 exporters.
 - v. NZ\$1 billion (US\$602 million) capital investment in proven leading edge mineral recovery and proprietary technology and marine research.
 - vi. The Project has the potential to make a major contribution to the Government's stated aim to double the mining sector's export value to more than NZ\$3 billion by 2035.
49. In respect to the last benefit listed above, I do not agree with the Applicant that this is appropriate to be identified a benefit. Firstly, as export value already appears to be captured within preceding benefits and capturing it again suggest double counting. Secondly, my understanding is that a benefit is what will be achieved by the proposal rather than what another party/the government aims to achieve. Additionally, it is not clear on what basis the Applicant has identified this as a benefit given that the NZIER report has not identified it as one.
50. The NZIER report does not draw any conclusion as to whether the economic benefits of the proposal it assesses are significant benefits in terms of the purpose of FTA Act. Although it does state that the EIA is to support TTRs application under that Act.¹⁷
51. The BCA report identifies a number of issues with the economic impact analysis of NZIER report. The BCA report authors consider "a comprehensive benefit-costs analysis (BCA) is the only appropriate economic assessment methodology to inform the regulatory

¹⁷ What we are asked to do, Economic Impact Assessment NZIER, Attachment 2 of the Application.

approvals process” and that “this should include all relevant environmental and social values that could be adversely impacted by the project”.¹⁸

52. The BCA report finds that “In the absence of a detailed social benefit cost analysis, it is not possible to determine whether the project provides a net benefit to the people of New Zealand-Aotearoa at the local, regional or national level.”
53. From my experience with assessing benefits and costs in the development of plan provisions under section 32 of the RMA, it may not always be practicable to quantify benefits and costs. However, those benefits and costs can still be considered in the assessment through descriptive evaluation.
54. I have considered the benefit and economic issues identified in the recent draft decline decision of the expert Panel considering the Delmore FTA.¹⁹ In the draft decision the Panel has found that the Project does not meet the purpose of the Act.²⁰ Of relevance, the Panel decision explains concerns around the economic analysis provided by the applicant did not demonstrate significant net economic benefits.²¹ The Panel directed an independent peer review of the economic evidence, which considered the economic impact analysis provided by the applicant failed to suggest significant net economic benefits. The peer review considered that a cost-benefit analysis would also identify the opportunity costs of land and labour, as well as infrastructure costs and environmental effects and was the appropriate approach under the FTA Act.²²
55. The Delmore Panel found that the applicant had overstated the regional benefits²³ of the project and had not used the correct methodology in its economic analysis.²⁴
56. The findings put in question the extent and significance of benefits put forward by the Applicant for this proposal, which, as I understand it, relies on a form of economic impact analysis rather than a cost-benefit analysis, which would identify net benefits.
57. Prof. Banks²⁵ considers that the benefits identified in the NZIER report are overstated. His evidence explains that this is due to the modelling used in the NZIER report, the lack of

¹⁸ Paragraph 12, BCA Report by Professor Christopher Fleming and Mr Andrew Buckwell.

¹⁹ Delmore Decision Draft Decision 29 August 2025.

²⁰ [14] Delmore Decision Draft Decision 29 August 2025

²¹ [16] Delmore Decision Draft Decision 29 August 2025

²² [498] and [499] Delmore Decision Draft Decision 29 August 2025

²³ Noting that national benefits are not at issue [588] Delmore Decision Draft Decision 29 August 2025

²⁴ [500] Delmore Decision Draft Decision 29 August 2025

²⁵ Paragraphs 17 to 21, 36 and 64, Prof. Banks, 30 September 2025

discounting the values over time and the lack of recognition of the specific volatility in the mining sector.

58. Prof. Banks²⁶ has assessed the economic benefits set out in the NZIER report and concludes that at the regional level economic benefits cannot be regarded as significant. At the national level he considers economic benefits in the NZIER report become a statistical irrelevant, at around half of a tenth of a percent (0.07% addition to GDP and a 0.05% increase in employment).
59. Prof. Banks²⁷ has also considered the economic benefits to New Zealand as required by section s59(2)(h) of the EEZ Act. He considered that the benefits to NZ are highly unlikely to be as stable or consistent as the NZIER shows. Prof. Banks sets out that New Zealand would only receive a marginal share of the economic benefit from this non-renewable resource and that we are at risk of effectively giving away the bulk of the economic value of our non-renewable resource to overseas interests.

Sediment Plume Modelling and Worst-Case Scenario modelling

60. The applicant's effects assessment on the sedimentation and sediment plume effects is set out in section 5.3 of the Application. This includes the background and methodology for the sediment plume model and the findings on sediment plumes under that model.
61. Sediment modelling used by the applicant was considered by a number of experts for the 2017 and 2024 hearings. This included evidence of Dr MacDonald and Dr Dearnaley for the applicant and Mr Greer for KASM and Greenpeace. Dr MacDonald, Dr Dearnaley and Mr Greer participated in expert conferencing on sediment plume modelling in February 2024. Dr Dearnaley and Mr Greer also participated in earlier conferencing on Sediment Plume Modelling and Worst-Case Scenario modelling on 13 and 23 February in 2017 respectively.²⁸

Sediment Plume Modelling

62. My understanding is that on Sediment Plume Modelling experts are agreed:

²⁶ Paragraph 65, Prof. Banks, 30 September 2025

²⁷ Paragraphs 51 and 58, Prof. Banks, 30 September 2025

²⁸ While Dr MacDonald did not participate in the 2017 conferencing I understand she has supported paragraphs of that conferencing as referenced in the 2024 JWS statement.

- (a) That the discharge of mining tailings from the IMV (integrated mining vessel) is the primary source of fine sediment.²⁹
- (b) That if the discharged material contains a higher proportion 'x' of fine sediment fractions than the ~3.4% adopted in the modelling (e.g. 7%, 10%, 14%), the predicted suspended sediment concentration (SSC) in the plume may be increased by a similar ratio of x/3.4 times (e.g. approximately 2 times, 3 times, 4 times greater). This could, in turn, lead to a significant increase in the suspended sediment concentration.³⁰
- (c) There is insufficient information to validate assumptions regarding the average particle size distribution of the tailings and the degree of variability in this distribution throughout the proposed mining area.³¹
- (d) Experts concluded that:³²
 - i. Condition 47 limits the percentage of fines <8µm in the grade drilling to 1.8%. This is comparable to the percentage of fines <8µm in the run of mine (ROM) (discharge from the IMV) particle size distribution (PSD) used as input to the assessment of the source terms for the plume modelling.
 - ii. However, it is noted that TTR has not indicated what the upper limit for the fine sediment fraction is for a viable mining operation and also that the definition of the SSC threshold for the potential impact of receptors is not known and is not part of this sediment plume modelling study.
- (e) On matters of temporal variability and its implications for effects, as follows:³³
 - i. that variability in wave and current conditions, mining operations, bed material composition and the mining pit operations will have an effect on the rate of fine sediments that will be released in a passive plume.

²⁹ Paragraph 14, Issue 2, JWS 2024 and paragraph 21, Issue 2, JWS Sediment Plume Modelling 13 February 2017

³⁰ Paragraph 16, Issue 1 sediment modelling 13 Feb 2017 as confirmed by paragraph 13, JWS 23 February 2024

³¹ Paragraph 9, Issue 1 sediment modelling 13 Feb 2017 as confirmed by paragraph 13, JWS 23 February 2024

³² Paragraphs 19 and 20, Issue 1 sediment modelling 13 Feb 2017 as confirmed by paragraph 13, JWS 23 February 2024

³³ Paragraph 34-36, Issue 5, JWS Sediment Plume Modelling 13 February 2017 as confirmed by paragraph 19, Issue 5, 23 JWS 2024

- ii. Increased variability of sediment leaving the mining area could lead to increases in higher order percentiles of SSC with this effect less evident with distance from the mining area.
- iii. Overall, the sediment plume model simulates the key processes and is appropriate tool for assessing potential effects of sediment being released from the mining site on suspended sediment concentrations in the STB, away from the mining site.³⁴

Worst case scenario modelling

- 63. Experts endeavoured to define a worst-case scenario using the parameters available in the model and combining parameters in a way that would lead to the worst-case sediment discharge from the integrated mining vessel (IMV).³⁵
- 64. My understanding is that, in relation to Worst Case Scenario Modelling, experts are agreed:
 - (a) that the definition and assessment of a worst-case scenario is useful in evaluating potential impacts.³⁶
 - (b) there will be variability in the content of ultra fine sediment throughout the mining area,
 - (c) a number of factors influence the content of ultra sediment in the mining area, and these factors are not well understood, which may lead to spikes in the ultra fine sediment content of the discharge.³⁷
 - (d) On the described the methodology to determine the fines sediment release rate based on the ultra fine contents of the ROM (Run of Mine)³⁸

³⁴ As set out at paragraph 20 of the 23 January JWS, All participants note that while the model simulates the key processes and is a useful tool, the discussion on whether the 2015 model results represent worst-case is to be further discussed below.

³⁵ Paragraph 6 JWS 23 February 2017 and paragraph 24, Worst case scenario parameters, 23 February 2024

³⁶ Paragraph 25, Worst case scenario parameters, JWS 23 February 2024. Mr Greer notes that agreement was not reached on important aspects of the worst-case definition – paragraph 7 Mr Greer evidence of 27 March 2017.

³⁷ Paragraph 27, Worst case scenario parameters, JWS 23 February 2024

³⁸ Paragraph 15, JWS 23 February 2017 and paragraph 32, Worst case scenario parameters, JWS 23 February 2024

- (e) they had not had opportunity to review the process and the validity of ultra fines values used could not be validated by them.³⁹
- (f) that the retention of discharged sediment in the pit is dependent on the wave period used in the modelling and that higher wave periods lead to greater resuspension and reduced settling of sediment.⁴⁰
- (g) The settling properties of the fine material in the model are described in settling classes of 0.01, 0.1, 1 and 10 mm/s.⁴¹
- (h) for purposes of the worst-case model scenario, the NIWA interpretation of the laboratory results is preferred over that of HR Wallingford.⁴²

Key differences and matters of disagreement between experts

65. My understanding is that there is disagreement on adequacy of information on particle size distribution:

- (a) Dr Dearnaley is of the opinion that the available information supports the run of mine (ROM) particle size distribution (PSD) definition and that the independent verification of the performance of the pilot processing plan provides a sound basis for defining the PSD of the coarse and fine discharges from the grinding and processing.⁴³ However, the other experts have not had the benefit of reviewing the relevant information.⁴⁴
- (b) Experts have agreed that there is insufficient information to validate assumptions regarding the average particle size distribution (as set out above).⁴⁵ However, Dr Dearnaley⁴⁶ does not consider that the information about the particle size

³⁹ As explained in paragraph 15 of the JWS 23 February 2024, the table has been prepared based on TTRL's assessment of their mining process. The independent experts have not had the opportunity to review this process so, as noted above, the validity of the table cannot be validated by them.

⁴⁰ Paragraph 35, Worst case scenario parameters, JWS 23 February 2024

⁴¹ Paragraph 24, JWS 23 February 2017 and paragraph 37, Worst case scenario parameters, 23 February 2024

⁴² Paragraph 24, JWS 23 February 2017 and paragraph 37 Worst case scenario parameters, 23 February 2024 as confirmed by paragraph 37, JWS 23 February 2024

⁴³ Paragraph 17, Issue 1 JWS sediment plume modelling 13 February 2017

⁴⁴ Paragraph 18, Issue 1 sediment modelling 13 Feb 2017 as confirmed by paragraph 13, JWS 23 February 2024

⁴⁵ Paragraph 9, Issue 1 sediment modelling 13 Feb 2017 as confirmed by paragraph 13, JWS 23 February 2024

⁴⁶ Paragraph 48, Dr Dearnaley rebuttal evidence 23 January 2024

distribution of sediments is uncertain and inadequate for the purposes of assessing the effects of the sediment plume.⁴⁷

66. I understand there is disagreement on the adequacy of information about how the extracted material will be processed on the IMV when areas of high percentage of ultra fines are encountered during mining. This affects the model parameters. The experts' views were:
- (a) Mr Greer considers there is uncertainty and he has not been able to review how values have been derived or to fully assess the schematisation of the mining process in the models and he remains unaware of how long TTRL will mine different levels of high percentages of ultra fines.⁴⁸
 - (b) Dr Dearnaley considers that any localised mud or clay pockets encountered in the mining face are unlikely to extend throughout the full depth of the face and any elevated layers of higher fines content will be diluted by the lower fines content of the surrounding material.⁴⁹
 - (c) Mr Greer does not agree with the adopted ultra fines content, "proposed to represent the lane as being made up of 300m lengths with 2.25% ultra fines and 600m lengths of 1.60% ultra fines with this sequence repeating" as outlined in paragraph 21 of the 2017 Worst Case Parameters Joint Statement.⁵⁰
 - (d) Dr Dearnaley appears to consider that worst-case scenario will not occur due to the limits set in condition 4. He explains that the worst-case scenario exceeds the rates that are allowed under condition 4.⁵¹ I discuss condition 4 in my assessment of conditions later in this evidence.
67. I understand that there is disagreement on variabilities affecting model outputs:

⁴⁷ This response relates to evidence of Dr Barbara who intern was referring to matters raise under Issue 1 of the JWS 13 February 2017 confirmed in paragraph 13 of the JWS 23 February 2024

⁴⁸ Paragraph 8 to 12, JWS 23 February 2017 as confirmed in paragraphs 28-30, JWS 23 February 2024

⁴⁹ Paragraph 47, Dr Dearnaley rebuttal evidence 23 January 2024

⁵⁰ Paragraph 34, JWS 23 February 2024. Also see paragraph 15(b), Dr Greers evidence of 6 October 2023

⁵¹ Paragraph 26, Dr Dearnaley rebuttal evidence 23 January 2024

- (a) On the temporal variability in the fines content of the sediment being discharged, Mr Greer considers shorter term variability in ultra fines content could materially affect the plume model results.⁵²
 - (b) Mr Greer also considers that temporal variability in the discharge rate of ultra fines content as well as the temporal variability in waves and currents may also materially affect the model output and should have been incorporated in the model.⁵³ This is relevant to the far field modelling.
 - (c) On the retention of fines on the seabed, Mr Greer considers that a wave period of 12 seconds would be more appropriate based on the analysis of the available wave data for the area and that this would lead to a considerably larger percentage of the 0.1 mm/s sediment fraction leaving the pit in the form of a plume.⁵⁴
 - (d) Dr MacDonald has confirmed that the model results were presented as agreed with the exception of the 99th percentile and median plots for shorter periods. Statistical analysis such as the 99th percentile could not be generated for short time periods as there were not enough data points. Time series at locations of interest which showed how short-term increases relate to the median and 99th percentile were produced.⁵⁵
 - (e) Mr Greer considers that, because this analysis was not included in the worst-case scenario reporting, the model results do not show how the periods where there is a higher release of fine sediment affect median and 99th percentile SSC during those periods.⁵⁶
68. I understand there remains disagreement between experts on uncertainties of the sediment plume model and as to whether the worst-case scenario represents a worst case for the project:
- (a) Dr MacDonald has acknowledged uncertainties and errors but considers that work has been performed to understand the effect on results, that the sediment plume

⁵² Paragraph 31, JWS 23 February 2024

⁵³ Paragraph 33, JWS 23 February 2024. Also see paragraph 18, Dr Greer's evidence of 6 October 2023

⁵⁴ Paragraph 35, JWS 23 February 2024 also see Paragraph 14, Dr Greer's evidence on sediment plume modelling 27 March 2017

⁵⁵ Paragraph 43, JWS 23 February 2024 and paragraph 15, Dr MacDonald's rebuttal evidence of 23 January 2024

⁵⁶ Paragraph 16, Mr Greer, 6 October 2023

model used in the initial assessment is of good quality and fit for the purpose and provides a reliable basis for others to assess the effects of the sediment plume on the environment.⁵⁷

- (b) In contrast, Mr Greer maintains that consideration should have been given to the level of error associated with far field modelling.⁵⁸ Mr Greer disagrees that the plume model or the worst-case model is fit for purpose and does not consider that the worst-case model favours caution and environmental protection.⁵⁹
- (c) Mr Greer considers an overly low wave period was used to inform the far field plume source and that the worst-case scenario modelling is likely to have underestimated the amount of material released in the passive plume.⁶⁰
- (d) Dr Dearnaley however, considers that at the times of the highest and longest period wave conditions, when the rates of release of fines from the mining pit will be increased, the background suspended sediment concentrations would be elevated, especially near the coast.⁶¹
- (e) Dr Dearnaley does not see the value in a more severe worst case modelling scenario to inform the far-field impact assessment. He considers such an assessment would be unrealistic given the discharge conditions.⁶²
- (f) Dr Greer has maintained that that the source terms used in the modelling do not represent the worst-case scenario.⁶³
- (g) Dr Dearnley is of the opinion the original and worst-case sediment plume modelling scenarios presented provide a sound basis for understanding the magnitude and effects of the sediment plume against the background conditions.⁶⁴ .
- (h) However, Mr Greer considers a worst-case could not be established due to a lack of information in the application and that the modelling does not represent a worst---

⁵⁷ Paragraph 29, Dr MacDonald evidence of 19 May 2023

⁵⁸ Paragraph 16 Mr Greer, evidence of 27 March 2017

⁵⁹ Paragraph 19, Mr Greer, 6 October 2023

⁶⁰ Paragraph 15(a), Mr Greer, 6 October 2023

⁶¹ Paragraph 22, Dr Dearnaley rebuttal evidence January 2024

⁶² Paragraph 37, Dr Dearnaley rebuttal evidence January 2024

⁶³ Paragraph 40, JWS 23 February 2024. Also see paragraph 15(d) Mr Greer evidence of 6 October 2023 and paragraph 14 Dr Greer evidence of 27 March 2017.

⁶⁴ Paragraph 48, Dr Dearnaley rebuttal evidence January 2024

case scenario.⁶⁵ Mr Greer's view is that insufficient caution has been included in the worst-case scenario.⁶⁶

69. Dr Dearnley⁶⁷ and Mr Greer have also considered the potential for sediment effects on currently unidentified rocky reefs which may be subsequently identified:⁶⁸
- (a) Dr Dearnley considers that if the locations of these reefs are such that they may be within the near-field zone of the mining operations, within about 3km, then the potential for impact on these locations would be better informed from the results of the near-field modelling than the far-field sediment plume modelling undertaken by NIWA.
 - (b) Mr Greer considers, if new reefs are identified the results of the plume modelling will require re-examination by ecologists and peer review by independent ecologists. Note however, that it will not be possible for the numerical modellers to provide information for all reefs in the area since many remain undiscovered.

Sediment effects on benthic values and rocky reefs

70. The DMC 2017 decision includes findings on the level of effect on various ecologically sensitive rocky reef areas.
- (a) Pātea Shoals — moderate effects on primary production,⁶⁹ and the local scale effects on benthic primary productivity may be significant;⁷⁰
 - (b) The Crack — significant effects on primary production,⁷¹ effects of concern on rich and diverse benthic fauna,⁷² temporary or permanent displacement of species,⁷³ and major effects on visibility for diving;⁷⁴

⁶⁵ Paragraph 7, Mr Greer evidence of 27 March 2017

⁶⁶ Paragraph 15, Mr Greer evidence of 8 May 2025

⁶⁷ Paragraph 18, Dr Dearnley 23 January 2024

⁶⁸ At paragraph 20, of Mr Greer's 8 May 2025 evidence he refers to a survey of the Pātea Bank identify previously unknown reefs (Morrison, 2022) which suggests subtidal reefs are common in the area and many more await discovery.

⁶⁹ 2017 DMC decision at para [350] and [970]

⁷⁰ 2017 DMC decision at paragraph [968]

⁷¹ 2017 DMC decision at para [350] and [970]

⁷² 2017 DMC decision at paragraph [406]

⁷³ 2017 DMC decision at paragraphs [437] and [980]

⁷⁴ 2017 DMC decision at paragraph [952]

- (c) Project Reef — significant effects on primary production,⁷⁵ and major effects on visibility for diving;⁷⁶
 - (d) Graham Bank — significant adverse effects on fish and primary production,⁷⁷ and effects including temporary or permanent displacement of species.⁷⁸
71. The DMC decision also concluded: there will be minor effect on The Traps;⁷⁹ that the benthic community within 2 to 3 kilometres of the site is likely to be significantly impacted by sediment deposition;⁸⁰ it is possible that there will be a more than 20% reduction in visibility in some parts of the CMA subject to the One Plan;⁸¹ and overall effects on fish will be generally no more than minor, other than eagle ray for which the effect will be moderate.⁸²
 72. My understanding is that there has been no substantive change to the information on sediment plume modelling from that provided in evidence in 2017.⁸³ I take this to mean that there is no change in the evidentiary basis for the findings of the 2017 DMC and those findings can be considered as relevant for assessing effects of TTRs 2025 application.
 73. I have considered the evidence of Dr MacDiarmid, including her responses to other expert evidence. I have also considered the JWS 23 February 2024 effects on benthic ecology to identify areas of agreement and remaining matters of disagreement between experts to assist with identifying outstanding issues that may be of relevance to decision making under the FTA Act.

⁷⁵ 2017 DMC decision at para [350] and [970]

⁷⁶ 2017 DMC decision at paragraph [952]

⁷⁷ 2017 DMC decision at paragraph [350], [940] and [970].

⁷⁸ 2017 DMC decision at paragraphs [437] and [980]

⁷⁹ 2017 DMC decision [970]

⁸⁰ 2017 DMC decision [405] with the DMC noting with deposition rates and the consequent effects in the mid to far-field reducing with distance

⁸¹ In my consideration of MMRs below I identify that a such a change would be inconsistent with Policy 8-6 of the One

⁸² “Ray” are a identified as a value in Schedule 2 for ONC 6 Project Reef in the Coastal Plan for Taranaki. Policy 9 of the Coastal Plan requires the avoidance of adverse effects on the values and characteristics, including those in Schedules 1 and 2, that contribute to areas having outstanding natural character. I have also identified Policy 9 as being in the nature of a bottom line in my consideration of MMRs below. While it is beyond my expertise to determine what level of effect the proposal may have on ray at the Project reef, in comparing Figure 4 of the DMC decision with the SC decision Appendix 3 diagram of rocky reefs, indicates that the Project reef is within the green 40 to 60% probability of catch area for ray.

⁸³ Paragraph 13, Mr Greer evidence of 8 May 2025

74. I understand that there was agreement between benthic experts on the following matters:
- (a) Experts have agreed on uncertainties relating to recovery of benthic communities within the site.⁸⁴
 - (b) If there are large reefs close (within 1-2 km near field plume modelling area) to the proposed mining site, there is potential for significant ecological impact.⁸⁵
 - (c) The inclusion of additional monitoring sites within the mining area would provide a more robust BACI (Before-After Control-Impact) analysis for determining recovery/re-colonisation rates within processed areas.⁸⁶
 - (d) That additional survey effort around the proposed project area is necessary to identify sensitive benthic habitats within 2km of the mining area.⁸⁷
 - (e) The importance of the mining operation location/planning with respect to impacts on recolonisation of already worked areas due to proximity of the continuing operation. This is due to the uncertainty around TTRL planned mining process, timing and schedule across the proposed project area.⁸⁸
 - (f) The importance of a time series across seasons to determine the rates of species successions and population dynamics of benthic communities before mining takes place.⁸⁹
 - (g) That monitoring of the mining operation would need to be sufficiently robust to affirm low levels of SSC and sediment in the coastal zone that is shown in the modelling results. As well as monitoring of heavy metals from beyond and within the sediment plume will address concerns regarding exposure and effects on clams.⁹⁰
 - (h) That as the benthic communities are already experiencing elevated SSC from other impacts above natural conditions it cannot be said with certainty that additional

⁸⁴ Paragraph 17 Benthic Ecology JWS 20 February 2017

⁸⁵ Paragraph 52, JWS 23 February 2024

⁸⁶ Comments under “importance” Basis of updated impact predictions, JWS 20 February 2017, captured above paragraph 53 in the JWS 23 February 2024

⁸⁷ Paragraph 53, JWS 23 February 2024

⁸⁸ Paragraph 56, JWS 23 February 2024

⁸⁹ Paragraph 57, JWS 23 February 2024

⁹⁰ Comments under “importance” Clams, JWS 20 February 2017, captured above paragraph 54 in the JWS 23 February 2024

increases in SSC over a sustained (>30 years)⁹¹ would not cause harm to benthic communities.⁹²

- (i) That monitoring is not a mitigation measure unless it is linked to a management plan for remediation and feedback to modify mining practices to include (but not limited to) either stop works, avoid areas where plumes would enter areas of sensitivity or alter mine processes, habitat remediation where practicable.⁹³
 - (j) The project should include ecotoxicity testing as part of the Baseline Environmental Monitoring Plan (BEMP) and Water and sediment quality monitoring as part of the BEMP and Environmental Management and Monitoring Plan (EMMP).⁹⁴
75. I understand that there was disagreement between benthic experts on the following matters:
- (a) Whether the final species composition would be the same as pre mining or whether the rate of recovery and functional ecosystems would take less than a few years.⁹⁵
 - (b) Whether there was a need for increase understanding of benthic communities in the mining area within 5km from the operation to increase confidence in the predicted impacts.⁹⁶
 - (c) Whether applicants impact assessment was based on a realistic scenario.⁹⁷
 - (d) Whether biota present would be adapted to periodic perturbation, their resistance to impacts and ability to recover.⁹⁸
 - (e) Whether the modelling was conservative.⁹⁹

⁹¹ TTRs 2025 application states that extraction activities will occur over a 20-year period. As far as I am aware this was not stated in the previous application considered by benthic ecologists at conferencing in 2017 or 2024

⁹² Paragraph 66, JWS 23 February 2024

⁹³ Paragraph 69, JWS 23 February 2024

⁹⁴ Comments under "importance" Long-term effects of elevated nickel and copper on larvae, JWS 20 February 2017, captured above paragraph 70 in the JWS 23 February 2024

⁹⁵ Paragraph 48, JWS 23 February 2024

⁹⁶ Comments under "importance" Basis of updated impact predictions, JWS 20 February 2017, captured above paragraph 59 in the JWS 23 February 2024

⁹⁷ As considered under Best case or worse case assessed, JWS 20 February 2017, captured above paragraph 54 in the JWS 23 February 2024

⁹⁸ Assumptions disagreed under Seasonality and natural disturbance, JWS 20 February 2017, captured above paragraph 57 in the JWS 23 February 2024

⁹⁹ Assumptions disagreed under Effects on species not found, JWS 20 February 2017, captured above paragraph 65 in the JWS 23 February 2024

76. I understand that there was some level of agreement in principle that the applicants impact assessment was based on best available data at the time (including reliance on the sediment plume model). However, there remained disagreement on the validity of the worst case sediment plume model being uncertain and given the discovery of more macroalgal communities in the vicinity of the proposed project areas, whether there would be greater impacts than those predicted.¹⁰⁰
77. I also understand that there was some level of agreement on uncertainty and where that uncertainty lies for material matters, but that there were differences in opinion as to whether there is sufficient information to make a realistic and robust assessment and to predict effects.¹⁰¹ There was also agreement on monitoring and operational management solutions that would improve certainty and knowledge gaps.¹⁰²
78. Dr MacDiarmid¹⁰³ considers, notwithstanding the DMC 2017 decision findings that under some circumstances there will be significant and moderate effects, the harm described is “immaterial” when taking into account the evidence put before the 2017 DMC that provides what the Supreme Court considers qualitative, temporal, quantitative and spatial aspects.
79. Dr MacDiarmid’s¹⁰⁴ opinion is that granting consent, subject to the proposed conditions, will avoid material harm, and will favour caution and environmental protection in relation to the effects of the proposed mining operations and resulting sedimentation on biota in the STB, including ecological effects on marine mammals.

Consideration of Dr MacDiarmid’s and Dr Barbara’s evidence on benthic ecology:

80. Dr MacDiarmid’s 2024 rebuttal evidence addresses the evidence of Dr Barbara¹⁰⁵ relating to concerns about the scale of impact on benthic and rocky reef communities may under-represent pockets of very fine material in sub-surface sediments. Dr MacDiarmid explains that this problem was discussed extensively during the 2017 hearing and resolved by TTR undertaking to stop mining in any part of the proposed mining area if the finer material in

¹⁰⁰ Paragraph 49 and 54, JWS 23 February 2024

¹⁰¹ Paragraph 17 and 18, JWS 20 February 2017, confirmed by paragraph 71 in the JWS 23 February 2024

¹⁰² Paragraph 19, JWS 20 February 2017, confirmed by paragraph 71 in the JWS 23 February 2024

¹⁰³ Paragraph 21, Dr MacDiarmid 19 May 2023

¹⁰⁴ Paragraph 41, Dr MacDiarmid 19 May 2023

¹⁰⁵ Paragraphs 61 to 74, Dr Barbara’s evidence on marine ecology, 29 September 2023.

the sands reached an agreed threshold of an average of 1.8% ultra-fines over the course of a week of mining operations (Condition 4d).

81. However,¹⁰⁶ is not clear from this explanation whether this addressed all of Dr Barbara's concerns on that matter. In particular, Dr Barbara considered that the sediment plume modelling was not worst-case scenario. Dr Barbara also noted the discovery of new areas of rocky reef¹⁰⁷ which provided important areas for biodiversity, including and fish nurseries. These were located within the predicted plume and Dr Barbara considered this highlighted the need for additional modelling to predict sedimentation rates across the area, using the worst-case ultrafine concentrations presented in the experts conferencing session in 2017.¹⁰⁸

82. Dr Barbara considered that effects would not be immaterial:¹⁰⁹

Given the proximity the of the newly identified sensitive reef habitats to the proposed mining area, and the limitations of the existing TTR sediment plume model, I disagree with Dr MacDiarmid's conclusion at paragraph 21 of her evidence that the impacts of the sediment plume and mining operations would be "immaterial".

83. The adequacy of Condition 4 is also questionable given that Dr MacDiarmid and Dr Barbara subsequently agreed that if there are large reefs close (within 1-2 km near field plume modelling area) to the proposed mining site, there is potential for significant ecological impact.¹¹⁰
84. Dr Barbara¹¹¹ also refers to the 2017 DMC findings about the level of effects on various ecological sensitive rocky reef areas and concludes that there is no information provided by TTR to suggest that the level of impact at the further areas of rocky reef recently identified by Morrison et al (2022) will be any lower. Dr Barbara considers that due to uncertainty around the model predictions for sedimentation and quantities of fine sediments it is not possible to predict the extent of impact on the new identified reef habitats.

¹⁰⁶ For example, in the 23 February 2024 JWS on benthic effects, Dr Barbara maintains most of his concerns from the 2017 JWS and now disagrees (paragraph 69) on the importance of monitoring benthic communities during mining operations as "Monitoring is not a mitigation measure unless it is linked to a management plan for remediation and feedback to modify mining practices."

¹⁰⁷ in the Morrison 2022 study

¹⁰⁸ Paragraph 63, Dr Barbara's marine ecology evidence, 29 September 2023

¹⁰⁹ Paragraph 66, Dr Barbara's marine ecology evidence, 29 September 2023

¹¹⁰ Paragraph 52, JWS on sediment modelling and effects on benthic ecology 23 February 2024

¹¹¹ Paragraph 67 to 68, Dr Barbara's marine ecology evidence, 29 September 2023

85. Dr Barbara states:¹¹²

In my view, the level of impact to ecologically sensitive rocky reef areas within the coastal marine area inshore of the proposed mining area, particularly any within the area of the reefs assessed during the 2017 DMC is likely to be material

86. Dr Barbara's evidence¹¹³ goes on to consider the values of the newly identified rocky reefs of the Pātea Bank and explains the location of one such reef on the south-east side of Graham Bank, being within an area identified in the 2017 DMC decision as being likely to be significantly impacted by the sediment plume. He considers the discovery of the additional reef areas and likelihood of many more reef areas in Pātea Bank indicates that even more reef habitat would be impacted by the sediment plume than predicted by the TTR submission.¹¹⁴

Conclusions on sediment plume modelling and effects on benthic ecology

87. The conclusions of these experts in terms of whether there is material harm from to discharges of sediment will need to be considered in the context of s10(b), in the purpose of the EEZ Act. The effects of sediment will also need to be considered in terms of s59, including under clause (2)(h) the nature and effect of other marine management regimes, of the EEZ Act.
88. The conclusions of these experts in terms of whether sediment modelling and assessing effects favours caution and environmental protect will also need to be considered in the context of s61 information principles of the EEZ Act.

Effects on marine mammals

89. I have considered the of Dr MacDiarmid, Dr Childerhouse and Dr Humpherson for the applicant, the evidence of Dr Torres for KASM and Greenpeace and the evidence of Dr Clement for Forest & Bird. I have also considered the JWS 19 February 2024 effects on marine mammals to identify areas of agreement and matters of disagreement between experts¹¹⁵ to assist with identifying outstanding issues that may be of relevance to decision making under the FTA Act.

¹¹² Paragraph 68, Dr Barbara's marine ecology evidence, 29 September 2023

¹¹³ Paragraph 71 to 73, Dr Barbara's marine ecology evidence, 29 September 2023

¹¹⁴ Paragraph 73, Dr Barbara's marine ecology evidence, 29 September 2023

¹¹⁵ Dr Clement did not provide evidence or participate in conferencing for the previous TTR 2016 application to the EPA.

90. The SC¹¹⁶ considered that information available about the environmental effects on seabirds and marine mammals was uncertain and that this triggered the obligation to favour caution and environmental protection under the EEZ Act. The SC¹¹⁷ considered that conditions set by the DMC 2017 decision were not adequate to avoid, remedy or mitigate adverse effects¹¹⁸. I have considered whether the conditions put forward in this application are adequate in respect of relevant provisions of the EEZ Act and FTA Act in my consideration of conditions later in this evidence.
91. I understand that agreement between marine mammal experts (excluding Dr Humpherson)¹¹⁹ included the following matters:
- (a) That fur seals are found in the proposed project area and that additional pre and post mining monitoring would be useful to investigate potential impacts.¹²⁰
 - (b) Additional marine mammal surveys would have provided valuable information for the DMC on marine mammals in the area affected by noise and ecological impacts.¹²¹
 - (c) That the modelling was based on incidental sightings data limited to DOC, Cawthorn and MPI datasets.¹²²
 - (d) One of the potential impacts of the proposed mining operation is the displacement of blue whales and other species from areas that may be important for feeding, breeding or other critical activities.¹²³
 - (e) That it is not known if the area impacted by the sediment plume is a preferential area for marine mammal foraging and therefore it would be useful to investigate this.¹²⁴

¹¹⁶ [125] TTR Supreme Court Decision 2021 NZSC-127 (SC decision)

¹¹⁷ [130] SC decision

¹¹⁸ The SC focused on conditions relating to seabirds and marine mammals but also considered there were problems in terms of uncertainty as to effects caused by the sediment plume and the associated conditions dealing with suspended sediment levels.

¹¹⁹ As set out in the JWS of 19 February 2024, these matters are outside the expertise of Dr Humpherson

¹²⁰ Paragraph 13, JWS 19 February 2024

¹²¹ Paragraphs 14 and 21, JWS 19 February 2024

¹²² Paragraph 15, JWS 19 February 2024

¹²³ Paragraph 22, JWS 19 February 2024

¹²⁴ Paragraph 23, JWS 19 February 2024

- (f) That the STB is an important habitat and foraging area for blue whales.¹²⁵
- (g) Any new activity has potential to affect a species or population, that the impact has to be significant before it will have a negative effect and that several individual impacts which are insignificant on their own may add up to a significant cumulative impact.¹²⁶
- (h) That Antarctic blue whales and pygmy blue whales require careful consideration,¹²⁷ that impacts on a relatively small part of their habitat/forage may be acceptable, however, impacts on a larger proportion or an important area are likely to lead to significant impacts.¹²⁸
- (i) Vessel speed increases risk of vessel strike to marine mammals and to consideration of this issue in the Environmental Management and Monitoring Plan (EMMP).¹²⁹
- (j) The STB is an important area linking Maui and Hector's dolphin habitat, that any additional impact on Maui dolphins will be unsustainable and should be avoided and that there is a very high level of uncertainty¹³⁰ about Maui dolphin distribution.¹³¹
- (k) On the importance of careful consideration of cumulative impacts for any activity, especially for species at high risk of extinction.¹³²
- (l) That increases in sound contribute to behavioural and physical consequences for marine mammals and to the overall cumulative effects of human activities on the species.¹³³
- (m) That the sediment plume is likely to have ecological impacts, some of which will affect marine mammals using the area.¹³⁴
- (n) That impacts on the forage of blue whales should be avoided.¹³⁵

¹²⁵ Paragraphs 24 and 42, JWS 19 February 2024

¹²⁶ Paragraph 25, JWS 19 February 2024

¹²⁷ Experts note that IUCN classifications may have been updated.

¹²⁸ Paragraph 25, JWS 19 February 2024

¹²⁹ Paragraph 26, JWS 19 February 2024

¹³⁰ It is suggested that new information provided since 2017 can be used to explore both the likelihood and uncertainty. At paragraph 41, JWS 19 February 2024

¹³¹ Paragraphs 27 and 40, JWS 19 February 2024

¹³² Paragraphs 28 and 46, JWS 19 February 2024

¹³³ Paragraphs 33 and 45, JWS 19 February 2024

¹³⁴ Paragraph 37, JWS 19 February 2024

¹³⁵ Paragraph 38, JWS 19 February 2024

- (o) It will be very difficult to ascribe the ultimate cause of death from the dead beach cast marine mammal; nonetheless, they should be autopsied to provide possible indicators of the cause of death.¹³⁶
 - (p) That potential impacts of the mining would affect a much larger area than the proposed project area.¹³⁷
92. I understand that there was agreement between marine mammal experts, including Dr Humpherson on the following matters:
- (a) That noise levels and frequencies from the proposed mining operation are unknown and on the need for relevant data from other marine mining operations.¹³⁸
 - (b) The need for information on background intensity and frequency of underwater noise at the mining area for a period of at least 1 year before mining starts.¹³⁹
 - (c) That operational noise profiles at various stages of the operations has not yet been adequately described.¹⁴⁰
 - (d) That ambient ocean noise varies and on gaps in information on local sound propagation conditions.¹⁴¹ Dr Clement has raised similar concerns.¹⁴²
 - (e) Some species have higher sensitivity to anthropogenic noise than others and should be considered separately and that without information on the intensity and frequency range of the noise from the proposed mining operation it is not possible to determine the likely impacts on marine mammals, including physical and behavioural effects.¹⁴³
 - (f) That the proposed number of acoustic recordings inside and outside the proposed project area was insufficient to provide baseline information on the range of species potentially present in the area and that data from a more extensive array of acoustic

¹³⁶ Paragraph 40, JWS 19 February 2024

¹³⁷ Paragraph 44, JWS 19 February 2024

¹³⁸ Paragraphs 20 and 29, JWS 19 February 2024

¹³⁹ Paragraphs 20 and 29, JWS 19 February 2024

¹⁴⁰ Paragraph 20, JWS 19 February 2024

¹⁴¹ Paragraphs 31 and 32, JWS 19 February 2024

¹⁴² Paragraphs 21 and 30, Dr Clement 1 October 2025

¹⁴³ Paragraphs 34 and 35, JWS 19 February 2024

recorders would be valuable to the DMC in their decisions on whether to approve or decline the application.¹⁴⁴

93. I understand that there was disagreement between marine mammal experts on the following matters:

- (a) About the suitability of the existing survey and modelling in describing the marine mammal fauna occurrences in the proposed project area and the wider area affected. Use of evidence on occurrences in the STB of blue whales to inform cetacean use of the STB and on the usefulness of new special modelling data.¹⁴⁵
- (b) Whether the sound produced from the operation would or would not, be comparable to shipping noise.¹⁴⁶
- (c) On whether blue whales would be directly affected by noise produced from mining operations and a range of different views on the likely impacts from noise.¹⁴⁷
- (d) On the likely impact on krill from the sediment plume and therefore on blue whale foraging. However, experts recommended a review of Fuentes et al 2016, which relates to impacts of sedimentation and turbidity on krill survival.¹⁴⁸
- (e) The density and likely abundance of Maui dolphins in the STB.¹⁴⁹
- (f) Whether there is sufficient information to make a science based assessment of the scale of the impact of the proposed operations on marine mammals.¹⁵⁰
- (g) On the likely impact of noise on marine mammals and on whether there was adequate information available.¹⁵¹
- (h) On the impact of the sediment plume on blue whale foraging.¹⁵²
- (i) Whether condition 12 (now numbered condition 11) would be effective mitigation tool and on the likelihood and nature of impacts from noise of the operation.¹⁵³

¹⁴⁴ Paragraph 39, JWS 19 February 2024

¹⁴⁵ Paragraphs 15 to 19, JWS 19 February 2024

¹⁴⁶ Paragraph 20, JWS 19 February 2024

¹⁴⁷ Paragraph 22, JWS 19 February 2024

¹⁴⁸ Paragraphs 23 and 43, JWS 19 February 2024

¹⁴⁹ Paragraph 27, JWS 19 February 2024

¹⁵⁰ Paragraph 28, JWS 19 February 2024

¹⁵¹ Paragraphs 34 and 36, JWS 19 February 2024

¹⁵² Paragraph 37, JWS 19 February 2024

¹⁵³ Paragraph 39, JWS 19 February 2024

- (j) On whether the availability of krill in the areas is likely to have a bigger impact of where blue whale forage than the impact of proposed mining.¹⁵⁴
94. In their 2023 evidence both Dr Torres¹⁵⁵ and Dr Slooten¹⁵⁶ considered that there is insufficient information on the effects of the activity on marine mammals within the STB. This includes insufficient information on:
- (a) the level, distance and distribution of sound and vibration;
 - (b) the distribution of marine mammals relative to the extraction site; and
 - (c) the relationship between effects generated by the activity and impacts on marine mammals.
95. Dr Clement¹⁵⁷ considers that while some experts consider there is insufficient information, addressing this would take time and is not reasonably attainable. Nor in her view is it necessary as the best available information has been provided and just needs to be adequately assessed and considered.
96. Dr Clement¹⁵⁸ considers that the appropriate conservative approach to insufficiencies in information on the presence and distribution of marine mammals is to assume that any of the marine mammal species that have been found or observed in the STB (past or present) could be present near the Proposal area at any point in the mining operations. I consider this approach is consistent with s 61(2) of the EEZ Act to where there is uncertain or inadequate information to favour caution and environmental protection in decision making, as explained in my assessment on s61 below.
97. Dr Torres¹⁵⁹ 2025 evidence provides new information on recent sightings of marine mammals within the South Taranaki Bight (STB), findings on the sensitivity of this New Zealand blue whales population to environmental variability and confirms conclusions from her previous evidence that the proposal will have negative impacts on blue whales.

¹⁵⁴ Paragraph 44, JWS 19 February 2024

¹⁵⁵ Dr Torres, 2023, considers conditions will not address potential effects [41] and identifies potential effects on marine mammal populations from elevated ocean noise, increased turbidity and ship strike [42]

¹⁵⁶ Dr Slooten, 2023, considers potential for Māui dolphins to be impacted by mining noise, sediment plume and loss of natural range [37]

¹⁵⁷ Paragraphs 24 and 25, Dr Clement, 1 October 2025

¹⁵⁸ Paragraphs 27 and 28, Dr Clement, 1 October 2025

¹⁵⁹ Dr Torres draft evidence dated 18 September 2025

98. Dr Torres 2025 evidence sets out that:
- (a) there were 34 sightings of blue whales, with 66 individuals and 5 mother-calf pairs recorded in the 2025 field season. This includes sightings of 9 blue whales within 40 km of the TTR project area.¹⁶⁰
 - (b) the variation in sighting rates and distribution patterns within and between years illustrates the sensitivity of blue whales to habitat changes that impacts their ability to find and capture sufficient prey.¹⁶¹
 - (c) the 2025 ecosystem conditions—with cool upwelling supporting high krill and whale presence—stood in stark contrast to 2024, when no whales and very little krill were observed.¹⁶² The dramatic difference between years highlights the strong environmental variability in the South Taranaki Bight (STB). Dr Torres explain this difference is due to the krill rich environment in 2025 which created ideal foraging conditions.¹⁶³
 - (d) Foraging behaviour of blue whales feeding on krill was observed at nearly half the 2025 sightings.¹⁶⁴
 - (e) suspended sediments discharged from the proposal are likely to reduce krill numbers and lower food availability for blue whales (e). Dr Torres considers that sediment impacts on krill would lead to food scarcity and declining health in the blue whale population.¹⁶⁵
 - (f) acoustic analyses were conducted confirms there is year round presence of the New Zealand blue whale population in the STB.¹⁶⁶
99. Dr Torres¹⁶⁷ states that New Zealand blue whales are already living on the edge, where their margins of survival, health and reproductive capacity are thin and driven by variable ocean conditions and human impacts. Adding another stressor on top of current threats

¹⁶⁰ Paragraphs c. iv. and v., Dr Torres draft evidence dated 18 September 2025

¹⁶¹ Paragraph c. vi., Dr Torres draft evidence dated 18 September 2025

¹⁶² Paragraph 41, Dr Torres draft evidence dated 18 September 2025

¹⁶³ Paragraph 44, Dr Torres draft evidence dated 18 September 2025

¹⁶⁴ Paragraph 41, Dr Torres draft evidence dated 18 September 2025

¹⁶⁵ Paragraph d. iii., Dr Torres draft evidence dated 18 September 2025

¹⁶⁶ Paragraph 39, Dr Torres draft evidence dated 18 September 2025

¹⁶⁷ Paragraph f, Dr Torres draft evidence dated 18 September 2025

does not seem like a wise choice if maintaining a sustainable blue whale population is desired.

100. Dr Clement¹⁶⁸ has similar concerns with respect to the increases in ambient noise and cumulative increases in the overall average ambient sound level within the Proposal area and nearby regions of the STB. Dr Clement¹⁶⁹ sets out that this would not only adversely affect marine mammals but the ecosystem as a whole.
101. Dr Clement¹⁷⁰ sets out that elevated ambient (or background) noise levels, caused by an increase in anthropogenically generated noise, can prevent or interfere with the detection of sounds and be a hinderance for marine mammals that are reliant on sound for survival. For marine mammals, adverse effects associated with increases in underwater noise include reduced detection, behavioural responses (e.g. changes in surfacing or diving patterns), auditory masking (e.g. interruptions in type or timing of vocalisations), auditory stress (referred to as temporary threshold shift or TTS) and possible auditory injury (referred to as a permanent threshold shift or PTS).
102. Dr Clement¹⁷¹ explains that any increase above normal ambient levels, also known as chronic noise pollution, can affect individual animals. Recent research suggests that chronic noise effects, also known as underwater noise pollution, are the greater impact (compared to acute noise effects) as they can lead to negative consequences for whole ecosystems. In Dr Clements¹⁷² view, this is why it is so critical for TTRL to have collected baseline data on the STB's soundscape in the Proposal area and nearby regions. With this information, any potential change in cumulative noise on the current average ambient soundscape from the Proposal could have been assessed.
103. Dr Clement¹⁷³ has determined that TTRL's activity will become the 'noisiest' source in this region of the STB, once larger vessels are out of audible range and during low traffic periods, and it will be a constant noise source.
104. Dr Torres¹⁷⁴ considers that the further work she has undertaken in the STB since 2023 and the 2024 TTR reconsideration hearings, has reaffirmed her opinion that the proposal

¹⁶⁸ Paragraph 38, 51 and 74.2, Dr Clement, 1 October 2025

¹⁶⁹ Paragraph 74.2, Dr Clement, 1 October 2025

¹⁷⁰ Paragraph 38, Dr Clement, 1 October 2025

¹⁷¹ Paragraph 39 and 51, Dr Clement, 1 October 2025

¹⁷² Paragraph 52, Dr Clement, 1 October 2025

¹⁷³ Paragraph 50, Dr Clement, 1 October 2025

¹⁷⁴ Paragraph 11, Dr Torres draft evidence dated 18 September 2025

is inappropriate for this area and would put at risk the viability of the STB as suitable habitat for Pygmy Blue whales.

105. Dr Torres¹⁷⁵ sets out an overall concern that the combined effects of chronic noise, increased vessel traffic, and sediment disruption pose long-term, cumulative risks to blue whales and their ecosystem. Dr Torres¹⁷⁶ considers that the sound propagation model is fundamentally flawed due to a lack of relevant empirical data on the source levels of noise produced; and understand effects there is a need to assess the impacts of the mining operation across a more realistic range where sound and sediment plume will extend.
106. Dr Clement¹⁷⁷ considers that TTR's application lacks critical information on the existing environment (from a marine mammal perspective) on ambient underwater sound. Dr Clement¹⁷⁸ has considered the baseline information necessary to construct realistic sound propagation models and is of the view that TTR could have at least undertaken initial measurements of underwater ambient sound. Dr Clement's experience is that other applications provide such baseline information citing other fast track applications and that monitoring and research studies have been undertaken which could provide some baseline data and be used to model cumulative impacts.¹⁷⁹
107. Dr Clement¹⁸⁰ considers a fundamental error in the application is the approach that all necessary information to ensure adequate protection of these species against any adverse effects could be gathered once the required approvals are granted.
108. Dr Clement¹⁸¹ has set out that the application lacks critical information on the existing environment (from a marine mammal perspective) on ambient underwater sound. That, without baseline underwater acoustic information, it is extremely difficult to properly assess the full range of potential adverse effects that this Proposal could create for marine mammal species that rely on sound for their primary sense.¹⁸²

¹⁷⁵ Paragraph e, Dr Torres draft evidence dated 18 September 2025

¹⁷⁶ Paragraph 29, Dr Torres draft evidence dated 18 September 2025

¹⁷⁷ Paragraph 29, Dr Clement, 1 October 2025

¹⁷⁸ Paragraphs 30 and 31, Dr Clement, 1 October 2025

¹⁷⁹ Paragraphs 31 and 32, Dr Clement, 1 October 2025

¹⁸⁰ Paragraph 20, Dr Clement, 1 October 2025

¹⁸¹ Paragraph 29, Dr Clement, 1 October 2025

¹⁸² Paragraph 33, Dr Clement, 1 October 2025

109. Dr Clement has considered the proposed conditions designed to limit and monitor noise from the proposed activities and has a number of concerns including:
- (a) that condition 11 noise limits would be frequently exceeded and that any such exceedance has potential to cause behavioural disturbance, physically stress (TTS) or injury the hearing (PTS) of nearby marine mammals.¹⁸³
 - (b) it is highly likely that once operations have commenced and the *in situ* noise levels of active mining by the IMV and crawler are measured, they will be louder than TTRL's predicted levels despite proposed Conditions 13 and 14 certification and testing processes.¹⁸⁴
 - (c) there are limited management or mitigation options available to TTRL to reduce noise once the Proposal's operation has commenced and that the only option to adequately mitigate the effects at that point would be to severely limit the amount of mining to only occur in certain conditions or times/volume limits.¹⁸⁵
 - (d) that there is no condition requiring TTRL to maintain the average ambient noise at an agreed upon level at or near the current existing state (e.g. <1dB).¹⁸⁶
110. I have considered Dr Clements concerns with the adequacy of noise conditions in my assessment of proposed conditions later in this evidence.
111. However, with respect to effects of vessel collision, gear entanglement, spill and sediment plume effects, it is Dr Clement's opinion that these can be adequately managed by the proposed conditions.¹⁸⁷
112. Dr Torres¹⁸⁸ has considered the whole period of harm and overall considers that there is potential for material harm and significant adverse effects to marine mammal populations that use the STB region.
113. Dr Torres¹⁸⁹ has referred to the term of consent sought being 20 years as opposed to previous applications for 35 years. While 20 years is correct for the duration of extraction activities as describe in TTRs 2025 Application, my understanding is that term sought

¹⁸³ Paragraphs 41 and 43, Dr Clement, 1 October 2025

¹⁸⁴ Paragraph 42, Dr Clement, 1 October 2025

¹⁸⁵ Paragraphs 57 and 58, Dr Clement, 1 October 2025

¹⁸⁶ Paragraph 64, Dr Clement, 1 October 2025

¹⁸⁷ Paragraph 35, Dr Clement, 1 October 2025

¹⁸⁸ Paragraph 42, Dr Torres draft evidence dated 18 September 2025

¹⁸⁹ Paragraphs 21 and 25, Dr Torres draft evidence dated 18 September 2025

remains at 35 years. Other activities will occur prior and post extraction which may have impacts on marine mammals. Regardless, Dr Torres maintains her concerns on effects of the proposal on marine mammals as set out in her earlier evidence.

114. I have considered the 2023 evidence of Dr Childerhouse,¹⁹⁰ Dr Torres¹⁹¹ and Dr Slooten¹⁹² on marine mammals (which included new information since 2017) on the habitats and presence of cetaceans in the STB and on best practice for assessing impacts of underwater noise on marine mammals.

115. My reading of this evidence is that there remains uncertainty about the extent of effect on marine mammals due to:

- (a) the absence of a survey information for marine mammals within and near the consent area;
- (b) the absence of abundance estimates of marine mammals and their use of the wider STB;
- (c) the reliance on underwater noise estimates for what the activity may generate;
- (d) uncertainties with plume modelling; and
- (e) uncertainties with how marine mammals may respond to effects of the activity.

116. Dr MacDiarmid's¹⁹³ opinion is that granting consent, subject to the proposed conditions, will avoid material harm, and will favour caution and environmental protection in relation to the effects of the proposed mining operations and resulting sedimentation on biota in the STB, including ecological effects on marine mammals.

117. Dr Childerhouse¹⁹⁴ considers that where the best available information may include gaps or uncertainty, it is still possible to proceed in making sensible judgements while accounting for uncertainty and including a precautionary approach if required.

¹⁹⁰ Paragraphs 27 to 70, 85 and 86 Dr Childerhouse 19 May 2023

¹⁹¹ Paragraph 10 and 11, evidence of Dr Torres 2023

¹⁹² Paragraph 9, Additional public sightings, evidence of Dr Slooten 2023

¹⁹³ Paragraph 35 and 41, Dr MacDiarmid 19 May 2023 and paragraph 36, Dr MacDiarmid rebuttal evidence 23 January 2024

¹⁹⁴ Paragraph 46(f) Dr Childerhouse 19 May 2023 and Paragraph 9, Dr Childerhouse rebuttal evidence, 23 January 2024

118. Dr Childerhouse¹⁹⁵ acknowledges that noise produced by the operation cannot be known until it actually starts. However, he considers that predicting underwater noise levels is not essential as Condition 11 sets a maximum noise level limit from the operation, as such he considers the maximum noise level is known and can be assessed.
119. Dr Childerhouse¹⁹⁶ considers that there is no risk of either TTS or PTS for any marine mammal species at 500 m or further from the operation even if they spend 24 hours in the area. He explains that notwithstanding these results at 500 m from the operation, it is possible for TTS or PTS to potentially occur within 500m of the operation.
120. Dr Childerhouse¹⁹⁷ confirms that if there are any threatened or at-risk marine mammals in the area of the proposed activity he does not think there will be any adverse effects on them nor any significant adverse effects on their habitat. He considers the activity and proposed conditions will meet the terms of Policy 11(a) and (b) of the NZCPS.
121. The evidence of Dr Torres¹⁹⁸ sets out research findings on blue whales, including that Blue whales in Aotearoa are a unique population (estimated population size of 718) and that Blue whales reside in the STB region year-round, using the area for foraging, nursing and breeding. These findings are confirmed and population numbers updated in her 2025 evidence.
122. Dr Torres considers:
- (a) There is insufficient information to determine the degree of impact to (a) the turbidity of the water column that may impact whale foraging efficiency, and (b) sediment plume, deposition and pollution that may impact the health and productivity of the krill prey of blue whales and blue whales themselves.¹⁹⁹
 - (b) With respect to noise effects, Dr Torres does not consider there is sufficient evidence to conclude that there will be no material harm or no adverse effects caused by the proposed TTR mining operation.²⁰⁰

¹⁹⁵ Paragraph 32(b) Dr Childerhouse 19 May 2023 and Paragraph 13, Dr Childerhouse rebuttal evidence, 23 January 2024

¹⁹⁶ Paragraphs 16 and 17, Dr Childerhouse 23 January 2024

¹⁹⁷ Paragraph 50, Dr Childerhouse 23 January 2024

¹⁹⁸ Paragraph 10, Dr Torres 6 October 2023

¹⁹⁹ Paragraph 25, Dr Torres 6 October 2023

²⁰⁰ Paragraph 33, Dr Torres 6 October 2023

- (c) Dr Torres considers that permitting TTR activities in this consent area would disregard the goals and ethos of the IUCN IMMA to protect important marine mammal habitats and global ocean biodiversity.²⁰¹
123. Dr Torres²⁰² considered the qualitative, temporal, quantitative and spatial effects to marine mammals, in particular blue whales that reside year-round in the STB region and Critically Endangered Maui dolphin, and the proposed conditions of consent. She considers that:
- (a) the proposal may result in material harm to these vulnerable marine mammal populations and consider the uncertainty of impacts to be too great to proceed.
 - (b) that the potential effects of TTR's proposed activities will not be addressed by the proposed conditions of consent.
 - (c) the proposal does not favour caution or environmental protection.
 - (d) overall that there is potential for material harm and significant adverse effects to marine mammal populations that use the STB region due to elevated noise, reduced forage and elevated risk of ship strike.
 - (e) There is insufficient evidence at this time to determine whether there will be material harm to marine mammal populations in the STB region caused by the noise and sediment plume impacts of the TTR mining operation.
124. Based on 2023 and 2024 evidence there appears to be some level of agreement between experts on uncertainty with available data on marine mammals and on the importance of the STB to marine mammals. However, there are different views on the importance of this to determining importance of the project site and managing effects of the operation on marine mammals. Dr Clement has set out how she considers these uncertainties can be approached, as discussed above. Dr Torres recent 2025 sightings of blue whales and other marine mammals²⁰³ may assist in this respect.
125. A key planning issue that arises is whether these uncertainties and potential for significant adverse effects identified by some experts, can be appropriately managed through conditions.

²⁰¹ Paragraph 35, Dr Torres 6 October 2023

²⁰² Paragraphs 41 to 44, Dr Torres 6 October 2023

²⁰³ Paragraph 37, Dr Torres draft evidence 18 September 2025

126. Dr Clement's²⁰⁴ evidence is that proposed conditions on noise are inadequate to address adverse effects of underwater noise and protect marine mammals. Dr Clement's evidence is that:
- (a) the underwater noise of the mining operation effects on marine mammals resulting in physical injury would be less than minor to more than minor (Appendix 1)
 - (b) the cumulative underwater noise effects on marine mammals resulting in displacement or avoidance (behavioural masking) from the proposal would be more than minor to significant (Appendix 1)
127. The conclusions of these experts in terms of potential for adverse effects on marine mammals will need to be considered in terms of s59, including under clause (2) of the EEZ Act:
- (a) *any effects on the environment or existing interests of allowing the activity, including—*
 - (i) *cumulative effects; and*
 - (ii) *effects that may occur in New Zealand or in the waters above or beyond the continental shelf beyond the outer limits of the exclusive economic zone;*
 - (d) *the importance of protecting the biological diversity and integrity of marine species, ecosystems, and processes; and*
 - (e) *the importance of protecting rare and vulnerable ecosystems and the habitats of threatened species; and*
 - (h) *the nature and effect of other marine management regimes.*
128. The conclusions of these experts in terms of whether there is insufficient information and uncertainty and whether the proposal favours caution and environmental protect will need to be considered in the context of s61 information principles of the EEZ Act.

Effects on seabirds

129. In his 2025 evidence Dr Cockrem has confirmed his conclusions from his 2023 evidence and states he is not aware of any data that might have become available since 2023 that would alter those conclusions. Dr Cockrem has attached his 2023 evidence.
130. I have considered the seabird evidence of Dr Thompson²⁰⁵ and Dr Cockrem²⁰⁶ from 2023 and 2024, including with respect to the extent that new information since 2017 may

²⁰⁴ Paragraph 22 and 74, Dr Clement, 1 October 2025

²⁰⁵ Dr Thompson evidence of 19 May 2023 and rebuttal evidence of 23 January 2024

²⁰⁶ Dr Cockrem evidence of 2025 and attached evidence of 06 October 2023

address uncertainties or information gaps, whether information gaps remain, the potential for adverse effects and whether such effects can be adequately addressed by the conditions of consent. I have also considered the 2024 Joint Witness Statement on effects on seabirds produced by Dr Thompson and Dr Cockrem.²⁰⁷

131. Both experts agreed on new information including:²⁰⁸

- (a) A 2014 list of seabird species likely to occur in the South Taranaki Basin which was not presented to the DMC in 2017
- (b) There are now six more years of data for occurrences of birds in the STB
- (c) Newly available results of kororā tracking studies that show kororā from Mana Island swim long distances to feed in the STB
- (d) That the unique characteristics of the STB as a key area for seabirds are now recognised in the designation by the IUCN (International Union for Conservation of Nature) of the Cook Strait and Marlborough Sounds key biodiversity areas.
- (e) The extent of adverse effects on seabirds of climate change is now known to be much greater than was apparent in 2017.

132. Both experts also confirm points 6a)-p) as recorded in the 2017 Joint Statement.²⁰⁹ These points include agreement that:

- (a) the STB is within the Cook Strait Important Bird and Biodiversity Area and is, therefore, of international significance for the conservation of seabirds.²¹⁰
- (b) a number of 'threatened' and 'at risk' taxa (as defined by the New Zealand Threat Classification System) occur within the STB (conservatively ten and 24 taxa, respectively) year-round or seasonally.²¹¹
- (c) there are reports of large numbers of seabirds present within the STB, for example 100,000 prions.²¹²

²⁰⁷ Joint Statement of Experts in the field of effects on seabirds dated 20 February 2024.

²⁰⁸ Paragraph 9, Joint Statement of Experts in the field of effects on seabirds dated 20 February 2024

²⁰⁹ Paragraph 8, Joint Statement of Experts in the field of effects on seabirds dated 20 February 2024

²¹⁰ Paragraph 6a), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²¹¹ Paragraph 6b), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²¹² Paragraph 6c), Joint Statement of Experts - effects on seabirds dated 16 February 2017

- (d) there have been no systematic and quantitative surveys of little penguins and other seabirds within the STB.²¹³
- (e) been no systematic surveys of the coastlines adjacent to the STB for the presence of breeding little penguins, that observations of penguin tracks on beaches near Hawera and near Opunake are strong evidence that little penguins breed along the Hawera and Opunake coastlines, that the full extent of breeding of little penguins in the region remains unknown and that it is likely that little penguins breed along the STB coastline.²¹⁴
- (f) little penguins swim up to 170 km from Motuara Island in the Marlborough Sounds to the STB and that little penguins breeding in the Marlborough Sounds are known to experience food shortages.²¹⁵
- (g) increased turbidity from the proposed sand mining would affect seabirds.²¹⁶
- (h) 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.²¹⁷

133. There was disagreement on the extent of potential adverse effects:

- (a) Dr Cockrem's view was that the STB may be an important if not crucial feeding area for the continued survival of populations of little penguins that breed in the Marlborough Sounds. Dr Thompson disagreed with this view.²¹⁸
- (b) With respect to little penguins, which are visual foragers, Dr Cockrem's view was that reductions in light intensity and visibility in the water due to sand mining would reduce foraging opportunities for penguins. Dr Thompson disagreed and was of the view that little penguins would be unaffected by relatively small reductions in light intensity and visibility in the water.²¹⁹
- (c) With respect to little penguins, and with the proposal to mine sand for 35 years, Dr Cockrem's view was that mining over this period could cause declines or even

²¹³ Paragraph 6d), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²¹⁴ Paragraph 6e), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²¹⁵ Paragraph 6f), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²¹⁶ Paragraph 6 g) and h), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²¹⁷ Paragraph 6m), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²¹⁸ Paragraph 6f), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²¹⁹ Paragraph 6i), Joint Statement of Experts - effects on seabirds dated 16 February 2017

extinctions of local populations. Dr Thompson disagreed, arguing that any effect on penguins would be too small for population declines or extinctions to occur.²²⁰

- (d) Dr Cockrem's view was that while the extent to which mining would adversely affect fairy prions in the STB cannot be determined, any reduction in food availability due to mining could affect large numbers of prions. Dr Thompson disagreed, taking the view that fairy prions would not be adversely affected by the proposed mining, primarily because the foraging range of fairy prions is very much larger than any area that would be affected by mining.²²¹
 - (e) Dr Cockrem's view was that the reduction in light intensity and visibility in the water would adversely affect the foraging of seabirds other than penguins. While Dr Thompson's view was that there would be no such adverse effect because the foraging range of seabirds is very much larger than any area that would be affected by mining.²²²
 - (f) Dr Cockrem's view was that mining would have adverse effects on seabirds, including 'threatened' and 'at risk' taxa. While Dr Thompson's view was that there would be no adverse effects on seabirds.²²³
134. Dr Thompson²²⁴ considers there is no new or substantive information produced on the abundance and distribution of seabirds and shorebirds in and adjacent to the STB. He then provides an update on changes to threat classifications, considers the existing environment and provides an assessment on potential effects on seabirds and shorebirds.
135. Dr Thompson has concluded that information on seabirds is sufficient for him to conclude that the proposed mining, regulated by appropriate conditions²²⁵ will not result in material harm to seabirds, and that a grant of consent on this basis would achieve the requirement of favouring caution and environmental protection.

²²⁰ Paragraph 6j), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²²¹ Paragraph 6k), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²²² Paragraph 6 L), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²²³ Paragraph 6n), Joint Statement of Experts - effects on seabirds dated 16 February 2017

²²⁴ Dr Thompson [11], 2023

²²⁵ At [47] Dr Thompson considers the conditions and associated management plans provide adequate safeguards for the protection of seabirds.

136. Dr Cockrem²²⁶ considers further information available since 2017, including: more comprehensive list of seabird species; results of kororā tracking studies;²²⁷ IUCN recognition of unique characteristics of the STB; and the effects of climate change on seabirds.²²⁸
137. Dr Cockrem identifies²²⁹ that no systematic observations have been made from boats to determine the abundance and distribution of seabirds in the South Taranaki Bight throughout the year and across different years. The total number of seabird species using the STB is therefore not known.²³⁰ Dr Cockrem considers that the absence of information on breeding success and survival of populations of seabirds that use the STB, mean that it is not possible to determine the full extent of potential adverse effects.
138. Dr Cockrem²³¹ identifies a number of potential effects of the sandmining activities on seabirds.²³² He concludes that available evidence indicates that the proposed sand mining in the STB for a period of 30 years, would have adverse effects on populations of seabirds and would result in material harm. He considers that effects from the suspended

²²⁶ Paragraphs 8 to 11, Dr Cockrem 6 October 2023

²²⁷ At paragraphs 46 to 51 Dr Cockrem considers the importance of the Patea Shoals to kororā for foraging and sets out that Kororā also forage in deep water off the Manawatu and Whanganui coast.

²²⁸ At paragraph 64 Dr Cockrem sets out that sand mining will have a cumulative effect on these seabird populations already under stress from climate change and would exacerbate these population declines.

²²⁹ Paragraphs 21, 22 and 64, evidence of Dr Cockrem 6 October 2023

²³⁰ This is disputed by Dr Thomson, [10] rebuttal evidence 2024

²³¹ Paragraphs 63 to 85, Dr Cockrem 6 October 2023

²³² Paragraphs 66 to 71, 73, 74, 75 and 81 to 83 of Dr Cockrem's identifies the following effects:

- (a) increase turbidity in the water and reduce foraging efficiencies for kororā and for many other species of seabirds foraging below the surface of the water in the STB.
- (b) reduce the availability of food for seabirds by reducing primary productivity due to reductions in the amount of light that would reach below the surface of the sea.
- (c) reduce zooplankton concentrations, leading to reductions in food availability for seabirds such as fairy prions that feed on zooplankton
- (d) Reduced zooplankton concentrations would lead to reductions in fish numbers, leading to reductions in food availability for kororā and other seabirds that feed on fish
- (e) be particularly strong in the Patea Shoals area. Sediment could partially or fully smother the numerous reefs that have abundant plant, invertebrate and vertebrate marine life that contribute to this area being especially important as a feeding area for fairy prions and kororā.
- (f) reductions in food availability and foraging opportunities in the Patea Shoals could lead to permanent loss of already declining breeding populations of kororā.
- (h) Potential for reduced survival of fairy prions which over three decades combined with climate change impacts on food supply could lead to an irreversible decline in population.
- (i) potential for adverse effects of artificial lights and that 44 taxa of seabirds are likely to be present in the STB and hence vulnerable to attraction to light on mining vessels

sediment plume for Kororā and Fairy prions would be adverse and potentially significant.²³³

139. Dr Cockrem considers:

- (a) that there a high risk of seabird mortality due to lights on mining vessels;²³⁴
- (b) that adverse impacts from effects of artificial lighting on seabirds, would include on Threatened and At-risk species;²³⁵
- (c) that the extent of effect is dependent on the location (i.e. if close to feeding areas), duration, and intensity of the source, recognizing that light effects are also cumulative;²³⁶ and
- (d) that the STB is an important feeding area for fairy prions and other Procellariiforme species.²³⁷

140. Dr Cockrem²³⁸ also sets out that there have not been systematic at-sea surveys of seabirds in the STB.

141. My reading of Dr Cockrem's evidence is that new information considered in his 2023 evidence gives him more reason to be concerned about potential effects of the sand mining activities on seabirds. He has also set out that there is insufficient information to determine the full extent of potential adverse effects.

142. Dr Cockrem²³⁹ has confirmed his previous conclusions, that the available evidence that we do have²⁴⁰ indicates that the proposed sand mining in the STB for a period of 30 years, would have adverse and cumulative adverse effects on populations of seabirds and would result in material harm. He considers that effects for Kororā (little penguins) and Fairy prions would be adverse and potentially significant.

²³³ Paragraph 72, Dr Cockrem 6 October 2023

²³⁴ Paragraph 97. a., Dr Cockrem 6 October 2023

²³⁵ Paragraphs 82-84 and 54 to 63, Dr Cockrem 6 October 2023

²³⁶ Paragraph 96. a., Dr Cockrem 6 October 2023

²³⁷ Paragraph 82, Dr Cockrem 6 October 2023

²³⁸ Paragraph 22, Dr Cockrem 6 October 2023

²³⁹ Paragraphs 7d) set out uncertainties with available information, Dr Cockrem 19 May 2025

²⁴⁰ Paragraphs 7a) to c) set out uncertainties with available information, Dr Cockrem 19 May 2025

Requirements for Assessing Marine Consent applications under the FTA Act

Decision making framework

143. I generally agree with the application impact assessment (IA) on the decision making framework.²⁴¹ I consider specific reference to s81(4) of the FTA Act should be also be included. The framework for decision making for marine consents under the FTA Act to be considered by the panel:

- (a) Must consider the application and any advice, report, comment or other information received (section 81(2)(a));
- (b) Must take into account the following matters, giving the greatest weight to the first matter (section 81(2)(b), 81(3)(L) and Schedule 10 clause 6):
 - i. The purpose of the FTA Act (section 7);
 - ii. The purpose of the EEZ Act (section 10);
 - iii. The international obligations provision of the EEZ Act (section 11);
 - iv. The decision-making criteria in the EEZ Act (sections 59-60);
 - v. Some of the information principles in the EEZ Act (section 61(1)(b) and (c));
 - vi. The adequacy of the information (under section 62(2) of the EEZ Act); and
 - vii. The condition-making provisions of the EEZ Act (sections 63-67);²⁴²
- (c) Must consider the extent of the project's regional or national benefits when taking the purpose of this FTA Act into account (section 81(4));
- (d) Must comply with the Treaty provision of the FTA Act (section 82);
- (e) Must comply with the condition-making provision of the FTA Act (section 83)

²⁴¹ Section 8.2 The Framework, Application and Impact assessment

²⁴² Not only do Sections 63 to 67 of the EEZ Act have to be taken into account under clause 6 of Schedule 10, they also apply directly to the expert panel under clause 7 of Schedule 10, *with any necessary modifications as if the references to a marine consent authority in those sections were references to the panel.*

- (f) May impose conditions relating to Treaty settlements and recognised customary rights under the FTA Act (section 84); and
- (g) May decline approval only in accordance with section 85 of the FTA Act
144. I have considered the caselaw guidance on the meaning of “taking into account” as set out in the IA (section 8.2 of the application):
- “Taking into account” any factor means the factor must be weighed alongside all other factors but does not dictate what weight it must be given in that assessment. It may be given considerable, moderate, little or even no weight at all depending on the circumstances.²⁴³*
145. The FTA Act requires that, in “taking into account” the greatest weight is given to the purpose of this Act. I consider what taking into account the purpose of the FTA Act may require below. An understanding of the projects regional and national benefits is required to undertake the analysis in s 81, 85 and Clause 10 of Schedule 10.
146. I have considered the SC guidance in terms of how the EEZ Act provisions are to be assessed. In my opinion this remains relevant given that same requirement “to take into account” the EEZ Act also required decision makers to “take into account” the matters under s59 and 61(1)(c) of the EEZ Act.
147. I do not agree with the IA assessment that the SC direction on the application of bottom lines is not applicable.²⁴⁴ The requirement for greater weight (s81 of the FTA Act) and the direction on when an application may be declined (s85 of the FTA Act) does not in my view mean that the consideration of bottom lines in the EEZ Act is irrelevant, as the IA assessment would suggest.
148. The purpose of the EEZ Act, which the SC identified includes a bottom line for material harm (s 10(1)(b) of the EEZ) and the associated bottom lines determined in assessing MMRS under s59(2)(h), is relevant to the assessment required by Clause 6 of Schedule 10 of the FTA. As I set out in my conclusions on s59 below, those bottom lines may be relevant to when considering the extent of adverse impacts under s85(3).

²⁴³ *Bleakley v Environmental Risk Management Authority* [2001] 3 NZLR 213 at [72].

²⁴⁴ Page 320 of the Application

Assessment of applications under s81 and Schedule 10 FTA Act

Taking into account the purpose of the FTA Act

149. Under section 81 and Schedule 10, clause 6 of the FTA Act, the purpose of the Act must be taken into account and given the greatest weighting.

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

150. Taking this purpose into account requires consideration of the extent of the project's regional and national benefits (section 81(4)).

151. Of relevance section 81(4) states that:

When taking the purpose of this Act into account under a clause referred to in subsection (3), the panel must consider the extent of the project's regional or national benefits.

152. This suggests that the extent of the project's benefits is a critical factor when taking into account the purposes of the FTA Act. I consider that reading s81(2)(b) and s81(4) together the extent of the project's regional or national benefits impacts the weight given to the purpose of the FTAA. The greater the regional and national benefits, the more weight to be given to the purpose of the FTAA.

153. If a project did not have significant regional or national benefits, the purpose of the FTA Act to facilitate the delivery of infrastructure and development projects would not apply to the project. I consider how this may impact decision making under s85 below.

154. I have considered the economic evidence in the NZIER report in support of the application, the BCA report on behalf of KASM and Greenpeace and the evidence of Prof. Banks on behalf of Forest & Bird, in my effects assessment above.

155. The NZIER report identifies a number of benefits at a regional and national level which are largely reflected in the IA for the application. However, the NZIER report does not state whether those benefits are significant.

156. The BCA report considers the findings of the NZIER report and concludes that without a detailed social benefit cost analysis, it is not possible to determine whether the project provides a net benefit to the people of New Zealand-Aotearoa at the local, regional or national level.

157. Prof. Banks has reviewed the NZIER report and concludes that there is effectively no benefit at national level and that benefits at the regional level would not be significant.

158. The evidence of Prof. Banks is that the project would have effectively no benefits at national level and at the regional level benefits would not be significant.
159. On this evidence the extent of benefits would have little weight in my view, when taking into account the purpose of the Act under clauses 6 and 7 of Schedule 10.

Taking into account the purpose of the EEZ Act

160. Under section 81 and Schedule 10, clause 6 of the FTA Act, the purpose of the EEZ Act must be taken into account

10 Purpose

(1) The purpose of this Act is—

- (a) to promote the sustainable management of the natural resources of the exclusive economic zone and the continental shelf; and*
- (b) in relation to the exclusive economic zone, the continental shelf, and the waters above the continental shelf beyond the outer limits of the exclusive economic zone, to protect the environment from pollution by regulating or prohibiting the discharge of harmful substances and the dumping or incineration of waste or other matter.*

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

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

(3) In order to achieve the purpose, decision-makers must—

- (a) take into account decision-making criteria specified in relation to particular decisions; and*
- (b) apply the information principles to ~~the development of regulations under section 27, 29A, 29B, or 29E and~~ the consideration of applications for marine consent.²⁴⁵*

161. While I agree with the IA²⁴⁶ that clause 6(d) of Schedule 10 of the FTA requires the Expert Panel to take into account all of the same decision-making criteria as s 10(3)(a) and almost all of the same information principles as s 10(3)(b), I do not agree that s10(3) is inapplicable. In my opinion, s 10(3) must still be “taken into account” as part of the

²⁴⁵ “the development of regulations under section 27, 29A, 29B, or 29E and” is required to be taken into account under clause 6(d) of Schedule 10 of the FTA.

²⁴⁶ Third paragraph page 314 of the Application

purpose of the EEZ Act. That clause is not excluded from the requirement under section 81 and Schedule 10 clause 6 of the FTA Act.²⁴⁷

162. However, I do agree that s 10(3) should not be read as direction for decision makers to “achieve the purpose” of the EEZ Act, but rather as setting out additional matters relevant to the purpose of the EEZ Act, which must be “taken into account” under the FTA Act decision making framework. Section 10(3) effectively draws s59 and s61 into the purpose of the EEZ Act. In my view, this means that, if the proposal is inconsistent with provisions of s59 and / or s61, there will likely be an impact when the Panel considers the matters required under s 81(2)(b).
163. I generally agree with the summary set out in the IA,²⁴⁸ of the SC findings on s 10(1)(b) of the EEZ Act. However, I am concerned that the IA conclusion that “Any factor that is only required to be “taken into account” cannot constitute an “environmental bottom line” may disregard the importance of bottom lines to assessing the proposal against the relevant sections of the EEZ Act.
164. While I accept that an “environmental bottom line” under the EEZ Act may not be determinative for an application under the FTA Act, it is none the less a relevant consideration.
165. In my opinion, recognising bottom lines under the EEZ Act and what activities may breach those bottom lines, is necessary to adequately consider the EEZ Act provisions which are to be taken into account in decision making under the FTA Act. Whether there is consistency or inconsistency with a bottom line will impact the weight given to the matters in s 81(4).
166. Technical and ecological experts have considered effects of sediment plume and sediment discharges in terms of whether or not adverse effects are likely to result in material harm.²⁴⁹ I consider material harm further below.
167. I have considered the IA²⁵⁰ statement with respect to the SC consideration on the role of economics in the assessment of material harm. Whether it is necessary to resolve any

²⁴⁷ This excludes s 61(1)(a) of the EEZ Act which is not applicable to decision making under the FTA Act.

²⁴⁸ Page 315 of the Application

²⁴⁹ For example, the second paragraph of 5.8.1 in the Application. Also see my consideration of effects assessments above.

²⁵⁰ Fourth paragraph page 315 of the Application

apparent disagreement in the SC decision is a legal and economic matter beyond my expertise. However, I do not see how the requirement to give greater weight to “benefits” under the FTA purpose would negate the need for an adequate assessment against s10(1)(b). I consider it is important to also recognise that the purpose of the FTA Act relates to regionally significant or nationally significant benefits and that it is not any economic benefits which are to be given greater weight in an assessment under the FTA Act.

168. If the proposal does not achieve the purpose of the EEZ Act, this is relevant matter to take into account in decision making under s 81 FTA Act. The specific factors that contribute to such a finding, including adverse impacts under 59, will need to be considered under s85 of the FTA Act and the significance of those impacts in proportion to the extent of regional and national benefits of the project.
169. I consider that the purpose of the EEZ Act is relevant to decision making under s85(3) of the FTA Act. The purpose of the EEZ Act will be relevant to assessing the significance of impacts under s 85(3).
170. For the reasons I set out in my conclusions on s59 of the EEZ Act below, I consider that unless the decision maker can be satisfied that conditions can be imposed that mean harm is not material, that the purpose of the EEZ Act will not be achieved if the proposal is approved.

Material harm and s10(1)(b) EEZ Act

171. Having considered the SC findings on material harm and bottom lines, I consider the approach to material harm under s10(1)(b) also applies to bottom lines under relevant marine management regimes (MMRs) considered under s59(2)(h) of the EEZ Act.²⁵¹ I consider an assessment of material harm applies to the effects of sediment from the proposal within the EEZ and CMA²⁵² and, that, on the consideration of the SC majority, MMR bottom lines cannot be outweighed by other s 59 factors²⁵³ and have a synergy with s 10(1)(b).²⁵⁴

²⁵¹ My full assessment on Material harm is set out in Appendix 1.

²⁵² My understanding that the sediment plume as it leaves the extraction site largely extends into the CMA.

²⁵³ Supreme Court decision [10]

²⁵⁴ Supreme Court decision [280]

172. I consider that this means that the MMR bottom lines are a determining factor to material harm. The effect of this is that any adverse effects of the sediment being inconsistent with an MMR bottom line, would be considered material harm in terms of s10(1)(b).
173. The SC said that the question of whether harm is material is a factual enquiry that includes an assessment of the impact on the marine ecosystem and those that rely on it.²⁵⁵ The assessment is to take into account the relevant qualitative, quantitative, temporal and spatial aspects of the matter.²⁵⁶
174. My full assessment of how material harm should be considered in terms of s10(1)(b) is set out in Appendix 1. Material Harm.
175. The SC²⁵⁷ has determined the following three step test for assessing applications for marine discharge and dumping consents to satisfy decision makers that harm is not material:
- [5] Accordingly, decision-makers must follow a three-step test when assessing applications for marine discharge and dumping consents under the EEZ Act:*
- (a) Is the decision-maker satisfied that there will be no material harm caused by the discharge or dumping? If yes, then step (c) must be undertaken. If not, then step (b) must be undertaken.*
- (b) Is the decision-maker satisfied that conditions can be imposed that mean:*
- (i) material harm will be avoided;*
- (ii) any harm will be mitigated so that the harm is no longer material; or*
- (iii) any harm will be remedied within a reasonable timeframe so that, taking into account the whole period harm subsists, overall the harm is not material?*
- If not, the consent must be declined. If yes, then step (c) must be undertaken.*
- (c) If (a) or (b) is answered in the affirmative, the decision-maker should perform a balancing exercise taking into account all the relevant factors under s 59, in light of s 10(1)(a), to determine whether the consent should be granted.*
176. The SC found that an application was not limited to having to show there was no material harm and accepted that conditions may be used to address material harm. My understanding is that the application is put forward on evidence that with the conditions

²⁵⁵ Supreme Court decision [311]

²⁵⁶ Supreme Court decision [3], [255], 293] and [310]

²⁵⁷ Supreme Court decision [4] and [5]

proposed material harm would be avoided, mitigated or remedied so that harm is not material.²⁵⁸

177. This suggest that the first step (a) “no material harm” of the SC 3 step test is not met. I have therefore focused on consideration of the second step (b) and third step (c) in this evidence.
178. I have considered these steps further in my assessment of bottom lines under s59 of the EEZ Act, in considering proposed conditions of consent under s63 of the EEZ Act and s83 and in decision making under s85 of the FTA Act below .
179. For the reasons explained under s59 and s63 assessment below, I find that the proposal will result in material harm and breach the bottom line in s10(1)(b) of the EEZ Act. This is on the basis of findings in the DMC 2017 decision and evidence of some experts on matters where experts are not agreed, on my assessment of proposed conditions and unless the decision maker can be satisfied that conditions can be imposed that mean harm is not material.
180. These inconsistencies result from discharge effects of the sediment plume on significant areas and values, such as the Project Reef, blue whales and on kororā. In my opinion those adverse effects would be inconsistent with the s10 purpose of the EEZ.
181. However, under the FTA Act and in contrast to an application under the EEZ Act, breaching the bottom lines of s 10(1)(b) does not mean that consent must be declined. The breach of a bottom line is a matter to be considered under s 81(2)(b) and Clause 6 of Schedule 10. However, before declining consent, an assessment must be made under s 85(3) of the adverse impacts of the activity and the extent of regional and national benefits. It is only if the impacts of the activity are out of proportion with the regional and national benefits that consent can be declined.

Taking into account s11 of the EEZ Act

182. The requirement to take into account applies to: The s11 International obligation of the EEZ Act.

11 International obligations

²⁵⁸ For example, paragraph 7, Dr Childerhouse, 19 May 2023; Paragraph 41, Dr MacDiarmid 19 May 2023;

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

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

(b) the Convention on Biological Diversity 1992:

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

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

183. The intent of section 11 is that New Zealand's obligations under various international conventions relating to the marine environment are continued and able to be implemented.
184. Section 11 sets out a non-exclusive list of international obligations which must be taken into account in that context.
185. The IA assessment²⁵⁹ refers to the SC decision and case law and draws the conclusion that the [EEZ] Act itself is intended to implement New Zealand's obligations under the relevant instruments. The IA further considers that because the intention is not replicated in the FTA Act, parliament is not relying on the FTA to implement New Zealand's obligations under those same instruments.
186. It is beyond my expertise to draw any conclusions on those legal considerations. However, from a planning perspective in assessing the EEZ Act provisions in accordance with s 81 and clause 6 of Schedule 10 of the FTA Act, I consider there is specific direction to take into account s11 of the EEZ Act in assessing this application.
187. I consider this requires some consideration on whether approving the project would impede the continuation and implantation of the listed international obligations and any other relevant international obligations.
188. Other relevant international obligations may include any obligations on New Zealand as a member of the International Union for Conservation of Nature (IUCN) – this convention is specifically mentioned in ecological evidence²⁶⁰ and in the proposed conditions from the applicant.

²⁵⁹ Page 316 of the Application

²⁶⁰ Including the evidence of Dr Cockrem dated 19 May 2025, of Dr Thompson dated 19 May 2023 and of Dr Childerhouse dated 19 May 2023. Also referred to in the draft Management Plans Appendix 5 of the Application.

189. On current information I am unable to draw any conclusions on whether the proposal is consistent with the intent of s 11 and on how this can be taken into account. Dr Childerhouse, who has identified himself as the New Zealand Coordinator for the International Union for the Conservation of Nature (IUCN) Marine Mammals Protected Area Task Force, has not raised any concerns in terms of obligations under the IUCN in his evidence. However, he may not have considered section 11 of the EEZ Act.

Taking into account the matters under s59 of the EEZ

190. Section 59 sets out a number of matters to be taken into account.²⁶¹ This includes a number of considerations with respect to effects,²⁶² the economic benefits to New Zealand,²⁶³ the efficient use and development of natural resources,²⁶⁴ best industry practice²⁶⁵ and any other matter the marine consent authority considers relevant and reasonably necessary to determine the application.²⁶⁶
191. The main issues for consideration are effects on the environment, and the matter of marine management regimes. Economic benefits are also an important consideration, which I have considered above. My consideration of the extent to which imposing under s63 might avoid, remedy or mitigate effects of the activity is set out in a specific section on conditions later in this evidence.
192. There are a few additional matters that require consideration, but which I do not consider as important or have considered elsewhere. I address these briefly now.
193. Section 59(2)(a) of the EEZ Act includes a requirement to take into account any effects on existing interests. My consideration on this is set out below under s6 1 which sets out how such effects are to be considered.
194. My understanding is that there was no disagreement between experts in terms of section 59(2)(c) human health for the 2016 application.²⁶⁷ These experts recognised the potential for bioaccumulation in Joint Witness Conferencing, and they provide specific monitoring recommendations on this. However, I notice that the Application²⁶⁸ relies on evidence of

²⁶¹ The IA sets out the relevant parts of ss 59-60 EEZ decision making criteria at paragraph 8.2.4

²⁶² S59(2)(a), (b), (c), (d), (e), (h) and (j) of the EEZ Act

²⁶³ S59(2)(f) of the EEZ Act

²⁶⁴ S59(2)(g) of the EEZ Act

²⁶⁵ S59(2)(i) of the EEZ Act

²⁶⁶ S59(2)(m) of the EEZ Act

²⁶⁷ Joint statement of experts in the field of ecotoxicology, 13 February 2017

²⁶⁸ Pages 186 and 207 of the Application

Dr Francesca Kelly from 2014 and Dr Vopel from 2013. Neither of these experts was involved in the Ecotoxicity conference in 2016. It is not clear without a thorough assessment of the management plans, which I have not undertaken, whether recommendations from the 2017 joint witness conferencing are included in the conditions proposed by the applicant.

195. In considering s 59(2)(g), which relates to the efficient use of resources, the application sets out that grade control drilling enables extraction to be planned so as to remove only the seabed material containing VTM deposits. This does suggest some efficiency in my view. However, it is not clear how manoeuvrable the extraction will be when working a face of up to 11m high and 300m wide to work around areas with high fine sediments or no VTM deposits.
196. The application has also considered that in the absence of the project the mineral would be unutilised. In my view this consideration is not relevant to assessing efficient use and development of natural resources. On that basis any use or development would be considered efficient, when the question is whether extraction is undertaken in an efficient manner.
197. The Applicant has described best practice measures with respect to s 59 (2)(i). The applicant considers that following best practice means the operation is as efficient and effective as possible. While I accept that this may be the case, I do not agree that following best practice in relation to an industry will necessarily minimise adverse effects. For example, best practice for health and safety lighting requirements on the IMV would not be as effective in terms of minimising adverse effects on birds as avoiding night time lighting. I note that during the 2024 hearings the DMC²⁶⁹ sought to clarify with Dr Dearnaley whether conditions proffered by TTR were of the same standard as international best practice. However, there does not appear to be any update from Dr Dearnaley on this.
198. The Applicant²⁷⁰ has identified two relevant regulations to consider under s 59(2)(k) These are the Exclusive Economic Zone and Continental Shelf (Environmental Effects – Permitted Activities) Regulations 2013 and the Exclusive Economic Zone and Continental

²⁶⁹ [11] TTRL DMC Minute 20, 21 March 2024

²⁷⁰ Page 350 of the Application

- Shelf (Environmental Effects—Discharge and Dumping) Regulations 2015. I am not aware of any disagreement on the relevance of those regulations with respect to the proposal.
199. The Applicant²⁷¹ has identified tikanga may be applicable law under s 59(2)(l). Pending additional information, the applicant considers that they have provided an appropriate response to tikanga as other applicable law. This is beyond my expertise to comment on.
200. The applicant²⁷² has identified the MBIE Minerals Strategy as a matter relevant and reasonably necessary to determine the application under s 59(2)(m). It is not clear why the applicant considers the strategy necessary to determine the application. In my view of the strategy does not provide any direction to assist with determining the application. In addition, the relevance of the strategy to this application may be reduced from that considered by the applicant when considering the evidence of Prof. Banks and the BCA report of economic benefits and the adverse environmental effects identified by Dr Torres, Dr Cockrem and Mr Greer, as set out in my effects assessments earlier in this evidence. The strategy specifically considers sustainable and responsible practices, sustainable project development and environmental protection and sustainability.
201. In my view the Panel could consider the DMC 2017 Decision, the SC decision and Minute 20 of the DMC dated 21 March 2024 as relevant and necessary matters to determine the application.
- (a) The DMC 2017 decision includes findings of fact that are relevant to the current application given it relies on largely the same information.
 - (b) The SC decision provides direction on how the EEZ is to be applied to decision making, which is still relevant for taking into account sections of the EEZ Act as required under the FTA Act.
 - (c) Minute 20 identified areas where additions information or certainty would assist in decision making in relation to, what appears to be substantially, the same proposal.
202. I disagree with the IA²⁷³ conclusion that elements of the SC decision are not relevant, relating to:

²⁷¹ Section 8.3.10 of the Application

²⁷² Section 8.3.11 of the Application

²⁷³ Page 320 of the Application

- (a) Policy 13(1)(a) of the NZCPS being expressed as an environmental bottom line and applied under s59(2)(h); and
 - (b) finding that inconsistency with the policy could not be outweighed by other s 59 considerations.
203. In my view these, elements are relevant to assessing the application under s81(2) and may also be relevant to decision making under s85. While inconsistency with a bottom-line provision cannot be the sole basis on which to decline an application under s85(3) of the FTA Act, the assessment against those provisions as required under s81(2) may assist in determining whether adverse impacts are sufficiently significant to be out of proportion or not, when considering s85(3) of the FTA Act.
204. Section 59(2A) relates to human health effects which I have addressed at s 59(2)(c) above.
205. Section 59(3) sets out matters for the decision maker to have regard to. This includes any submissions made and evidence given in relation to the application and any advice received from the Māori Advisory Committee (Ngā Kaihautū). I am aware that Ngā Kaihautū provided a report to the EPA in relation to the 2016 application, however it is not clear whether advice has been sought or provided to the EPA from Ngā Kaihautū on this FTA application.
206. While the application does not include specific consideration of s 59(3), on feedback from stakeholders²⁷⁴ it is stated that TTR has been working closely with the EPA and the Ngā Kaihautū Committee. It is not clear from the application whether any new information has been provided or discussed.

Effects on the environment

207. I now consider s59 matters relating to effects on the environment.
208. The consideration of effects on the environment under 59(2)(a) and (b) includes cumulative effects, effects that may occur in New Zealand and effects of activities occurring within the areas and vicinity of the proposal. The applicant has identified that trawling activities²⁷⁵ have occurred in and near the area and may continue to occur. However, it is not clear if the effects of these activities have been considered by the

²⁷⁴ Section 7.1.5 of the Application

²⁷⁵ For example, as set out in the third paragraph page vii and on page 99 of the Application

applicant's experts in terms of s59(2)(a) and (b), particularly in terms of benthic recovery and effects on marine mammals.²⁷⁶

209. In my opinion, such an assessment would be useful to understand the potential for cumulative effects of the proposal, this would include effects that arise overtime or in combination with other effects.
210. Effects which are relevant in considering the importance of ecological values under s 59(2)(d) and (e) include, on the basis of evidence I have reviewed:
- (a) effects of noise on marine mammals including with the habitats of threatened species;
 - (b) effects of lighting on seabirds including within the habitats of threatened species
 - (c) effects on biota within the extraction site; and
 - (d) effects of sediment discharge, including on forage of threatened species and on ecosystems such as important rocky reef habitats.
211. Experts have agreed that the South Taranaki Bight provides important habitat for marine mammals²⁷⁷ and seabirds,²⁷⁸ including threatened²⁷⁹ and at-risk²⁸⁰ species. However, there is disagreement on whether the extraction area is of particular importance to these species²⁸¹ and on the extent of any adverse effects from noise and the sediment plume beyond the extraction area on marine mammals and seabirds.
212. Dr Clements evidence is that there would be more than minor to significant displacement and avoidance adverse effects on marine mammals as a result of increased in cumulative

²⁷⁶ Cumulative effects from trawling activities only seems to have been considered in terms of suspended sediments. See section 5.5.5 page 182 of the Application.

²⁷⁷ Response to SC8, SC11 and AM28, Effects on marine mammals JWS 3 March 2017. Also, the South Taranaki Bight (STB) is designated as an Important Marine Mammal Area (IMMA) by the IUCN – see paragraph 35, evidence of Dr Torres 6 October 2023.

²⁷⁸ Paragraph 9. d) effects on seabirds JWS 20 February 2024. Also, the Regional Coastal Plan for Taranaki recognises the South Taranaki Bight to Cook Straight; Significant area for pelagic seabirds feeding, breeding and passage. In Taranaki, this area represents the area from Oeo to Wainui out to 12 nautical miles. Schedule 4B – Significant indigenous biodiversity areas of the Regional Coastal Plan for Taranaki

²⁷⁹ Pygmy Blue whales and Maui Dolphin are classified as Threatened species

²⁸⁰ Kororā and fairy prions are classified as At-risk species

²⁸¹ Marine mammal experts did agree with respect to the Antarctic blue whale and the pygmy blue that: If the mining operation impacts a relatively small part of their habitat/foraging area, then any effect may be acceptable. However, if the mining operation impacts a large proportion or important area of their habitat/foraging range, then it is likely to lead to significant impacts.

ambient noise and that there would be less than minor to more than minor physical injury effects from underwater noise of mining operations which is not addressed by the proposed conditions.

213. This evidence on adverse impacts will need to be considered in taking into account the importance of protecting those values under s59.
214. Due to the potential for significant adverse effects identified by some experts on threatened marine mammals and at-risk seabird species,²⁸² and for significant adverse effects on foraging opportunities for seabirds,²⁸³ I consider that, taking into account the importance of protection of those species weighs against the proposal.
215. As set out in my section on effects on marine mammals above, marine mammal experts agree²⁸⁴ that the sediment plume is likely to have ecological impacts, some of which will affect marine mammals using the area and that it is important to carefully consider cumulative impacts of any activity, especially for species at high risk of extinction. Marine mammal experts also agreed that the STB is an important habitat and foraging area for blue whales and agreed that impacts on the foraging area of blue whales should be avoided. However, experts do not agree on the impact of the sediment plume on blue whale foraging.
216. Based on this evidence it is difficult to assess the proposal in terms of taking into account the importance of protecting the matters set out in s59(2)(d) and (e). In my view careful consideration of available information is required to determine whether uncertainties can be overcome by imposing conditions to ensure impacts on the forage of blue whales and the foraging opportunity for kororā are avoided and cumulative impacts will not result in material harm, particularly for species at high risk of extinction.
217. Any assessment of the significance of these impacts needs to consider the importance of protecting these values under s59(2)(d) and (e) recognising that there is evidence that the proposal will not protect threatened species of marine mammals and at-risk species of seabirds due to effects of the proposal including increased noise, lighting, sediment

²⁸² Including threatened species Pygmy blue whales and Maui dolphins, paragraphs 41 and 42, evidence of Dr Torres 6 October 2023, At-risk species kororā and fairy prions, 94. b., evidence of Dr Cockrem 19 May 2025.

²⁸³ Paragraph 95. f. evidence of Dr Cockrem 19 May 2025.

²⁸⁴ as recorded in the Effects on marine mammals JWS, 19 February 2024

impacts on forage and cumulative effects of the proposal on top of impacts already affecting marine mammals in the area.

218. Experts have identified potential for adverse effects on biota within the extraction area. My understanding is that the extraction process will destroy existing biota along the extraction path, as well as within the area affected by initial sediment deposition at the start of each extraction lane. While the experts' views do not appear to differ on the value of biota within the site being unexceptional,²⁸⁵ there is disagreement progression of species and what represents "recovery" for the biotic community²⁸⁶ and on recovery timeframes.²⁸⁷
219. On the evidence that the extraction site itself is not of importance for unique or significant benthic values, it appears that so long as the site is given time to recover (i.e. no other seabed disturbance occurs within extracted areas while recovery is taking place) these effects would not weigh against the proposal.
220. My understanding is that while the sediment plum is generated and therefore of higher concentration, within the extraction area, it will extend beyond the extraction area into the CMA. Experts are not in agreement on the concentration of suspended sediments, the duration these may remain in the water column before settling out, or the extent of adverse effects, other than within 2-3 km, as explained below. Experts appear to agree on the importance of rocky reef habitats for biodiversity, marine species and ecosystems and processes. This conclusion comes from agreement between experts that if there are large reefs close (within 1-2 km near field plume modelling area) to the proposed mining site, there is potential for significant ecological impact.²⁸⁸
221. The DMC 2017 decision found that there would be significant adverse effects on the Crack, the Project Reef and Graham Bank and moderate effects on the Pātea Shoals. These effects included on fish, on primary production, effects of concern on rich and diverse benthic fauna and on temporary or permanent displacement of species,

²⁸⁵ New species, page 14 of the Benthic Ecology JWS, 20 February 2017.

²⁸⁶ Recovery timeframes and influence of sedimentation, Disagreed, page 4 of the Benthic Ecology JWS, 20 February 2017.

²⁸⁷ paragraph 48, Joint statement of experts in the fields of sediment plume modelling and effects on benthic ecology, 23 February 2024.

paragraph 51 and 52, Joint Statement of experts in the fields of Sediment Plum Modelling and effects on Benthic Ecology, 23 February 2024

depending on the area, as set out in my assessment on Sediment effects on benthic values and rocky reefs above. Dr Barbara has also considered the Morrison 2022 study identifying additional reefs including one on the south-east side of Graham Bank. This reef may also be significantly impacted based on the DMC 2017 findings of significant effects on Graham Bank.

222. On the basis of that evidence and findings I consider that, taking into account the importance of protecting indigenous biodiversity and integrity of marine species, ecosystems, and process, weighs against the proposal.
223. The conclusions reached by TTRL are that effects on the environment will be transient, localised and short-term in nature.²⁸⁹ However, this view is not shared by all experts as explained above and in my assessment of effects above that.

The nature and effect of other marine management regimes s59(1)(h) EEZ

224. Effects also need to be considered in terms of the nature and effect of other marine management regimes (MMRs).²⁹⁰ This consideration was a matter which the SC considered in relation to the DMC 2017 decision. In particular, the SC considered that any bottom lines within and MMR needed to be confronted and that there must a synergy between NZCPS bottom lines and s10(1)(b) of the EEZ Act. Because s10(1)(b) as considered by the SC relates to sediment discharges from the proposal, my consideration of the nature and effect of MMRS and noise impacts on marine mammals is set out separately at the end of this section.
225. Section 7(1) of the EEZ sets out the meaning of “marine management regime” as including “the regulations, rules, and policies made and the functions, duties, and power conferred under an Act that applies to any 1 or more of the following:
- (a) territorial sea.
 - (b) exclusive economic zone.
 - (c) continental shelf.

²⁸⁹ page vi of the Application

²⁹⁰ S59(2)(h) of the EEZ Act

226. Section 7(2) includes the marine management regimes established under the Resource Management Act 1991 (RMA). I have not considered marine management regimes other than those established under the RMA.
227. Consequently, I have considered the following MMRs for the purpose of s59(2)(h):
- (a) The Resource Management Act 1991;
 - (b) The New Zealand Coastal Policy Statement 2010;
 - (c) The Regional Policy Statement for Taranaki 2010;
 - (d) The Regional Coastal Plan for Taranaki 2023; and
 - (e) The Horizons One Plan 2014.
228. The nature and effect of MMRs and identification bottom lines was the subject of planning evidence and memoranda from TTR in 2023. I undertook an assessment of the nature and effect of MMRs and the identification of bottom lines in my evidence for the 2023 application. My opinion has not changed since 2023 and I have updated this assessment and included it in Appendix 2 – Marine Management Regimes.
229. I consider that the following provisions of MMRs are in the nature of a bottom line:²⁹¹
- (a) s107 of the RMA which relates to discharges and water quality in the CMA;
 - (b) RPS Policy CE-CMA-P6 of the Horizons One Plan, which relates to water targets;²⁹²
 - (c) Policy CMA-DISCH-P11(5) of the Horizons One Plan which relates to discharges within the CMA;²⁹³
 - (d) Policy 11 clauses (a) and (b) of the NZCPS which provides for protection of indigenous biodiversity;
 - (e) Policy 13 clauses (1)(a) and (1)(b) of the NZCPS which provides for protection of natural character;
 - (f) Policy 15 clauses (a) and (b) of the NZCPS which provides for protection of natural landscapes (including seascapes) and natural features;

²⁹¹ See Appendix 2 for the full assessment and specific wording of bottom lines

²⁹² RPS Objective CE-CMA-O2 and RPS Policy CE-CMA-P6 which in turn applies RPS Policy LF-FW-P6 and RPS Policy LF-FW-P7.

²⁹³ Policy CMA-DISCH-P11(5) in the Horizons One Plan

- (g) Corresponding policies to those above designed to give effect to the NZCPS within the Taranaki RPS,²⁹⁴ Regional Coastal Plan for Taranaki²⁹⁵ and the Horizons (Manawatu-Wanganui) One Plan;²⁹⁶
 - (h) Policy 22(2) of the NZCPS on sedimentation;
 - (i) Policy 22(a) and (b) of the Regional Coastal Plan for Taranaki in relation to surf breaks; and
 - (j) Other provisions which are also in the nature of bottom line relating to tikanga Māori²⁹⁷ and to sites of significance to Māori²⁹⁸ but for which there are various uncertainties on how they would be applied.
230. Where a bottom line is not met, I consider that the proposal would be inconsistent with the nature and effect of the MMR. My reasoning on this is that a requirement in a clearly directive provision cannot be overcome by consideration of provisions which are not directive. I understand this is similar to the reasoning of the SC that a marine management regime bottom line, could not be outweighed by other s 59 EEZ Act factors.²⁹⁹
231. I acknowledge that there is disagreement between experts on adverse effects. This is set out in my effects assessment above. In my assessment below, I have identified potential areas where bottom lines may not be met, based on the evidence and the DMC 2017 decision findings.
232. In my assessment of MMR bottom lines, I have considered whether there is evidence that the effects of the proposal may result in material harm and therefore be inconsistent with the bottom lines set out in the MMRs. In my assessment of proposed conditions under section 63 of the EEZ below, I consider whether material harm can be addressed

²⁹⁴ CNC Policy 1, CNC Policy 4 and NFL Policy 1 of the Taranaki RPS.

²⁹⁵ Policy 9, Policy 10 and Policy 15 (a) and (b) of the Regional Coastal Plan for Taranaki

²⁹⁶ RPS Objective CE-CMA-O2, Policy MA-MTU-P8 and Policy CMA-DISCH-P11 of the Horizons One Plan

²⁹⁷ I consider Horizons One Plan Policy MA-MTU-P8 and Policy CMA-DISCH-P11 are in the nature of bottom lines, which can be applied having regard to the directive policies of the NZCPS identified as bottom lines above. However, the whether the bottom line applies with respect to tikanga Māori will depend on whether sediment within the CMA is considered a discharge and/or deposition.

²⁹⁸ Policy 18(b) of the Regional Coastal Plan for Taranaki as it relates to identified sites of significance to Māori. Coastal Plan maps show sites as extending a short distance off shore, however I am not aware of any evidence considering whether the proposal has adverse effects on these sites.

²⁹⁹ [10] & [280] SC decision

through conditions of consent in accordance with the SC three-step test set out above, under my consideration of Material harm and s10(1)(b) of the EEZ Act.

233. I consider there is uncertainty on applying the bottom lines in s107 and Policy CMA-DISCH-P11(5) to discharges, as they both rely on an assessment of “reasonable mixing”. This is because without a clear limit being specified in the provision or expert advice it is not possible to assess the proposal on this bottom line.
234. I consider that uncertainty does not arise under Policy CE-CMA-P6 because discharge effects can be assessed against water quality targets. Of relevance Table 55 in SCHED9 Part C, includes a target for visual clarity of more than 1.6m and to not be reduced by more than 20% change. On the basis of the DMC 2017 decision finding of possibility for a more than 20% reduction in visibility in some parts of the CMA subject to the One Plan I consider the bottom line in Policy CE-CMA-P6 may not be met.
235. I am unable to draw a conclusion on whether the proposal is inconsistent with the nature and effects of the RMA on the basis of the s107 bottom line, I consider that it is likely to be inconsistent on the basis of inconsistencies with the nature and effect of the NZCPS, below.
236. I consider that the proposal is likely to be inconsistent with the nature and effect of the Horizons One Plan, on the finding that the bottom lines relating to water quality may not be met.
237. I also consider overall that the proposal would be inconsistent with the nature and effect of the Horizons One Plan on basis of inconsistencies with nature and effect of the NZCPS, below.
238. On the evidence of Dr Cockrem³⁰⁰ as a result of sediment discharges, the proposal would be inconsistent with Policy 11(a) due to significant adverse effects on kororā and fairy prions and may be inconsistent with Policy 11 (a) and (b) due to other more than minor to significant cumulative adverse effects on seabirds. On the evidence of Dr Torres³⁰¹ the proposal may also be inconsistent with these bottom lines as there is potential for material harm and significant adverse effects to marine mammal populations that use the STB region, as a result of sediment discharges and/or noise effects on marine mammals.

³⁰⁰ Paragraphs 71, 95(b) and 63 of Dr Cockrem’s evidence dated 19 May 2025

³⁰¹ Paragraphs 42, evidence of Dr Torres 6 October 2023

239. On the level of significant adverse effects identified in the DMC 2017 decision, the proposal is inconsistent with Policy 13(1)(a) of the NZCPS with respect to adverse effects on the Project Reef³⁰² and may be inconsistent with 15(b). The proposal is likely to be inconsistent with Policies 13(1)(b) and/or 15(b) due to significant adverse effect on The Crack and Graham Bank, which may also apply to the new reef to the south-east of Graham Bank.³⁰³ Expert advice may be required to distinguish between natural character, natural features and natural landscapes.
240. On the basis of the DMC 2017 decision finding that effects would be minor on the North and South Traps³⁰⁴, I consider the proposal unlikely to be inconsistent with the bottom lines in Policy 13(1)(b) or Policy 15(a) of the NZCPS.
241. These findings also apply to corresponding bottom lines in coastal plan provisions. That assessment is set out in Appendix 2.
242. On the evidence I have considered it is unclear whether there would be a significant increase in sedimentation within the CMA. On this basis I am unable to determine the proposal is inconsistent with the bottom line in Policy 22 of the NZCPS.
243. On the evidence I have considered, the proposal is inconsistent with bottom lines in the NZCPS.
244. I also consider overall that the proposal would be inconsistent with the nature and effect of the NZCPS, as the proposal would not maintain and protect the values of the coastal environment.
245. With respect to the effect on surf breaks under Policy 22 of the Regional Coastal Plan for Taranaki, the DMC 2017 decision does not raise any concern of significant adverse effects on surf breaks.³⁰⁵ While it appears unlikely that the proposal would be inconsistent with Policy 22 on this basis, I consider that some uncertainty remains in drawing a final

³⁰² The Project Reef is identified as Outstanding Natural Character in the Coastal Plan for Taranaki

³⁰³ identified in the Morrison review as explained in paragraphs 71 to 73, Dr Barbara's marine ecology evidence, 29 September 2023

³⁰⁴ The Traps are identified as Outstanding Natural Feature and Landscape (ONFL) as well as Outstanding Natural Character in the Coastal Plan for Taranaki

³⁰⁵ Paragraphs [753] and [754] of DMC decision 2017 refer to the findings of Report 6 that sand extraction will not have significant effects on sand supply to the beaches and will not promote beach erosion and Report 39 for the potential of only minor, if any, effect on surfing.

conclusion, given the uncertainties in modelling and sediment plume considerations considered by some experts.

246. Overall, I consider that the proposal is inconsistent with the nature and effect of the Regional Coastal Plan for Taranaki on basis of inconsistencies with nature and effect of the NZCPS.
247. On bottom lines and the nature and effect of MMRs the SC³⁰⁶ considered that there must be synergy in the approach to the NZCPS 'bottom lines' and section 10(1)(b) of the EEZ Act and that the NZCPS is in lockstep with section 10(1)(b) of the EEZ Act. Further consideration on bottom lines and material harm is set out in my Appendix 1 Material Harm.
248. Applying that reasoning where there is inconsistency with an MMR bottom line which relates to effects of the sediment discharge from the proposal, the same considerations and requirements for assessing material harm under s10(1)(b) apply.
249. On my findings on bottom lines above, the proposal does not avoid material harm on:
- (a) The Project Reef – bottom lines in Policy 13(1)(a) of the NZCPS
 - (b) kororā - bottom lines in Policy 11(a) and (b) of the NZCPS
250. The proposal may not avoid material harm on:
- (a) Water quality within the CMA – bottom lines in Policy CE-CMA-P6, CMA-DISCH-P11(5) and s107.
 - (b) The Crack, Project Reef and Graham Bank, and on the new reef to the south-east of Graham Bank³⁰⁷ – bottom lines in Policies 13(1)(b) and 15(b)
 - (c) Seabirds and marine mammals - bottom lines in Policy 11 (a) and (b)
251. The proposal is unlikely to result in material harm on:
- (a) The North and South Traps - bottom line in Policy 15(a)
 - (b) surf breaks - bottom line in Policy 22 of the Regional Coastal Plan

³⁰⁶ [10] [280] [298] *Trans Tasman Resources Ltd v Taranaki Whanganui Conservation Board* [2021] NZSC 127

³⁰⁷ identified in the Morrison review as explained in paragraphs 71 to 73, Dr Barbara's marine ecology evidence, 29 September 2023

252. I consider the proposal may result in material harm and be inconsistent with s10(b) of the EEZ Act. On this basis the first step of the SC guidance on determining an application for a discharge consent is not met. On the second step, whether conditions can be imposed so that harm is not material, I consider the conditions proposed by the applicant in my assessment of conditions below.

Nature and effect of MMRs and noise impacts on marine mammals

253. I consider Policy 11 of the NZCPS to be most relevant to the consideration of noise impacts on marine mammals. As set out in Appendix 2, Policy 11 is directive to the avoidance of adverse effects on specific values under cause (a) and to significant adverse effects on values under clause (b). On the evidence that marine mammals which use the South Taranaki Bight (STB) include threatened species, and on the evidence of Dr Clement that the proposal would have more than minor to significant adverse effects on marine mammals from effects of cumulative underwater noise, the proposal is inconsistent with Policy 11(a) and (b).
254. The proposal may also be inconsistent with Policy 11(a) on the evidence of Dr Clement that the proposal would have less than minor to more the minor adverse effects on marine mammals from effects of underwater noise of the mining operation.
255. As I set out in my assessment of the nature and effect of the NZCPS in Appendix 2, taking into account the nature and effect of the NZCPS would require the decision maker to be satisfied that the effects of the proposed activity do not result in the deterioration of the coastal environment or on those marine species which share both the EEZ and CMA in a way that would be inconsistent with the NZCPS.
256. As the proposal would not maintain and protect important values of the coastal environment, I consider that the proposal would be inconsistent with the nature and effect of the NZCPS.

Conclusions on s59 of the EEZ

257. The consideration of effects on the environment under the EEZ are not limited to the EEZ but extend to the effects on NZ. While MMR bottom-lines under the RMA relate to the CMA, the lock-step and synergy expressed by the SC suggests that how effects are managed with respect to bottom-lines spans across the administrative boundary of the CMA/EEZ. This makes particular sense in this case where the activity is close to the CMA, marine mammals, seabirds and fish that use the area are not limited by an administrative

boundary and neither are the effects of the project including noise and the sediment plume. Of particular importance when considering effects on the environment under s59 is the protection of matters under s 59(2)(d) and (e). These matters are also reflected/captured in Policies 11, 13 and 15 NZCPS.

258. While MMR bottom lines under the RMA may not apply directly to the EEZ, I consider that taking into account MMRs and confronting those bottom lines informs what effects are to be considered material harm and this must be the same whether the effect is within the EEZ or CMA. I consider the bottom lines of most importance to the proposal, with respect to effects resulting in material harm, are Policies 11, 13 and 15(b) of the NZCPS,³⁰⁸ and the visual clarity target that must be met under Policy CE-CMA-P6 of the One Plan.³⁰⁹ I also consider that s107 of the RMA is in the nature of a bottom line and that that it is unclear whether this is a critical bottom line to the proposal on current information.
259. In my consideration of s59(2)(h) above I have identified that on the basis of some evidence and findings of the DMC 2017 decision, bottom lines would not be met, and the proposal would be inconsistent with the nature and effect of those relevant MMRs.
260. Experts have agreed that sediment effects on any large rocky reefs within 1-2 km (near field plume modelling area) would result in significant adverse effects. On this basis material harm may not be avoided by the proposal within the EEZ. While experts are not agreed on the extent of adverse effects of the sediment discharge on marine mammals and seabirds, the evidence of some experts is that the proposal would result in material harm on threatened and at-risk species.
261. The potential for material harm from sediment discharges needs to be considered in terms of section 10(1)(b) of the EEZ Act. This requires that the decision maker be satisfied that conditions can be imposed so that harm is not material, by applying the second step of the 3 steps set out by the Supreme Court. I consider conditions under s 63 of the EEZ and FTA Act below.
262. Taking into account other matters under s59 I have found that:

³⁰⁸ Including the RPS and Regional Coastal Plan provisions which implement them.

³⁰⁹ The other bottom lines I have identified are largely on the same matters such that inconsistency with these bottom lines would also result in consistency with the corresponding RPS and plan bottom lines.

- (a) the proposal will result in adverse effects of lighting of seabirds including at-risk species and that the extent of these effects is uncertain;
 - (b) the proposal will result in adverse effects of noise on marine mammals, including threatened species and that the extent of these effects is not agreed between experts, but potentially significant;
 - (c) the economic benefits to New Zealand would be marginal.
263. In this case I consider an overall assessment of whether taking into account those economic benefits could be considered to outweigh the importance of protecting the values under s 59(1)(d) and (e) is not necessary on the basis of evidence of material harm from sediment discharges. The SC considered how an assessment taking into account s59 should be considered with respect to the purpose s10(1)(a) and (b) of the EEZ Act. Of relevance this included “that if the other marine management regime provided for a bottom line, this could not be outweighed by other s 59 factors.”³¹⁰ and that Section 10(1)(b) is cumulative on s 10(1)(a).³¹¹
264. On the basis of the assessment above on inconsistency with bottom lines, the nature and effect of MMRs and of material harm and unless the decision maker can be satisfied that conditions can be imposed that mean harm is not material, my assessment is that the proposal would be inconsistent with section Section 10(1)(b).
265. I do not consider it would be appropriate to assess consistency with section 10(1)(a) without including the bottom lines relating effects of sediment discharges, however, were such an approach taken, I consider this would demonstrate that the proposal would not promote sustainable management of natural resources.
266. I consider that, where an assessment under s 59 shows that the proposal will result in material harm, the proposal is not consistent with the purpose of the EEZ Act. This will need to be taken into account in decision making under the FTA Act. In particular, I consider that the extent of inconsistency with the purpose of the EEZ Act will be important to determining the significance of any adverse impacts in deciding whether to decline consent under s85.

³¹⁰ [10] SC decision

³¹¹ [245] SC decision

Taking into account s60 of the EEZ Act

267. It is beyond the scope of this evidence to review previous cultural evidence as to effect on tangata whenua. However, I consider this matter is still outstanding with respect to concerns raised by SC regarding iwi interests.
268. Also *not* specifically considered in this evidence are other activities that may be affected by the proposal. For example, on fishing or diving.

Taking into account s61 of the EEZ Act

269. Under this section,³¹² the decision maker must base decisions on the best available information, take into account any uncertainty or inadequacy in the information available, if there is uncertainty or inadequacy the decision maker must favour caution and environmental protection and in specific circumstances consider whether taking an adaptive management approach would allow the activity to be undertaken.
270. I agree with the applicant's assessment that the FTA Act framework excludes s61(1)(a). I also agree this may lessen the "obligation" under the EEZ Act for requesting information, obtaining advice and commissioning reviews and reports. However, I consider this may make little difference in practice, because the FTA Act specifically provides the expert panels the power to request further information or commission reports or advice under section 67 and Schedule 3 clause 10 of the FTA Act. The Panel Convener has specifically considered these powers in setting the timeframe for decisions on this application.³¹³
271. There are three remaining aspects to s61 to be taken into account:³¹⁴
- (a) That decision be based on best available information;³¹⁵
 - (b) taking into account any uncertainty or inadequacy in the information available the need to favour caution and environmental protection;³¹⁶
 - (c) Consideration of an adaptive management approach.³¹⁷

³¹² Section 61 is set out in full at 8.2.5 of the IA.

³¹³ Clause 21. c Minute of the Panel Convener, Taranaki VTM [FTAA-2504-1048] 12 August 2025

³¹⁴ as required under Schedule 10 clause 6 of the FTA Act

³¹⁵ Section 61(1)(b) and (5) of the EEZ Act

³¹⁶ Section 61(1)(c) and (2) of the EEZ Act

³¹⁷ Section 61(3) and (4) of the EEZ Act

Best available information

272. “Best available information” is explained under clause 5 as “the best information that, in the particular circumstances, is available without unreasonable cost, effort, or time.”
273. As explained above the expert panel has powers under s67 of the FTA Act to obtain further information. Best available information may also be supported by the appointment of special or technical advisors under Schedule 3 clause 10 of the FTA Act.
274. In my view the application information alone would not provide best available information. This is because I consider the expert evidence I have assessed in this evidence and the conferencing statements from experts in 2024 is also relevant information.
275. I also consider there may be gaps in the information provided by the applicant. For example, the IA refers to the inclusion of all recommendations from DOC on conditions. However, the applicant does not explain what those recommendations are. It is also not clear whether DOC has concerns on effects that were not captured by amendments put forward on conditions.
276. Dr Clement³¹⁸ has also identified missing information on the ambient soundscape and this being particularly concerning as proposal involves a mining method that is new to New Zealand waters as well as internationally.
277. The expert panel will need to consider s61(1)(b) when making its decision, taking into account, any uncertainty or inadequacy in the available information.

Uncertainty, inadequacy, caution and environmental protection

278. The information principles under s61(1)(c) and 61(2) direct the decision maker to take into account any uncertainty or inadequacy in the information available and if the information available is uncertain or inadequate, to favour caution and environmental protection in making its decision.
279. The SC considered that there was incomplete evidence on about [marine mammal] habitats and population numbers in the area and that evidence was subject to various

³¹⁸ Paragraphs 29 to 33, Dr Clement, 1 October 2025

uncertainties.³¹⁹ The SC found that the information available about the environmental effects on seabirds and on marine mammals was uncertain.³²⁰

280. The SC³²¹ considered a fundamental error of the DMC 2017 decision was that it did not comply with the requirement to favour caution and environmental protection in ss 61 and 87E³²² of the EEZ Act.

*The EEZ Act requires that, if the information available is uncertain or inadequate, caution and environmental protection must be favoured. This requirement was triggered in this case because the information on the effects on seabirds and marine mammals was uncertain.*³²³

281. In taking section 61 of the EEZ Act into account, the panel is required to assess whether the best available information has uncertainties or inadequacies and if it does, to favour caution and environmental protection. If these requirements are not met, then the proposal must be considered as inconsistent with this section of the EEZ Act in my opinion.
282. The IA sets out that the applicant's evidence has been revised and supplemented since 2017, particularly in response to the uncertainties concerning marine mammals, seabirds and sediment. I agree that some additional information was provided in the 2023 evidence for the reconvened hearing before the EPA. However, experts did not agree that this information resolved uncertainties or inadequacies in the information available.
283. For example, while seabird experts agreed on new information in the JWS 2024, this did not change their views as set out in the 2017 JWS. In the 2017 JWS the experts agreed that that the full extent of breeding of little penguins in the region remains unknown and that it is likely that little penguins breed along the STB coastline.³²⁴ The available information may also be considered uncertain or inadequate due to the disagreement between experts on the importance of the South Taranaki Bight as a feeding area for populations of little penguins and the extent to which would adversely affect fairy prions.³²⁵

³¹⁹ Supreme Court [121]

³²⁰ Supreme Court [125]

³²¹ Supreme Court [11]

³²² Section 87E Information principles relating to discharges and dumping was repealed on 1 June 2017, however the finding is still relevant in terms of s61 of the EEZ Act.

³²³ Supreme Court [125]

³²⁴ 6(e) Seabird JWS 2017

³²⁵ 6(f) and 6(k) Seabird JWS

284. Dr Cockrem's 2025 evidence confirms his view that there remains uncertainty around the numbers of seabirds in this area and therefore around the degree of effect. He further considers that given the existing gaps in information it is not possible to say with any certainty that the proposed conditions are able to avoid material harm.³²⁶
285. Dr Childerhouse, Dr Thompson and Dr McDiarmid have concluded that the proposal favours caution and environmental protection. Dr Childerhouse and Dr Thompson have also considered the proposal would not result in material harm to marine mammals or seabirds.
286. Dr Clement has suggested a conservative approach to deal with the uncertainties identified by marine mammal experts on presence and distribution of marine mammals in the area. That approach would favour caution and environmental protection with respect to noise impacts in my opinion (noting I am not a marine mammal expert). However, that approach does not resolve uncertainties from lack of information around existing ambient noise and sound propagation identified by Dr Clement and other marine mammal experts.
287. The evidence of Dr Cockrem and Dr Torres is that the proposal does not favour caution and environmental protection and would result in material harm on marine mammals and seabirds.
288. As set out in my assessment of MMRs above, on the evidence of Dr Cockrem, Dr Torres and Mr Greer and the findings of the 2017 DMC, there are bottom lines, both in s 10(1)(b) and within MMRs under the EEZ Act that would not or may not be met. Those bottom lines are for the purpose of environmental protection and not meeting these bottom lines demonstrates that environmental protection would not be achieved.
289. For these reasons I consider that the proposal is inconsistent with s 61(2).

An adaptive management approach

290. Section 61(3) sets out that if favouring caution and environmental protection means that an activity is likely to be refused, the marine consent authority must first consider whether taking an adaptive management approach would allow the activity to be undertaken.

³²⁶ Paragraph 7 (b) and (c) Dr Cockrem's 2025 evidence

291. However, under s 61(4), s 61(3) does not apply to an application for a marine discharge.
292. Given that many of the potential adverse effects relate to the discharge of sediment from the proposal, excluding consideration of an adaptive management approach places limitations on the conditions that could be used to address the potential adverse effects of the proposal. Conditions addressing effects other than the sediment plume, such as lighting and noise, would not be limited by this restriction and can still consider adaptive management. However, this separation may not extend to separating out conditions to be imposed on a marine consent from those on a marine discharge consent. That was considered to be extremely difficult, if not impossible, by planning experts on TTRs 2016 application to the EPA.³²⁷
293. The Court of Appeal considered what the applicant's proposed 2017 conditions amounted to adaptive management and concluded that they did not. The decision of the SC agreed with the Court of Appeal.³²⁸ The SC explained this was because:³²⁹
- The conditions imposed in relation to the suspended sediment limits illustrate the point that the conditions do not contemplate scaling back the authorised activities or an adjustment of permitted effects beyond those contemplated by the Act.*
294. The SC also considered this was the case because:³³⁰
- Further, condition 5(b) does not provide for the assessment of effects or any further decision-making based on the outcome of the monitoring and assessment. Rather, the requirement in condition 5(b) is that TTR ceases extraction activities if it cannot achieve compliance with the suspended sediment limits.*
295. The SC considered that the requirements of environmental management plans for operational responses would not amount to adaptive management as it does not contemplate any adjustment of the consent envelope as a result of the monitoring.
296. Having considered the SC findings in my view the Panel will be restricted from imposing conditions that could be considered to adjust the consent envelope, such as conditions which contemplate scaling back the authorised activities in response to monitoring, as this would amount to adaptive management under s64 of the EEZ.³³¹

³²⁷ 16. b), Joint Statement of experts in the field of conditions and planning, 2 March 2017

³²⁸ Supreme Court decision [209] to [213]

³²⁹ Supreme Court decision [210]

³³⁰ Supreme Court decision [211]

³³¹ Dr Clement has suggested such measures may be the only way to ensure noise limits are met. Paragraphs 53 to 58, Dr Clement, 1 October 2025

Taking into account section 63 to 67 of the EEZ and s83 FTA on Conditions

297. Sections 63 to 67 must be taken into account in accordance with Clause 6 of Schedule 10 FTA Act but are also directly applicable to the panel under clause 7 of Schedule 10 FTA Act. I consider that an assessment of conditions in accordance with these provisions should include the direction on the setting of conditions in section 83 of the FTA.
298. I also considered findings of the SC on the issues of certainty, favouring caution and environmental protection and adequacy of conditions relevant to assessing the proposed conditions. In my view, this is particularly helpful in assessing the appropriateness of the conditions to addressing adverse effects taking into account s 10, ss 59 – 61 of the EEZ Act.
299. Section 63 provides a broad discretion to the decision maker to set any condition it considers appropriate to deal with adverse effects of the activity. Section 63(2) sets out a number of matters on which conditions can be imposed but does not limit the setting of conditions to those matters. The only limitation is with respect to an adaptive management approach. Similar to the s61 exclusion explained above, conditions that together amount or contribute to an adaptive management approach cannot be applied to a marine discharge consent under s 63.³³²
300. Section 83 of the FTA Act is that conditions must be no more onerous than necessary.
- When exercising a discretion to set a condition under this Act, the panel must not set a condition that is more onerous than necessary to address the reason for which it is set in accordance with the provision of this Act that confers the discretion.*
301. My understanding is that for this proposal the relevant provision conferring this discretion is Clause 7 of Schedule 10. Clause 7 is that:
- 7 Conditions*
- Sections 63 to 67 of the EEZ Act apply with any necessary modifications as if the references to a marine consent authority in those sections were references to the panel.*
302. Reading section 83 and clause 7 together, in the setting of conditions under s63 to 67 of the EEZ Act, Panel considerations must include that conditions be both appropriate and necessary.
303. I also consider that, based on Clause 7, the limitation on adaptive management conditions under s63 and s64 will apply to the imposition of conditions by the Panel.

³³² s63(2)(b) and s64 EEZ Act

304. If my interpretation of Clause 7 is incorrect and the panel is not constrained by the limitation on adaptive management conditions then it may consider imposing conditions described under s64 of the EEZ, including conditions that authorise the activity to be undertaken in stages. There may also be opportunity to consider the Ngā Kaihautū Tikanga Taiao report³³³ recommendations about adaptive management which were disregarded by the DMC in their 2017 decision.³³⁴
305. Further details on the requirements and conditions which can be set on the grant of consent by the panel are set out under Sections 64 Adaptive management approach, 65 Bonds, 66 Monitoring conditions and 67 Observers.
306. Conditions relating to Bonds were considered by the SC³³⁵ in relation to the DMC 2017 decision. The issue that arose related to whether a bond was needed in addition to a condition offered by TTR on insurance. The condition required TTR to take out public liability insurance to cover the costs of environmental restoration and damage resulting from an unplanned event.
307. The SC considered that a bond and insurance served different purposes. While there was no obligation on the DMC to include either in conditions, the DMC did need to explain why it considered it was not necessary to impose a bond in addition to the insurance offered by TTR.
- [221] ...The reason given by the DMC for declining to require a bond was to note that given "the circumstances of the application, and taking into account the legal and technical advice" obtained, a bond was "not necessary in addition to the \$500 million insurance offered by TTR". However, that reasoning did not explain, even briefly, how the risks a bond would address were met by insurance, or could somehow be put to one side.*
308. The SC found that it was an error of law not to have done so. While decision making under the FTA may not place the same requirements on decisions responding to matters raised by parties invited to comment under s53, I consider the matter of risks which a bond may be able to address as opposed to insurance is relevant to the consideration of conditions that may be imposed by the panel.

³³³ Ngā Kaihautū Tikanga Taiao Report - EEZ000011. Report Prepared by James Whetu – Member of Ngā Kaihautū Tikanga Taiao Date: 13 January 2017

³³⁴ "We have disregarded NKTT's recommendation about adaptive management, as this is not available to us" DMC 2017 decision [703]

³³⁵ Supreme Court decision [214] to [221]

309. I consider that a bond would be appropriate to address the potential legacy effects should the project fail early, including:
- (a) Efforts to assist recolonization of benthic organisms within mined areas should recovery not be as anticipated (for example because of mounding or trenches);
 - (b) Recover any abandoned machinery or structures;
 - (c) Address effects on natural character from unfilled trenches up to 11 metres deep (that's 3-4 stories) below the sea floor; and
 - (d) To complete post activity monitoring.

Assessment of proposed conditions

310. The SC³³⁶ decision identified concerns with the DMC 2017 decision, including on uncertainty of the sedimentation effects, lack of information on seabirds and marine mammals, and pre-commencement monitoring conditions. In my opinion many of these concerns remain relevant in determining whether consent conditions can be imposed that are adequate and necessary to avoid, remedy and mitigate adverse effects.
311. The conditions proffered by TTR in the 2025 substantive application appear similar to the conditions on which the consents were granted by the DMC 2017 decision and to those which were put forward by TTR for the DMC reconsideration in 2023/2024. However, there are some obvious differences
- (a) In addition to removing "population level effects" from conditions 9 and 10 (as TTR had also proposed to do in 2024) condition 10 now no longer refers to "Marine mammal species classified as "Endangered" or "Vulnerable" in the International Union for the Conservation of Nature "Red List"". That requirement remains in condition 9.
 - (b) The Applicant has removed wording in conditions on "deemed certification" as expected given support for this by their planner Dr Mitchell at the 2024 hearings.³³⁷ However there is still a reference to deemed certification in the Advice note under condition 109.

³³⁶ Supreme Court decision [122-131] and [274-276]

³³⁷ Slide 24, Power Point Presentation of Dr Mitchell day 3 of the 2024 hearings

- (c) There is a change to the total noise level which the IMV and crawler are to be designed for, from 171dB (as set out in the DMC 2017 conditions) to a level of “177dB” in the 2025 application. This may be an error for the reasons I set out in my consideration of condition 12 below.
 - (d) There are a number of small but potentially important changes to conditions relating to marine mammals, which may be in response TTR’s consultation with the Department of Conservation however these changes are not explained in the application.³³⁸ This includes:
 - i. removing marine mammals species classified as “Endangered” or “Vulnerable” in the International Union for the Conservation of Nature “Red List” from condition 10.a.; and
 - ii. changing the availability of video camera recordings on passage of the vessel and any contact with marine mammals, from availability on the Consent holder’s website or other website, to being on request of EPA or Department of Conservation, condition 10.d.
 - (e) There are also changes to wording which does not appear to change the effect or intent of conditions.
312. The draft Seabirds Effects Mitigation and Management Plan and the draft Marine Mammal Management Plan are now dated 2025.³³⁹ From my review of those documents, changes since the 2016 versions appear to be limited to updates reflecting changes to conditions 9 and 10,³⁴⁰ rather than amendments providing more detail on how effects will be managed. I consider changes to those conditions below.
313. Other management plans relating to marine mammals do not appear to have been updated. These sit within the draft Baseline Environmental Monitoring Plan and the draft Environmental Monitoring and Management Plan both of which are dated 2016.³⁴¹

³³⁸ At section 7.2.9 of the Application, the IA states that TTR has adopted all recommendations on consent conditions from consultation with DOC, however there is no record of what those recommendation were.

³³⁹ Appendix 5.8 and Appendix 5.9 respectively, and can be found at page 229 and 239 in Appendix Section 5 of the Application

³⁴⁰ Removing “at a population level” from Conditions 9.a. and 10.a. as proposed by TTRL prior to the 2024 hearings.

³⁴¹ Appendix 5.6 and Appendix 5.7 respectively, and can be found at page 11 and 94 in Appendix Section 5 of the Application

314. There are also some changes to conditions which have not been included in TTRs proffered 2025 conditions, which were previously recommended by the planning expert Dr Mitchell for the applicant at the 2024 hearings.³⁴² Those recommendations included to:
- (a) Increase the pre-commencement monitoring period to three years;
 - (b) Add the following words into condition 48 (pre-commencement monitoring): *The bathymetric survey, which is a component of the pre-commencement oceanography monitoring, shall identify all reef habitat surrounding the extraction area;*
 - (c) Add the following into the list in condition 55 (post-commencement EMMP): *Identify whether operational responses are necessary to avoid material harm to any reef habitat identified by the pre-commencement bathymetric survey.*
 - (d) Add a new companion condition along the following lines: *30A Extraction operations shall not commence within 3 km of the boundary of the Coastal Marine Area until at least 5 years following the commencement of extraction activities.*
315. With respect to (c) and (d) above Dr Michell explained that “Locating extraction operations 3 km from the CMA boundary for 5 years, means that extraction closer to any potentially sensitive areas (e.g. reefs landward of the mining area in the CMA) would not occur until there was a considerable quantum of monitoring data available and effects within 2 km that were of concern to Dr MacDiarmid and Dr Barbara and 3 km mentioned by Dr Dearnley,³⁴³ would not arise.”³⁴⁴
316. For the reasons set out in my consideration of sediment related conditions below, I consider while it would have been helpful to identify additional reef habitats before this application. However, in the absence of prior identification, the amendments recommended by Dr Mitchell in 2024 improve conditions and should be included. I discuss below it is unclear whether the conditions recommended by Dr Mitchell would provide protection from adverse effects of sediment on any additional reefs identified.

³⁴² Slide 21 to 23, Power Point Presentation of Dr Mitchell day 3 of the 2024 hearings

³⁴³ Dr Mitchell may be referring to the comment of Dr Dearnley during his presentation at the 2024 hearings in response to questions of the DMC. Paragraph 35, [2.25pm] page 192, hearings transcript of 14 March 2024 - Reconsideration of Trans-Tasman Resources Limited (TTRL) Marine Consent Application EEZ000011

³⁴⁴ Slide 23, Power Point Presentation of Dr Mitchell day 3 of the 2024 hearings

317. During the hearings in 2024 the DMC also considered opportunities for improving conditions, as set out in their Minute 20 dated 21 March 2024. This included:
- (a) Providing Dr Dearnaley, the opportunity to consider possible options for enhancing conditions 48 (and schedule 2), 52 and 53, and whether they are currently fit for purpose. In particular, the DMC expressed interest in whether the conditions proffered by TTRL are of the same standard as international best practice.³⁴⁵
 - (b) Both Dr Dearnaley and TTRL planner Dr Mitchell were invited to consider the relevant conditions relating to equipment use to determine whether risk of adverse effects arising from sediment caused by the type and use of equipment on site has been considered.³⁴⁶
 - (c) With regard to the underwater noise conditions (specifically condition 11), Dr Humpheson was asked to provide further clarity on, and information about, who will be undertaking the monitoring, what peer review will take place and how the information will be stored (and who it will be made available to). These and any related conditions should be designed to meet international best practice.³⁴⁷
 - (d) With respect to seabird conditions Dr Thompson was asked to provide further clarity on pre-commencement monitoring. In particular the DMC was seeking further information about who would undertake monitoring, peer review and how information could be stored and who it would be made available to. The DMC considered these and any related conditions should be designed to meet international best practice.³⁴⁸
 - (e) Dr MacDiarmid was invited to provide a higher degree of specificity around any proposed testing (in regard to benthic ecology and recovery), and to consider the inclusion of details about when to test and where to test in accordance with international best practice and transparency (for example, in relation to conditions 7, 8 and 57).³⁴⁹

³⁴⁵ Paragraph 11, Minute 20 of the DMC dated 21 March 2024

³⁴⁶ Paragraph 12, Minute 20 of the DMC dated 21 March 2024

³⁴⁷ Paragraph 13, Minute 20 of the DMC dated 21 March 2024

³⁴⁸ Paragraph 15, Minute 20 of the DMC dated 21 March 2024

³⁴⁹ Paragraph 17, Minute 20 of the DMC dated 21 March 2024

318. On my review of the proposed conditions, no changes have been made in relation to the above considerations.
319. My key concerns in terms of adequacy of the conditions are set out below.
320. My consideration of these conditions are grouped into the three topics:
- (a) pre-commencement monitoring conditions;
 - (b) seabird and marine mammal conditions;
 - (c) sediment related conditions.

Pre-commencement monitoring conditions

321. A number of experts have commented on the adequacy of current information to understand the potential impacts of the activity. While some experts consider the available information adequate for this purpose, Dr Cockrem, Dr Torres, and Mr Greer have said that it is not.
322. In particular, the quantum of information available now compared with what be available after pre-commencement monitoring highlights this issue. I understand that the purpose of the pre-commencement monitoring is to provide baseline information on which to then assess the impacts of the proposal. This approach is generally acceptable. However, in this case information necessary to determine the extent of adverse effects has not yet been provided and instead forms part of the information gathering under pre-commencement conditions. This approach does not favour caution and environmental protection in my view.
323. Critically, pre-commencement monitoring will survey and monitor values on which there is no current information. This includes in matters which would usually determine whether to the grant or decline the application. For example, I understand that there have been no systematic at-sea surveys of seabirds in the STB³⁵⁰ and that additional marine mammal surveys would have provided valuable information.³⁵¹ Dr Clement³⁵² has identified gaps in information on natural soundscape and sound propagation which she considered would usually be provided in a consent application.

³⁵⁰ Paragraph 22, Dr Cockrem 6 October 2023

³⁵¹ Paragraphs 14 and 21, JWS 19 February 2024

³⁵² Paragraphs 29 to 33, Dr Clement, 1 October 2025

324. The key problem in my view, is that leaving such surveys and monitoring until after grant of consent as part of pre-commencement conditions, means that there is significant uncertainty on effects that is left to address through conditions of consent. Standard conditions are not designed to deal with uncertainty, which can sometimes be addressed through adaptive management conditions. Baseline information is critical to designing effective adaptive management conditions. In this case, it is particularly difficult to deal with uncertainty in conditions which cannot include adaptive management.
325. Given the uncertainties identified by some experts, it is not appropriate to leave a decision on how to respond to that information until after the grant of consent.
326. In my view, this would result in reliance on a review of consent conditions to make any changes necessary to address adverse effects arising after the grant of consent. This approach is inadequate to prevent or avoid adverse effects from occurring. I consider review of consent conditions further below.
327. In my 2017 evidence I set out concerns with the adequacy of information on effects at the time of decision making.³⁵³ I also considered best practice in terms of management plans, which includes that *“Certainty is essential both in terms of the level of adverse effects authorised and exactly what the conditions require of the consent holder”* and that *“Management plans can be used to clarify how compliance will be achieved but they should not be relied upon as the sole mechanism to provide reassurance that a critical performance or environmental standard will be achieved.”*³⁵⁴
328. I also considered best practice in terms of conditions addressing uncertainty about adverse effects.³⁵⁵ In this case there may be limited ability to effectively apply such conditions, as any response condition must be within the envelope of effects, so that adaptive management is avoided. I discuss this issue with respect to adaptive management above.
329. However, even if this restriction did not apply, I consider that the absence of baseline information and the uncertainties on adverse effects makes monitoring and response conditions problematic. This is because it is not clear at the time of decision making

³⁵³ Paragraphs 27 and 51 of my 2017 evidence

³⁵⁴ Paragraph 79 of my 2017 evidence

³⁵⁵ Paragraph 80 of my 2017 evidence

whether effective measures can be taken to appropriately avoid, mitigate or remedy adverse effects that may arise.³⁵⁶

330. As set out in the 2024 Planning JWS, the necessary considerations to ensure conditions favour caution and environmental protection, include the ability for them to manage any unanticipated adverse effects so that they are not greater than anticipated.
331. I have considered the SC findings on how to assess discharge applications³⁵⁷ and concerns that the lack of baseline information means that any determination as to material harm cannot be met.³⁵⁸
332. There is no baseline information on seabirds or marine mammals within or near the site, we don't know if there are additional rocky reefs that could be within the 2-3km sediment plume radius of the extraction activity and information on the ambient sound scape and sound propagation modelling for the proposed activity are missing or inadequate.
333. As recorded in Minute 20 of the DMC relating to the 2024 hearings, the DMC continued to assess whether pre-commencement monitoring conditions were appropriate and adequate. The DMC³⁵⁹ invited TTRL to consider the inclusion of matters relating to pre-commencement conditions:
- (a) if any surveys are to be carried out (for example for obtaining biological, ecological, sediment, acoustics and other data), such data should be sourced and managed by independent suitably qualified experts;
 - (b) any results and reports are independently peer reviewed; and
 - (c) any results and reports are made publicly available in real time (or as close as practical) in the interests of transparency.
334. On my review of proposed conditions while there is a requirement for independent peer review, the conditions do not capture the extent of changes suggested by the DMC with respect to independent experts being responsible for survey's, data management and

³⁵⁶ Paragraph 130 of my 2017 evidence

³⁵⁷ SC[5] and [261]

³⁵⁸ SC[274] and [275] and [284]

³⁵⁹ paragraph 10, DMC minute 20, 21 March 2024

results. Nor is there any condition requiring results and reports be made publicly available in real time in the interests of transparency.

335. As set out above, Dr Mitchell also recommended changes to pre-commencement conditions, including extending pre-commencement monitoring to three years. However, condition 47 remains unchanged, at 2 years. The changes Dr Mitchell recommended at the 2024 hearings to conditions 48 and 55, as well as for a companion condition, have not been included in the proposed conditions by TTR. I discuss condition 55 with respect to sediment related conditions below.
336. In his May 2023 evidence Dr Mitchell has considered Condition 48, which relates to pre-commencement environmental monitoring, in terms of certainty. Dr Mitchell considers that its purpose is to provide further certainty regarding operational modelling outputs.³⁶⁰
337. However, I consider that Condition 48 goes further than Dr Mitchell suggests, and this creates a level of uncertainty, particularly when compared with available information. Condition 48 provides for the collection of information to inform the operational sediment (OPS) Model and suspended sediment effects. For example, Condition 48 includes monitoring of natural background levels with respect to requirements in condition 47 which include sediment quality and marine mammals, to ensure compliance with all regulatory requirements and guidelines. This suggests that additional information on sediment quality, on marine mammals and seabirds including within proposed project area would only become available after the grant of consent. Other experts have considered that insufficient information has been provided on sediment and that current marine mammal information is also insufficient.³⁶¹
338. Condition 48 is also concerning from a planning perspective, in that Objectives for pre-commencement monitoring are to be set out in the Pre- Commencement Environmental Monitoring Plan (PCEMP)³⁶² rather than identified as conditions prior to the grant of consent. This means it is not clear whether the objectives are appropriate to address effects of the proposal or whether enforcement action could be undertaken if necessary.

³⁶⁰ Dr Mitchell, [43], evidence of 19 May 2023

³⁶¹ Paragraph 28, evidence of Mr Jorissen 2023, Paragraph 15, evidence of Dr Slooten 2023 and Paragraph 30, Dr Barbara 2023

³⁶² Condition 58.b.

It does not appear that any changes have been made to draft PCEMP or the EMMP management plans from that provided in the 2016 TTRL application.

339. The conditions appear to have been largely designed on the basis that there will be no adverse effects. However, the pre-commencement monitoring includes surveys for information which is not available as part of the baseline information provided with the application.
340. For example, as set out above, at the 2024 hearing Dr Mitchell recommended including identification of all reef habitats around the extraction area as part of pre-commencement monitoring. Both Dr MacDiarmid and Dr Barbara have agreed that if there are large reefs close (within 1-2 km near field plume modelling area) to the proposed mining site, there is potential for significant ecological impact.³⁶³ It is not clear what level of adverse effect the proposal may have on any other new reefs identified or whether operational responses would be adequate to avoid material harm.
341. Without such information prior to decision making, it is difficult to understand how conditions can be imposed to provide the satisfaction required by the second step (b) of the SC three step test. Nor in my view can conditions be considered to favour caution and environmental protection, taking into account s 61 of the EEZ Act.
342. As a result, relying on the conditions as proposed by the applicant, would in my view place a significant reliance on review of the consent by the EPA after consent is granted. This may mean that the EPA would need to take a more proactive role in assessing compliance that would normally be necessary. I consider that relying on a review of consent conditions to manage adverse effect is not appropriate and may have limited effectiveness, particularly as effects will need to have occurred to trigger a review. This is not appropriate in my view, for matters which could make a difference to decision making on the grant or decline of consent. My considerations on decision making under s85 are set out in the following section of my evidence.
343. The circumstances in which the EPA may review duration and conditions is set out under the section 76 of the EEZ Act. This confers broad discretion on the EPA, including the

³⁶³ Paragraph 51, Joint statement of experts in the fields of sediment plume modelling and effects on benthic ecology 23 February 2024.

ability to reduce the duration or cancel consent if necessary to address adverse effects on the environment.

344. Given the differing expert advice on potential for adverse effects, the panel will need to be clear on the adverse effects that are anticipated in making its decision, for a review condition to be effectively applied to any unanticipated effects.
345. I understand from considering review conditions for consents under the Resource Management Act (RMA) that the extent to which a review of conditions can address adverse effects may be limited by the requirement that changes cannot frustrate the activities for which consent was granted.
346. The approach taken by the applicant in proposed conditions is premised on no or minor adverse effects and relies on management plans, which are to be finalised after grant of consent, using information gathered after grant of consent, to confirm that effects are as they have anticipated. While there is some consideration for operational responses should limits (e.g. SSC, noise or sighting of marine mammals) or thresholds (bird strike incidence) not meet requirements of conditions, the conditions are drafted on the assumption that:
- (a) Responses can and will ensure there are no adverse effects on specified seabirds and marine mammals
 - (b) Responses to avoid as far as practicable adverse effects on other seabirds and marine mammals will be acceptable based on advice of some experts that there would be no significant adverse effects
 - (c) That the sediment plume will be within modelled parameters and again based on advice of some experts will not result in significant adverse effects
347. All while still enabling the activity to be undertaken at the scale and on the terms described in the application for which consents are sought. The only condition requiring the consent holder to cease extraction, condition 5, relates to an exceedance of the SSC limit. I discuss that condition with other sediment conditions below.

Conditions relating to seabirds and marine mammals

Conditions 9 and 10

348. Firstly, I consider Conditions 9.a. and 10.a. These conditions previously included a requirement to avoid adverse effects at the “population level”. The problem with these conditions was addressed in findings of the SC³⁶⁴ on the DMC 2017 decision.
349. In response to those findings experts for TTR recommended removing the words “population level” effects from the conditions. The proffered conditions of TTR reflect those recommendations and clause (a) in both conditions 9 and 10 now requires that “there are no adverse effects” on the specified seabirds and marine mammals identified in those clauses.
350. For the reasons I set out below, I consider the issue of uncertainty for achieving clause a. is not resolved simply by removing the words “population level”.
351. I have reviewed the evidence of seabird and marine mammal experts (as well as previous planning evidence of Dr Mitchell for TTR) and consider that while the need to determine whether a population level effect has been removed, the difficulties identified by the SC remain with the amended wording of Conditions 9.a. and 10.a.
352. The SC found there was uncertainty³⁶⁵ and that given the uncertainty of the information, it was not possible to be confident that the conditions would remedy, mitigate or avoid the effects.³⁶⁶ In my view, simply requiring a condition to avoid adverse effects does not provide the certainty necessary, nor does relying on management plans to clarify how compliance will be achieved. My understanding of the evidence is that certainty is still not agreed between experts. There is substantial reliance on the pre-commencement monitoring and environmental management plans to provide reassurance that performance and environmental standards will be met.
353. In particular, I consider that there remains uncertainty with how the achievement of these conditions will be assessed. In my opinion, appropriate conditions are those that set clear and measurable requirement to ensure adverse environmental effects of an activity are appropriately avoided, remedied or mitigated.

³⁶⁴ SC decision At [130], [125], [129], [120], [119] and [120].

³⁶⁵ SC [125]

³⁶⁶ DC [129]

354. However, I am concerned that it is not clear what is required by conditions 9.a and 10.a. given the information available on marine mammals and seabirds and the disagreement between experts on extent of potential adverse effects.³⁶⁷ This concern arises with respect to uncertainty on the obligations of the consent holder and whether the condition is achievable from a compliance perspective. It is possible that this condition may frustrate the use of consent, making the condition problematic.
355. The SC³⁶⁸ suggested that in other contexts, it may be sufficient to require an absence of adverse effects. The SC gave the example of where noise can be measured against a standard. The SC also said that in other cases, it may be sufficient to impose a condition effectively requiring that no damage be done. However, the SC did not recommend this approach for conditions 9 and 10.
356. The wording of conditions 9.a and 10.a. suggests a higher level of protection from adverse effects than the previous DMC 2017 decision wording. This could occur if the conditions were clear and certain about what would constitute an adverse effect, how adverse effects would be identified and what measures would be taken to prevent those adverse effects from occurring. My concern is that the condition proposed does not provide this certainty and nor may this be possible on the information available.
357. The condition 9.a. and 10.a. requirement of “no adverse effects” does not exclude effects from sediment discharges. This is particularly relevant in terms of taking into account MMRs such as the NZCPS and its bottom lines discussed above, as the majority of the sediment plume and resulting adverse effects are within the CMA. As I consider below, the management plans which are required to set out how these conditions will be complied with, do not include measures with respect to sediment discharge effects on seabirds or marine mammals.
358. In considering a population level effect, Dr Thompson’s³⁶⁹ evidence sets out that this may be addressed through thresholds for adverse effects on threatened seabird species in the

³⁶⁷ It is critical that resource consent conditions are drafted carefully to ensure:

- they are within the law
- compliance with the conditions will result in any adverse effects being limited to the extent anticipated by the decision-maker
- the consent holder and other parties understand exactly what the requirements are, and
- if necessary, enforcement can be undertaken.

<https://qualityplanning.org.nz/node/912>

³⁶⁸ [130] SC decision

³⁶⁹ Paragraph 39, Dr Thompson 19 May 2023

draft SEMMP. However, he was unable to establish what level of effect that would be. While the 2025 SEMMP no longer includes reference to “population level effects” it still includes direction for the development of thresholds to assess adverse effects, which have not yet been established, and which may not align with “no adverse effect”.

359. Dr Thompson³⁷⁰ has set out his view that the pre-commencement monitoring will provide data to incorporate into a before-after comparison. However, it is not clear from his evidence how compliance with amended Condition 9 will be complied with in relation to the effects of the activity. That is, it does not appear to be possible to link the effects on seabirds to the activity, other than possibly with respect to bird strike and oil spill.
360. How the consent holder will achieve compliance with condition 9 is required through the preparation (and presumably implementation³⁷¹) of a Seabird Effects Mitigation and Management Plan (SEMMP) under Condition 65. However, the SEMMP itself specifically states that “No specific mitigation actions are proposed to manage the potential effects of the sediment plume on seabirds as these effects are considered to be negligible on account of the mobility and wide foraging range of sea bird populations in the STB.” The SEMMP considerations on thresholds for adverse effects on seabirds is limited to bird strike incidence with no consideration for effect of sediment in the water column on diving bird species that are threatened or at-risk.
361. I consider there is some uncertainty with the future development of thresholds proposed because:
- (a) A threshold for bird-strike means that some level of adverse effect will have to occur before any action is taken. As yet, these thresholds are not determined.
 - (b) While a minor or transitory effects may not have to be avoided to comply with the direction of condition 9.a. for no adverse effects, what level of effect that is acceptable is yet undetermined and any such decision appears to be left until after the grant of consent.
362. My reading of Conditions 9, condition 65, and the SEMMP is that not only will there be no mitigation actions to manage the potential effects of the sediment plume on seabirds,

³⁷⁰ Paragraph 46, Dr Thompson 19 May 2023

³⁷¹ This is implied through the wording of condition 65 including the requirement that “The activities must be undertaken in accordance with the latest certified SEMMP.”

but there will also be no threshold established on which to determine if adverse effects occur.

363. This also becomes problematic for the remaining aspects of condition 9.b., which include specific requirements to mitigate and, where practical, avoid adverse effects arising from “The effect of sediment in the water column on diving birds that forage visually.”
364. Similar issues arise with respect to sediment effects on marine mammals. Such effects are not excluded under Condition 10.a and are specifically included under Condition 10.b. requiring that adverse effects arising from “Sediment within the water column” are avoided to the greatest extent practicable. A similar issue also arises, between Condition 66 which sets out requirements for a Marine Mammal Management Plan (MMMP), including on how compliance with condition 10 will be achieved, and the MMMP itself which does not include measures to assess or address adverse effects of sediment on marine mammals.
365. Dr Clement³⁷² has also considered the draft MMMP and concludes that references to monitoring abundance are unrealistic if sightings are as low as the application ascertains. This means that experts will not be able to statistically determine any significant change or trends in species abundance.
366. While the MMMP includes a number of mitigation measures and monitoring/reporting requirements it is not clear whether these measures would result in no adverse effects³⁷³ as required by 10.a., including for adverse effects that may arise as a result of sediment beyond the extract site, including within the CMA.
367. While “population level” is no longer included in these conditions, I consider that Dr Childerhouse’s consideration of the difficulties associated with determining population level effects is relevant. Dr Childerhouse’s³⁷⁴ evidence considers determining compliance of adverse effects at the “population level” for marine mammals would be extremely difficult. However, Dr Childerhouse does not simply propose removing the reference to “population level”. He has set out that Condition 10.a, may require either:

³⁷² Paragraph 70, Dr Clement, 1 October 2025

³⁷³ As set out in my effects assessment, expert evidence is not agreed on the extent of adverse effects.

³⁷⁴ Paragraph 106, Dr Childerhouse 19 May 2023

- (a) some refinement to make it more measurable and achievable which is likely to be challenging;
 - (b) to agree that the Condition actually reflects a positive intent by the applicant but that it cannot and should not be considered as a target that can be monitored; or
 - (c) be simply removed.
368. In my opinion, from a planning perspective, there are significant problems with all three of these options. In relation to (a) Dr Childerhouse himself considers this is challenging. Options (b) and (c) create uncertainty as to whether adverse effects would be remedied, mitigated or avoided to the extent required and would remove any ability to enforce compliance were adverse effects to occur.
369. In particular, I do not support Dr Childerhouse's suggestion to simply remove clause a. Without an appropriate alternative being proposed, this would mean relying on remaining conditions of relevance to marine mammals, as set out in the evidence of Dr Childerhouse.³⁷⁵ None of these conditions provides certainty that effects will be avoided on threatened and vulnerable marine mammals. Condition 10 clause (b) which is for adverse effects on marine mammals³⁷⁶ to be avoided to the greatest extent practicable does not replace a requirement for no adverse effects, in my opinion. Nor can Condition 55,³⁷⁷ which is to ensure that the activities do not result in any adverse effects that were not anticipated, through monitoring requirements of the Environmental Management and Monitoring Plan (EMMP). Relying on conditions³⁷⁸ which set out measures that may or may not avoid adverse effects does not provide certainty for achieving no adverse effects.
370. In my opinion removing condition 10. a. (and similarly if that were considered for condition 9.a. on seabirds) would only increase uncertainties regarding the extent to which adverse effects would be avoided by the proposal to meet requirements of

³⁷⁵ Dr Childerhouse has identified conditions: 10, 11-19, 36-37, 47, 48-54, 67, 88 and schedule 6, at Paragraph 102, Dr Childerhouse 19 May 2023

³⁷⁶ arising from: i. Noise; ii. Collision and entanglement; iii. Spills; and iv. Sediment in the water column,

³⁷⁷ This requirement was previously captured by condition 19 with respect to noise, as considered by Dr Childerhouse in 2023.

³⁷⁸ Including other requirements in Condition 10, Conditions 35-36 relating to soft starts, Condition 47, 48 and 54 relating to marine mammal monitoring; and Conditions 66 for a Marine Mammal Management Plan.

consent. This is particularly problematic where avoidance is the appropriate requirement to manage adverse effects on specific significant values, in relation to the effects of the project. The evidence of experts for the applicant is that such avoidance is achievable, however this is not agreed by other experts. The issue with applying the condition as not worded appears to be threefold:

- (a) Firstly, how or whether it is possible to provide certainty of “no adverse effects” in the conditions of consent prior to the grant of consent.
- (b) Secondly, there remains disagreement between seabird³⁷⁹ and marine mammal experts on whether seabirds and marine mammals will be adversely impacted by the proposal and the extent of adverse effects on them. Mr Cockrem and Dr Torres have identified potential adverse effects should the proposal go ahead on the conditions proposed. To manage those effects to meet condition 9 and 10 requirements, I consider that conditions need to include limits or triggers and responses such as staging and reviewing before progressing, stopping for periods of time, changing or redesigning machinery, reducing or slowing extraction. However, I am not aware of expert ecological evidence on appropriate measures to address the effects identified by Dr Torres and Mr Cockrem or whether it would be possible to develop adequate conditions necessary to grant consent.
- (c) Thirdly, whether it is possible to set conditions to deal with any uncertainty on the extent or potential for adverse effects that would be satisfy a decision to grant the consent.

371. In my opinion, unless there is greater certainty on adverse effects of the activity on seabirds and marine mammals, I do not consider that conditions requiring an absence of adverse effects are appropriate. On my reading of the conditions proposed there is no clear way to measure the effects necessary to assess compliance. An additional concern is that if or when measures are identified to assess compliance requirements in conditions 9.a. or 10.a., it may be found that those requirements are not able to be met.

³⁷⁹ Dr Childerhouse: “I do not think there will be any adverse effects on them nor any significant adverse effects on their habitat as I have discussed in my previous statements of evidence and supporting documents.” At paragraph 50 in his 23 January 2024 rebuttal evidence. Dr Thompson: “it remains my view that kororā little penguin, and indeed other seabird taxa, will not be adversely affected by the proposal for the reasons set out in my evidence” and “the proposed mining will not result in adverse effects on seabirds.” At paragraphs 27 and 28 of his 23 January 2024 rebuttal evidence.

372. Having considered the evidence on seabirds and marine mammals, on remaining uncertainties and potential effects, I consider it is not possible for those uncertainties to be overcome by the proposed conditions of consent. To do so would not favour caution and environmental protection in my opinion. The conditions do not provide certainty the effects will be appropriately avoided, remedied or mitigated.
373. These conditions do not provide confidence that material harm will be avoided, mitigated or remedied so that harm is not material.

Underwater noise related conditions

Condition 11

374. Whether appropriate noise conditions can be set and measured to address adverse effects on marine mammals has been of some debate between experts. The 2024 JWS³⁸⁰ records that concerns raised in 2017 joint conferencing remained.³⁸¹ This includes concerns with the 135 dB as it is a tenfold increase on levels used by the NCAA at 120 dB, issues with how this would be measured, including on the “measurement at a nominal depth of 10 meters”. It is beyond my expertise to understand whether those issues are addressed by the updated condition 11 put forward in the 2025 application. However, I note that the wording appears very similar to that used in the 2016 application. The main difference appearing to be that what was clause (f) is now included in section 14. Underwater noise monitoring plan of the Environmental Monitoring and Management Plan (EMMP).³⁸²
375. Following Dr Humpheson’s presentation at the hearing in 2024, the DMC issued minute 20 which includes a request for Dr Humpheson to “provide further clarity on, and information about, who will be undertaking the monitoring, what peer review will take place and how the information will be stored (and who it will be made available to). These and any related conditions should be designed to meet international best practice.” Dr Humpheson did not provide a response to this as the application was withdrawn.

³⁸⁰ Paragraph 39, Joint Statement of Expert in the field of Effects on Marine Mammals, 19 February 2024

³⁸¹ Note that condition 11 was numbered as condition 12 in the TTRL 2016 application which is referred to in the 2017 JWS.

³⁸² Appendix Section 5 of the 2025 application

376. In relation to potential impacts of underwater noise from the proposed operation on marine mammals, the IA³⁸³ sets out that “This research is consistent with international best practice underwater modelling and therefore still represents the best available data about the underwater noise from the proposed operation.” However, I note that the IA references are to evidence that was available to the DMC before the 2024 hearing. The DMC’s request of Dr Humpheson at the hearing suggests they still had concerns on those matters.
377. Dr Clement³⁸⁴ 59 considers there is a high risk that Condition 11 is unattainable in its current form, exposing marine mammals to behavioural disturbance effects at much greater distances (10s of kilometres) than predicted. Dr Clement³⁸⁵ sets out there are a lot of unknowns with respect to sound propagation, the ambient soundscape and noise that will be generated by the proposal.

Condition 12

378. As noted above the application includes a change from the level set by the DMC 2017 decision, on the overall combined noise level that the applicant must design and construct the crawler and IMV to achieve. The level in condition 12 is now set at “177dB”. Whereas the DMC 2017 decision set a level of “171dB”. This is 6dB difference which I understand could have significant implications for effects on marine mammals given previous evidence on noise impacts.
379. The 2025 IA and application does not include any explanation to justify changing this level and the change may be an error. From my review of evidence, the 171dB was recommended by Dr Humpheson.³⁸⁶ If this level is intended to be increased above 171dB, I understand this could be a significant increase, as an increase of just 1dB equates to 10 times more noise. What implications this may have on whether the limits in Condition 11 could be still be met and any increased risk for adverse effects of noise on marine mammals has not been explained in the IA.

³⁸³ 5.9 page 201 of the Application.

³⁸⁴ Paragraphs 41, 43 and 59, Dr Clement, 1 October 2025

³⁸⁵ Paragraphs 22, 29 and 30, Dr Clement, 1 October 2025

³⁸⁶ Humpheson Response to Forest & Bird's written questions, dated 19 May 2017 and Humpheson Memo TTRL Response to Questions directed to Dr Childerhouse, dated 24 May 2027. Also see Humpheson’s presentation before the DMC March 2024.

380. An independent/technical expert review may assist the panel to assess the adequacy of conditions 11 and 12 and any corresponding management plan measures.
381. My understanding is that remains disagreement between marine mammal experts on the extent to which noise would or could adversely affect marine mammals even with a noise standard being met.³⁸⁷
382. Dr Clement³⁸⁸ does not consider the proposed Conditions 11 to 14 adequately address the Proposal's underwater noise effects on marine mammals and has significant concerns with the absence of any condition requiring TTRL to demonstrate that the Proposal will not increase overall average ambient noise levels in the Proposal area. Dr Clement³⁸⁹ considers the lack of such a condition may result in significant adverse effects on marine mammals as well as noise levels adversely affecting the ecosystem as a whole.
383. Even if certainty can be provided around meeting noise limits, which seems unlikely, Dr Clements evidence, the evidence of Dr Torres³⁹⁰ and Dr Slooten³⁹¹ all express the opinion that a noise standard alone will not ensure the absence of adverse effects on marine mammals.

Sediment related conditions

384. As I understand it the main areas of disagreement between expert on the effects of sediment and therefore the adequacy of conditions relates to:
- (a) The accuracy of the sediment plume model results, including in relation to ultra fines and suspended sediment levels.³⁹²
 - (b) Benthic recovery within the site³⁹³

³⁸⁷ SC6 and paragraph 22, of the Joint Statement of Experts in the field of Effects on Marine Mammals 19 February 2024

³⁸⁸ Paragraph 43, Dr Clement, 1 October 2025

³⁸⁹ Appendix 1 and Paragraphs 51 and 74.2, Dr Clement, 1 October 2025

³⁹⁰ Dr Torres considers conditions will not address potential effects [41] and identifies potential effects on blue whales from elevated ocean noise and ship strike [42]

³⁹¹ Dr Slooten considers potential for dolphins to be impacted by mining noise, sediment plume and loss of natural range [37]

³⁹² Paragraphs 13 – 43, Joint statement of experts in the field of Sediment plume modelling and effects on benthic ecology, 23 February 2024

³⁹³ The matters agreed/disagreed in tables above and within paragraphs 47 and 50, Joint statement of experts in the field of Sediment plume modelling and effects on benthic ecology, 23 February 2024

- (c) Rocky reefs within the sediment plume and the potential for additional rocky reefs including within 2km of the site.³⁹⁴
 - (d) Effects on foraging for seabirds due to visual clarity in water.³⁹⁵
 - (e) Effects on forage for marine mammals due to sediment impacts on food sources.³⁹⁶
385. Conditions 3, 4, 5 and 6 set out the discharge limits, suspended sediment concentrations (SSC) and water values that must not be exceeded.
386. The evidence of Mr Greer is that sediment suspension rates could be higher than modelled. My reading of this evidence is that even where the requirements of condition 4 are met there could be a significant level of fines released in the sediment plume. If the condition is effective as TTR experts suggest, then Dr Barbara's evidence can be read to suggest that the condition will not be able to be met, which may, in turn, have implications for meeting condition 5. Condition 5 includes a requirement that if the condition cannot be met extraction activities must cease. I understand there may be legal issues with this condition as it could frustrate the grant of consent.
387. Condition 4 also sets out that its limits must not be exceeded. However, there is no requirement to cease activities if an exceedance occurs. Rather the consent holder must advise the EPA within 24 hours of any exceedance. It is not clear what response the EPA would or could have as any enforcement without evidence of adverse effects would be unlikely. The quarterly report required under condition 103 may provide further information, however it is still unclear whether the consent holder would be required to take action to prevent future exceedance of condition 4.
388. There appears to be two issues with conditions 4 and 5.
- (a) Firstly, whether the rates and timeframes in the conditions are adequate to limit ultra fines and stop activities before the level of fines released into the sediment plume reaches levels would cause increased adverse effects. This includes whether the rates and limits are averaged to the extent that the activity could continue despite discharging a high level of fines and if conditions are clear enough to

³⁹⁴ Paragraphs 51 to 53 of the Joint statement of experts in the field of Sediment plume modelling and effects on benthic ecology, 23 February 2024.

³⁹⁵ Paragraphs i), k) and l) of the Joint statement of experts in the field of Effects on seabirds, 16 February 2017.

³⁹⁶ SC7 and paragraph 23 of the Joint statement of experts in the field of Effects on marine mammals, 19 February 2024

determine when the activity must be stopped due to adverse effects. It is unclear whether the conditions are written in such a way compliance with them could be achieved despite sediment fine content reaching high levels and causing significant adverse effects.

(b) Secondly whether imposing a condition that would stop the activity is lawful in that it might frustrate the grant of consent.

389. Conditions 7 and 8 set out requirements with respect to any reduction in ecology values beyond the extraction site and recovery rates with within 2km of where extraction first occurred.

390. As set out above, Dr MacDiarmid was invited by the reconvened DMC³⁹⁷ to provide improvements to these conditions. My review of these conditions is that changes have not been made.

391. As considered on pre-commencement conditions above, at the 2024 hearings Dr Mitchell recommended a condition to identify all reef habitat surrounding the extraction area. Knowing that information prior to grant of consent would be preferable in my view, as the potential for effects on them could be assessed and monitoring targeted to relevant locations. While, knowing that information prior to starting activities may support the identification of operational responses Dr Mitchell³⁹⁸ considered, as discussed above, could be added to condition 55 for inclusion in the EMMP, the adequacy of such responses is uncertain at the time of decision making.

392. For example, the limits set out in Condition 7 would not apply, as the condition only applies to monitoring sites in Schedule 4. However, I consider that if condition 7 or some similar approach with reduction limits could be applied this would increase certainty in addressing adverse effect.

393. In my view expert advice would be needed on whether the 5% reduction results required under Condition 7 would also be appropriate to apply to rocky reefs within 2 km of the extraction area which may experience significant adverse effects as agreed by Dr MacDiarmid and Dr Barbara. If 5% is not appropriate for those reefs, whether some other limits could be applied to appropriately manage adverse effects with or without providing

³⁹⁷ Paragraph 17, Minute 20 of the DMC dated 21 March 2024

³⁹⁸ Slide 21 to 23, Power Point Presentation of Dr Mitchell day 3 of the 2024 hearings

certainty through specific management responses. In my view leaving all consideration on responses to be identified in the EMMP under condition 55³⁹⁹ lacks certainty as to whether material harm will be avoided by conditions of consent.

394. Also, in response to concerns about sediment impacts adversely affect benthic habitats/potentially sensitive areas within the CMA, Dr Mitchell previously recommended a condition which would mean extraction activities did not occur within 3 km of the CMA for the first 5 years:⁴⁰⁰

Extraction operations shall not commence within 3 km of the boundary of the Coastal Marine Area until at least 5 years following the commencement of extraction activities

395. I am generally supportive of this condition as it favours caution. However, it lacks certainty in terms of achieving environmental protection.⁴⁰¹
396. As set out above, Dr Mitchell considers over the 5 years a considerable quantum of monitoring data would be available. On this basis Dr Michel considers the effects of concern would not arise. While I accept that such data may allow time to develop operational responses, it is not certain whether operational responses would address adverse effects to the extent that there would be no material harm. Particularly as experts have advised that there may be significant adverse effects.⁴⁰²
397. From my reading of Condition 8 it is not entirely clear whether “within two (2) km of where extraction has first occurred” would mean a location where extraction *had* occurred. Given the sediment plume modelling shows suspended sediment traveling towards the coast, a location seaward (away from the coast) of the site but within 2km may not be representative of benthic recovery from mining effects.
398. There are no specific conditions dealing with potential for adverse effects on seabird or marine mammal forage. The SEMMP excludes such considerations as it specifically excludes consideration of mitigation actions relating to effects of the sediment plume on seabirds.⁴⁰³ While the MMMP does not include any specific consideration sediment

³⁹⁹ Addition to condition 55 recommended by Dr Mitchell as set out under Assessment of proposed conditions above.

⁴⁰⁰ Slide 23 Power Point Presentation of Dr Mitchell day 3 of the 2024 hearings

⁴⁰¹ Taking into account section 61 of the EEZ Act

⁴⁰² Paragraph 53 of the Joint statement of experts in the field of Sediment plume modelling and effects on benthic ecology, 23 February 2024

⁴⁰³ Page 3 of the draft SEMMP dated April 2025

plume effects on forage, this is not specifically excluded. The draft BEMP recognises foraging grounds and EMMP recognises possible impacts of increased SSC on foraging success in relation to marine mammals. However, there does not appear to be any management approach to address such impacts.⁴⁰⁴

399. I am unaware of evidence suggesting how conditions could be drafted to identify and respond to effects of sediment on marine mammals and seabirds. As the conditions are proposed it appears that such effects will be largely determined by conditions 3 to 6 on sediment management and the accuracy of sediment plume modelling.
400. I have considered the SC findings on how to assess discharge applications⁴⁰⁵ and concerns that the lack of baseline information means that any determination as to material harm cannot be met.⁴⁰⁶ I understand this is not the view of all experts.
401. On the adverse effects of sediment, there is disagreement between experts on whether conditions can be imposed that would ensure material harm is avoided or can be mitigated or remedied so that harm is not material. The SC also considered that under the DMC 2017 conditions, the decision maker could not be satisfied that there was no material harm
402. A key matter is then whether the second step (b) of the SC three step test can be met. This step relies on the decision maker being satisfied that imposed conditions will avoid, mitigate or remedy so that harm is not material.
403. Given the uncertain and inadequate information considered with respect to baseline information and pre-commencement conditions above and on the wording of conditions I consider there remains certainty of an adequate response to monitoring and identification of adverse effects. For example, in relation to effects on benthic habitats, even if the additional condition recommended by Dr Mitchell in 2024 (considered above) was included, there is no requirement for a response to monitoring should adverse effects of concern be identified.

⁴⁰⁴ Section 7.1 background in the draft BEMP dated August 2016 and Section 13. 1 5 of the draft EMMP dated August 2016.

⁴⁰⁵ SC decision [5] and [261]

⁴⁰⁶ SC decision [274] and [275] and [284]

404. The potential for significant adverse effects on reefs within 1-2 km of the proposal and the lack of any effective measures identified in conditions to address adverse effects so that material harm is avoided, mitigated or remedied
405. In my view greater certainty on sediment effects may be able to be gained with more explicit and certain responses that would reduce sediment discharge and resulting adverse effects. However, without scaling back or staging activities, which could amount to adaptive management conditions, it is uncertain whether conditions can be crafted which would provide certainty that harm was avoided, mitigated or remedied so that harm is not material.
406. In my opinion, the proposed conditions are inadequate to avoid, remedy or mitigate adverse effects on the environment.

Conclusions on assessment of the application for the purposes of s81

407. In considering the clauses listed in under 81(3), I have taken into account the matters listed under Clause 6 in Schedule 10 and complied with s83 in relation to my consideration of conditions.
408. My key findings from this assessment are that:
- (a) the proposal does not provide national benefits and would be unlikely to provide significant benefits at the regional level. This impacts on the weight to be given to the purpose of the FTA Act. As the proposal does not appear to advance the purpose of the Act, the requirement to give greatest weight to the purpose of the FTA Act has little to no impact on the assessment of other provisions under Clause 6 of Schedule 10.
 - (b) there would be significant adverse effects on the environment if the proposal is granted as proposed
 - (c) the proposal would be inconsistent with the nature and effect of MMRs under the RMA and would not meet bottom lines.
 - (d) the conditions proposed do not avoid, remedy or mitigate those effects
 - (e) the proposal does not avoid material harm, mitigate or remedy harm so that it is not material and fails to meet the SC three step test.
 - (f) it is unlikely that lawful conditions could be imposed, to provide confidence to the decision maker that harm would not be material.

- (g) the economic benefits of the proposal to New Zealand would only be marginal.
409. To support the Panel’s consideration under s85(3), I have considered the scale and significance of adverse impacts as described in s 85(3). In my opinion, this consideration includes the scale or extent of an adverse effects considered under s59 of the EEZ, including compared to what is necessary to meet a directive provision or bottom line and the importance of protection set out under s59(1)(d) and (e). However, in doing so, I acknowledge s 85(4) provides that an adverse impact cannot be considered under s 85(3)(b) solely due to inconsistency with a specified Act or other document required to be considered, which would include an MMR.
410. Relevant to the significance of adverse impacts, as set out in my effects assessment earlier in this evidence, experts have agreed the importance of the STB to marine mammals and seabirds. In particular marine mammal experts agreed:
- (a) that any additional impact on Māui dolphins will be unsustainable and therefore should be avoided.⁴⁰⁷
 - (b) that impacts on the foraging area of blue whales should be avoided.⁴⁰⁸
 - (c) that it is important to carefully consider cumulative impacts of any activity, especially for species at high risk of extinction.⁴⁰⁹
411. My reading of this evidence is that the avoidance of these impacts is necessary to protect these marine mammals.
412. I have set out the adverse effects of the proposal, which are and those which are likely to be inconsistent with the bottom lines under my assessment on “The nature and effect of other marine management regimes s59(1)(h) EEZ” above. I consider how the scale and extent of adverse effects and inconsistency with those bottom lines can be considered as follows in terms of the significance of adverse impacts under s85(3).
413. As described above, relevant MMRs include direction on water quality in the CMA, including that it be maintained and protected from effects of sediment discharges. For the reasons set out above water quality targets may not be met.⁴¹⁰ There is also uncertainty as to whether discharges would conflict with other water quality

⁴⁰⁷ Paragraphs 27, JWS 19 February 2024

⁴⁰⁸ Paragraph 38, JWS 19 February 2024

⁴⁰⁹ Paragraphs 28, JWS 19 February 2024

⁴¹⁰ Policy CE-CMA-P6 of the One Plan

requirements⁴¹¹ or result in a significant increase in sedimentation within the CMA.⁴¹² In my opinion without greater certainty with respect to sediment effects on water quality and sedimentation there is potential for adverse impacts which should be considered under s85(3)(a). However, it is unclear what weight to give in terms of significance under s 85(3)(b).

414. In my consideration of inconsistency with the MMR bottom lines, I have identified that requirements to avoid significant adverse effects would not be met. As set out above there would be significant adverse effect on The Crack and Graham Bank on the new reef to the south-east of Graham Bank, which represent natural character and/or natural landscape values.
415. In my opinion, adverse effects on each of these areas can be considered as an adverse impact under s85(3)(a) and weight can be given in terms of significance of these impacts under s 85(3)(b).
416. There are also instances where adverse effects and the potential for significant adverse effects would be inconsistent with MMR bottom lines and would not reflect the importance of protecting ecological values under s59(2)(d) and (e). This includes:
- (a) that there would be adverse effects and potentially significant adverse effects on kororā and fairy prions which are At-Risk species;
 - (b) potential for material harm and significant adverse effects to marine mammal sediment discharges and/or noise effects on marine mammals;
 - (c) more than minor to significant adverse effects on marine mammals as a result of increased noise;
 - (d) significant adverse effects on the Project Reef an area of Outstanding Natural Character; and
 - (e) that inconsistency with bottom lines relating to the effects of sediment discharges from the proposal means that the proposal does not avoid material harm.
417. In my opinion each of these effects can be considered an adverse impact under s85(3)(a) and any finding that adverse effects would be greater than anticipated by direction

⁴¹¹ s107 of the RMA

⁴¹² Policy 22 of the NZCPS

provisions and bottom lines would increase the weight of significance of these effects when considered in proportion to the projects regional or nation benefits under s85(3)(b).

418. For example, where avoidance of adverse effects is required by a bottom line, but the adverse effects may be significant, I consider this gives greater weight to the extent of effect than a marginal difference in the level of adverse effect that should be avoided.

419. While an inconsistency in itself may not be reason to decline on its own, the wording of s82 FTA suggest that such inconsistency could contribute to reasons for a decline, provided that there is adverse impact. I consider this approach further in my section on decision making below.

When panel must or may decline approvals - s85 of the FTA Act

420. I consider that the application does not trigger the circumstances when an application must be declined under s85(1) or s85(2). I have therefore considered the application in terms of when an approval may be declined if adverse impacts are out of proportion to regional or national benefits under s85(3), (4) and (5).

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

(a) there are 1 or more adverse impacts in relation to the approval sought; and

(b) those adverse impacts are sufficiently significant to be out of proportion to the project's regional or national benefits that the panel has considered under section 81(4), even after taking into account—

(i) any conditions that the panel may set in relation to those adverse impacts; and

(ii) any conditions or modifications that the applicant may agree to or propose to avoid, remedy, mitigate, offset, or compensate for those adverse impacts.

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

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

421. On the evidence I have considered there is more than 1 adverse impact in relation to the approval sought.

422. The scale and significance of those adverse impacts are set out in my conclusions on my assessment of the application for the purposes of s81 above and include:

- (a) the potential for significant adverse effects on values for which adverse effects should be avoided. that this increases the weight to be considered for the significant of adverse impacts.
- (b) not meeting bottom lines for the avoidance of adverse effects means that material harm is not avoided.
423. In my consideration of the extent of projects regional and national benefits considered under s81(4), I consider evidence that the proposal benefits are unlikely to be significant at the regional level and would not be significant at the national level.
424. I have taken into account conditions as proposed by the applicant and consider whether other conditions could be imposed in relation to those adverse effects and my conclusions remain as set out on scale and significance above.
425. I make my assessment under s 85(3) based on the conditions proposed by TTR. It would be speculative for me to consider amendments to those conditions that might be proposed by TTR.
426. As considered with respect to s81(4) above, if there are no regional or national benefits, this will impact the weight to be given to the purpose of the FTA Act, which is a central consideration in the assessment of the application under s81 of the FTA. Section 81(2)(b) and Clause 6 Schedule 10 set out that in assessing the proposal, the greatest weight must be given to the purpose of the FTA Act.
427. On the basis that the proposal does not have significant regional or national benefits, I consider that the purpose of the FTA Act is neutral to whether or not consent would be granted under s85(3). I consider that the adverse effects are sufficiently significant to be out of proportion to the projects regional and national benefits and that the Panel may decline the approval under s85(3) of the FTA Act.

Natasha Sitarz



6 October 2025

Appendix 1 – Material harm

Material harm and EEZ Act provisions

1. My understanding of what the SC said in relation to the TTRL 2017 DMC decision, is that the question of whether harm is material is a factual enquiry that includes assessment of the impact on the marine ecosystem and those that rely on it⁴¹³ The assessment is to take into account the relevant qualitative, quantitative, temporal and spatial aspects of the matter.⁴¹⁴
2. This means that expert opinion will be an important element of an assessment of whether or not there is material harm.
3. How to assess material harm or no material harm was considered in expert planning JWS 27 February 2024. Experts (including myself) agreed that ‘material harm’ is not defined in any relevant legislation and that assessing ‘material harm’ requires a factual assessment that is informed by expert opinion and takes into account the relevant qualitative, quantitative, temporal and spatial aspects of the matter.⁴¹⁵ It was agreed that minor or transitory effects may be acceptable in the context of a directive provision that requires adverse effects to be ‘avoided’.⁴¹⁶
4. There was some agreement on the relevance of MMR bottom lines when assessing material harm within the CMA. While both experts considered ‘directive provisions’ that require adverse effects to be ‘avoided’ were relevant to an assessment of material harm, their remained disagreement on whether ‘material harm’ should be considered “as being an adverse effect that will be significant following the implementation of any mitigation or management measures”⁴¹⁷ or whether “the MMR bottom line was the basis for determining material harm.”⁴¹⁸ In terms of the latter, in my view, an adverse effect does not need to be significant to be considered a bottom line where adverse effects are to be avoided under an MMR bottom line.

⁴¹³ [311] *Trans Tasman Resources Ltd v Taranaki Whanganui Conservation Board* [2021] NZSC 127

⁴¹⁴ [255], 293] and [310] *Trans Tasman Resources Ltd v Taranaki Whanganui Conservation Board* [2021] NZSC 127

⁴¹⁵ Paragraphs 13 and 14, planning JWS 27 February 2024

⁴¹⁶ Paragraph 14, planning JWS 27 February 2024

⁴¹⁷ Paragraph 17, Planning JWS 27 February 2024

⁴¹⁸ Paragraph 19, planning JWS 27 February 2024

5. An important aspect of my consideration on this matter is the SC findings on what is required to take into account the nature and effect of MMRs under section 59(2)(h)⁴¹⁹ and their consideration that there must be synergy in the approach to the NZCPS ‘bottom lines’ and section 10(1)(b)⁴²⁰ and that the NZCPS is in lockstep with section 10(1)(b) of the EEZ Act.⁴²¹
6. I have reviewed the recent finding of the High Court in *Waste Management NZ Ltd*,⁴²² which considered SC *Trans-Tasman* and *Port Otago* Supreme Court decisions with respect to the application of material harm in addressing avoidance policies. My reading of that decision is material harm is to be considered in terms of what is to be protected where an avoidance policy applies.

[298] Returning to the present case, the avoidance policies of the NPS-FM must be interpreted in light of what is sought to be protected, including relevant values and areas and what can be put in place to avoid material harm to those areas.

7. There was no suggestion in the decision that material harm should be equated to a significant adverse effect.
8. I therefore maintain my view that when a discharge may have effects on indigenous biodiversity, natural character or natural features and landscapes, and the adverse effect would otherwise be inconsistent with Policies 11(a), 13(1)(a) and 15(a) and significant adverse effects which would otherwise be inconsistent with Policies 11(b), 13(1)(b) and 15(b) of the NZCPS this could constitute material harm.
9. In addressing the issue of material harm under s10(1)(b) of the EEZ Act, the SC⁴²³ set out that decision makers must follow a three-step test when assessing applications for marine discharge and dumping consents under the EEZ Act:

[5] Accordingly, decision-makers must follow a three-step test when assessing applications for marine discharge and dumping consents under the EEZ Act:

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

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

(i) material harm will be avoided;

⁴¹⁹ [10] *Trans Tasman Resources Ltd v Taranaki Whanganui Conservation Board* [2021] NZSC 127

⁴²⁰ [280] *Trans Tasman Resources Ltd v Taranaki Whanganui Conservation Board* [2021] NZSC 127

⁴²¹ [298] *Trans Tasman Resources Ltd v Taranaki Whanganui Conservation Board* [2021] NZSC 127

⁴²² *Te Runanga o Ngati Whatua v Auckland Council* [2024] NZHC3749

⁴²³ [5] *Trans Tasman Resources Ltd v Taranaki Whanganui Conservation Board* [2021] NZSC 127

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

(iii) any harm will be remedied within a reasonable timeframe so that, taking into account the whole period harm subsists, overall the harm is not material?

If not, the consent must be declined. If yes, then step (c) must be undertaken.

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

10. In my opinion this test is relevant to considering effects of the proposal in terms of the EEZ Act provisions, including bottom lines in relevant Marine Management regimes and useful to identifying any inconsistency with those provisions that must be taken into account under the FTA Act.

Appendix 2 – Marine Management Regimes

MARINE Management Regimes

1. This assessment of MMRs was drafted in 2023 in response to questions from the reconvened DMC⁴²⁴ in 2023 to TTRL in relation to the consideration of MMRS raised in the SC decision. My evidence responds to the assessment carried out by TTRL set out in the Memorandum of Counsel for TTRL dated 25 August 2023, in relation to relevant MMRs.
2. While I have made some updates, including to remove reference to my previous evidence and to capture changes to relevant provision numbering and formatting and I retained references to TTR's memorandum given its similarities with the assessment included in the 2025 application and because my opinion is unchanged.
3. I have now considered the 2025 Application and Appendix 8.5: Assessment of relevant statutory planning documents under the Resource Management Act 1991. This does not change my assessment on what I consider are bottom lines, the nature and effect of MMRS. I have reviewed my conclusions on any inconsistency of the proposal with these MMRS in terms of new evidence and these conclusions are confirmed in my statement of evidence to which this appendix is attached.
4. In undertaking this assessment I recognise that effects of the proposed activity extend into the CMA and that the environments and ecosystems of the CMA and the EEZ are interconnected. I acknowledge that the sand mining extraction site is outside the CMA.

Bottom lines

5. My understanding of what may be considered a bottom line comes from the *King Salmon* decision,⁴²⁵ which identified Policies 13(1)(a) and 15(a) of the NZCPS to provide something in the nature of a bottom line. *King Salmon* considered the wording of policies; that some policies give decision-makers more flexibility or are less prescriptive, while other policies are expressed in more specific and directive terms, and that these differences matter.⁴²⁶ *King Salmon* considered that those expressed in more directive terms carried greater weight and it may be that a policy is stated in such a way that a

⁴²⁴ Minute 4 of the 2023 DMC

⁴²⁵ *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38. [132]

⁴²⁶ [127]

decision maker has no option but to implement it.⁴²⁷ I take this to mean that a bottom line is derived from the use of directive terms and by being specific.

Nature and effect of the RMA

6. I generally agree with TTRL⁴²⁸ that when determining the nature and effect of the RMA, the focus lies not on the RMA itself, but on the relevant terms in the hierarchy of planning instruments under the RMA. The exception to this is section 107 of the RMA, which I discuss below.

Section 107

7. Section 107 contains a restriction on the grant of certain discharge and coastal permits including discharges of contaminants or water to water. This restriction provides that consent cannot be granted for such discharges, if after reasonable mixing certain effects arise. These effects include any conspicuous change in colour or visual clarity or any significant adverse effects on aquatic life.
8. The DMC 2017 decision (Alternative view)⁴²⁹, considers the restrictions of section 107 of the RMA are effectively environmental bottom lines which must not be crossed by allowing activities with such environmental effects to occur in the CMA.
9. To understand whether the proposal may be inconsistent with this bottom line, it is necessary to understand the zone of reasonable mixing. I am not aware of any evidence on this matter and am unable to reach a conclusion. The DMC 2017 decision notes that the concept of 'a zone of reasonable mixing' was not explored during the hearing.⁴³⁰
10. I would agree with TTRL⁴³¹ that the RMA does not directly apply to the *TTRL* activities in the EEZ *as the consenting requirement is established under the EEZ Act* (my emphasis). However, that is not to say there is no link when considering effects of the activities⁴³² or that a direct link could not apply within the EEZ in other cases.⁴³³ In this case, I consider the RMA is relevant to the effects of the activity. This is also established under the EEZ

⁴²⁷ *Environmental Defence Society Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38. [129]

⁴²⁸ Memorandum of Counsel for TTRL, 25 August 2023, paragraph 152-155

⁴²⁹ DMC (Alternative view) 2017 decision [45],

⁴³⁰ DMC (Alternative view) 2017 decision [44]

⁴³¹ (153)

⁴³² s 59 of the EEZ Act

⁴³³ Regulations may identify areas that must be managed in co-ordination with other marine management regimes, s 28 EEZ.

Act in the consideration of an application under s 59. That section specifically required the EPA to take into account any effects on the environment more broadly than just in the EEZ and the nature and effect of other marine management regimes.⁴³⁴

11. I consider there is a difference in the way that s107 of the RMA is to be applied compared Policy 23(1)(d) of the NZCPS. Section 107 is determinative in the grant of a consent, setting out the circumstances where “a consent authority shall not grant a discharge permit.” Whereas Policy 23(1)(d) provides direction on managing discharges in coastal water, “have particular regard to avoid significant adverse effects”. The matters to which this apply under Policy 23(1)(d) are “on ecosystems and habitats” and “after reasonable mixing. In comparison Section 107 includes different requirements in terms of the effects that are not to arise after reasonable mixing. This includes considering cumulative effects. That is “if, after reasonable mixing, the contaminant or **water discharged** (either **by itself or in combination with the same, similar, or other contaminants or water**), it is likely to give rise to all or any of the following effects in the receiving waters:”
12. While I consider there are some uncertainties and potential subjectivity to determine the matters listed in (c) to (g) of s 107,⁴³⁵ I consider that in the context of the determinative wording on whether consent can be granted and the context of the provision within the RMA, it is in the nature of a bottom line.
13. I note that TTR have given some consideration to reasonable mixing in Appendix 8.5 of the 2025 Application. However, this does not constitute evidence to determine a zone of reasonable mixing.

Nature and effect of the NZCPS

14. I consider the nature and effect of the NZCPS is set out in its objectives and policies.
15. I generally agree with TTRL⁴³⁶ that the parts of objectives they identify are relevant to the nature and effect of the NZCPS to the proposed activity. However, I consider there is little in the objectives that is not relevant and would include in addition to those aspects identified by TTRL, the following:
 - (a) the third bullet of Objective 1 relating to discharges;

⁴³⁴ For example, s59(2)(a)(ii) includes effects that may occur in New Zealand.

⁴³⁵ I consider similar terminology in Policy 18-12(e) of the One Plan at paragraph 184 of my 2023 evidence.

⁴³⁶ TTRL memorandum [161]

- (b) the third bullet of Objective 2 encouraging restoration of the coastal environment:
 - (c) the chapeau and first bullet of Objective 4 relating to public open space and recreation;
 - (d) the 7th bullets of Objective 6 relating importance of management under the RMA to protection of natural resources; and
 - (e) Objective 7 recognising NZ's international obligations regarding the coastal environment.
16. I do not consider the 3rd bullet in Objective 6 relating to functional requirements of particular relevance as the consent area is located within the EEZ.
17. I would also add to TTRLs⁴³⁷ comment that “the policies support the objectives”. That statement does not make clear the purpose or importance of policies, including those within the NZCPS, which is to set out the course of action to achieve or implement the objective.⁴³⁸
18. I consider the policies of most relevance are:
- (a) Policy 2 The Treaty of Waitangi, tangata whenua and Māori heritage
 - (b) Policy 3 Precautionary approach
 - (c) Policy 6 Activities in the coastal environment
 - (d) Policy 11 Indigenous biological diversity (biodiversity)
 - (e) Policy 13 Preservation of natural character
 - (f) Policy 15 Natural features and natural landscapes
 - (g) Policy 22 Sedimentation
 - (h) Policy 23 Discharge of contaminants
19. In particular the NZCPS includes directive policies where there is little to no discretion on how they are intended to be exercised. These policies are a key aspect of the nature and

⁴³⁷ TTRL memorandum [160]

⁴³⁸ Writing Good Policies, Quality Planning:

<https://www.qualityplanning.org.nz/node/610#:~:text=Writing%20good%20policies&text=For%20policies%20where%20it%20is,rules%20and%20those%20implementing%20methods>

effect of the NZCPS as they set the effects management framework for activities in the coastal environment.

20. I have considered the nature and effect as set out by the DMC 2017 decision (Alternative view) decision⁴³⁹ which they describe as:

It is clear that the nature and effect of these objectives and policies is to protect significant ecological values and biological diversity, maintain and enhance water quality, recognise the role of tangata whenua as kaitiaki and their relationship with their rohe, and recognise and provide for New Zealand's international obligations regarding the coastal environment.

21. I generally agree. However, I would add the words “while also making provision to enable social, cultural and economic wellbeing through use and development as appropriate to the needs and effects of an activity and within limits protecting the natural values of the coastal environment”. This is to reflect Objective 6 and Policy 6 which I also consider of relevance.
22. I have considered the SC⁴⁴⁰ decision on what is required to take into account the nature and effect of other MMR'S under s 59(2)(h). In my view taking into account the nature and effect of the NZCPS would require the decision maker to be satisfied that the effects of the proposed activity do not result in the deterioration of the coastal environment or those marine species which share both the EEZ and CMA in a way that would be inconsistent with the NZCPS.

NZCPS Bottom lines

23. In considering bottom lines I have identified these on the basis of directive and specific terms in provisions of most relevance to the proposal.
24. I consider that Policy 2, Policy 3 and Policy 6 are not expressed in the nature of a bottom line.
25. I consider Policy 11(a) is expressed in the nature of a bottom line. I also consider that Policy 11(b) to “avoid significant adverse effects” is also directive and in the nature of a bottom line. I understand that “significant adverse effects” is a well-used term under the RMA, which is informed by expert opinion using clear methodologies. There may be different expert opinions on what constitutes an adverse effect. This is also the case when considering whether or not an “adverse effect” is significant under 11(b). In

⁴³⁹ DMC (Alternative view) 2017 decision [49]

⁴⁴⁰ Supreme Court [10], [184] to [187], [280] & [298]

addition, the second aspect of clause (b) is expressed in less directive terms towards adverse effects that are not significant. This difference creates a clear separation between the more directive requirement to “avoid significant adverse effects” and less direction requirements where there is flexibility in how the outcome is to be achieved though avoidance, mitigation or remediation.

26. I also consider that Policy 11 is expressed in specific terms, that is the matters on which adverse effects and significant adverse effects are to be avoided are set out in clauses (a) and (b). In this way I consider the policy is more specific than Policies 13 and 15 where it is necessary to assess what is natural character, natural landscapes and features to determine which features or characteristics would be adversely affected.
27. Policy 13(1)(a) and 15(a) have been found to be in the nature of a bottom line in the *King Salmon* decision. On this basis and the corresponding considerations of the SC⁴⁴¹ on bottom lines in the NZCPS I consider these policies on the nature of bottom lines with respect to the proposal.
28. I also consider Policy 13(1)(b) and 15(b) are in the nature of a bottom line. These clauses use the directive term to “avoid” with respect to “significant adverse effects” and are of a similar specificity as I have considered with respect to Policy 11(b) above.
29. Policy 22(2) wording uses directive terms, “require” and “will not result in” and is specific to with respect to whether use or development results in a “significant increase in sedimentation”. The consideration for this being “in the CMA or other coastal water” lessens the specificity to some extent as the scale on which a significant increase is to be determined would be determined on a case by case basis and on expert advice in my opinion. However, I still consider this to be in the nature of a bottom line with respect to the proposal.
30. Policy 23(1) is of relevance to the proposal and while (1)(d) uses directive terms, to “avoid significant adverse effects” this is reduced by the consideration of “after reasonable mixing” which is not defined and a less directive measure to “minimise adverse effects” within the mixing zone. While I consider this provision relevant to the nature and effect, I consider it is more about how discharges are to be managed than a particular outcome

⁴⁴¹ *Trans Tasman Resources Ltd v Taranaki Whanganui Conservation Board* [2021] NZSC 127 at [185], [186]

and in the context of the more directive provisions of the NZCPS, I do not consider it a bottom line with respect to the proposal.

The extent of any inconsistencies with the NZCPS

31. Having considered recent evidence I recognise that there remains disagreement between the experts as to the potential for and extent of adverse effects from the proposal on seabirds and marine mammals. There is also disagreement between experts on the extent and effects of the sediment plume on water quality, sea floor and benthic environment, as well as with respect to sea birds and marine mammals.
32. The DMC 2017 decision identifies adverse effects on sensitive rocky reefs within the CMA,⁴⁴² as a result of the proposal. These findings have informed my analysis of effects and consistency with MMR bottom lines.
33. The DMC 2017 decision found that effects would be minor on the North and South Traps, an area identified as Outstanding Natural Features or Landscapes (ONFL) and as Outstanding Natural Character (ONC) in the Coastal Plan for Taranaki. On this basis I consider the proposal is unlikely to be inconsistent with the bottom line in Policy 13(1)(a) or Policy 15(a) of the NZCPS.
34. The DMC 2017 decision found that effects would be significantly adverse on the values of the Project Reef, are identified as Outstanding Natural Character in the Coastal Plan for Taranaki. On the level of effects identified in the DMC 2017 decision, the proposal is inconsistent with Policy 13(a) of the NZCPS with respect to adverse effects on the Project Reef.
35. The DMC 2017 decision also found that effects would be significantly adverse on the values of The Crack and Graham Bank. Dr Barbara has also identified that a recently identified reef to the south-east of Graham Bank may be similarly affected.⁴⁴³ On this basis I consider the proposal is likely to be inconsistent with Policies 13(1)(b) and/or 15(b) due to a significant adverse effect on The Crack Graham Bank and the reef to the south-east of Graham Bank, and may be inconsistent with s15(b) due to significant adverse effect on the Project Reef. However, it is beyond my expertise to identify whether those areas represent natural character or natural features and natural landscapes.

⁴⁴² These are also set out in Appendix 3 of the Supreme Court decision

⁴⁴³ new reefs identified in the Morrison review as explained in paragraphs 71 to 73, Dr Barbara's marine ecology evidence, 29 September 2023

36. The DMC 2017 decision also found there would be moderate effects on the values of the Pātea Shoals. On the information I have considered, this level of effect does not conflict with the bottom lines in Policies 13 and 15 of the NZCPS.
37. The evidence of Dr Cockrem⁴⁴⁴ is that there would be adverse effects, potentially significant on kororā and fairy Priors and that there is insufficient information to determine the full extent of adverse effect on seabirds.
38. The evidence of Dr Torres⁴⁴⁵ is that there is potential for adverse effects on marine mammals, including threatened and at-risk species, and that there is insufficient information on the effects of the activity on marine mammals within the STB.
39. I also consider the Marine Mammals Protection (West Coast North Island Sanctuary) Notice 2008⁴⁴⁶ is relevant to assessing effects of the proposal under Policy 11(a)(vi). Policy 11(a)(vi) refers to areas set aside for full or partial protection of indigenous biodiversity under other legislation and the sanctuary is set aside for this purpose.
40. On this evidence the proposal would be inconsistent with Policy 11(a) due to adverse effects on kororā and may be inconsistent with Policy 11 (a) and (b) due to other adverse effects on seabirds and marine mammals.
41. Expert evidence on sediment discharges and the sediment plume is not agreed on the amount of sediment which would leave the site of extraction activities and extend into the CMA. Mr Greer⁴⁴⁷ has expressed that this could be significantly underestimated in the modelling. Dr Cockrem⁴⁴⁸ has said that effects on forage seabirds are potentially significantly adverse because of sediment discharges from the project. However, I am not aware of evidence specifically stating that there would be a significant increase in sediment within the CMA as a result of the project. On this evidence I am unable to determine whether the proposal is inconsistent with the bottom line in Policy 22.
42. On the evidence I have considered, the proposal is inconsistent with bottom lines in the NZCPS.

⁴⁴⁴ 23(b) and 63 of Dr Cockrem's evidence dated 6 October 2023

⁴⁴⁵ Paragraphs 10-12, evidence of Dr Torres 2023

⁴⁴⁶ I understand this sanctuary was enlarged in 2020 within the CMA. paragraph 27, evidence of Dr Slooten 2023

⁴⁴⁷ paragraph 15.c. evidence of Mr Greer dated 8 May 2025

⁴⁴⁸ paragraph 95 b. evidence of Dr Cockrem 19 May 2025

43. I also consider overall that the proposal would be inconsistent with the nature and effect of the NZCPS as the proposal would not maintain and protect the values of the coastal environment.

Nature and effect of the Regional Policy Statement for Taranaki

44. The RPS became operative in January 2010, I note that this was before the current NZCPS was gazetted in November 2010.
45. I agree with TTRL⁴⁴⁹ that the RPS chapters they identify⁴⁵⁰ are of most relevance, and I generally agree with the summary of the provisions they identify as not being in less directive terms. However, I hold a different view with respect to the more directive provisions and the nature and effect of the RPS. I consider a number of additional objectives⁴⁵¹ and policies⁴⁵² within those chapters are relevant. In addition, I have considered the environmental results anticipated set out in those chapters and identify a number of those that I consider relevant to the nature and effect of the RPS.
46. I consider the following objectives and environmental results anticipated (ER) are relevant:
- (a) Chapter 4: UDR Objective 1 and ER 1 read together these provisions seek to enable people and communities to provide for their social, economic and cultural wellbeing with the result that resource use and development is able to occur in accordance with the sustainable management purpose of the Act.
 - (b) Chapter 8.1: CNC Objective 1 and ER 1 read together seek to protect the natural character of the coastal environment from inappropriate activities and to result in the preservation of the natural character of the coastal environment of Taranaki.
 - (c) Chapter 8.2: CWQ Objective 1 and ER 1 and 2 read together seek to maintain and enhance coastal water quality by avoiding, remedying or mitigating the adverse effects of discharges with the result that all significant discharges are consented and

⁴⁴⁹ TTRL memorandum [205] and [207].

⁴⁵⁰ Being Chapters 4 Resource use and development, Chapter 8.1 Coastal environment: natural character, Chapter 8.2 Coastal environment: water quality, Chapter 9 Indigenous biodiversity, Chapter 10.1 Natural features and landscapes, Chapter 13 Minerals and Chapter 16 Issues of significance to iwi.

⁴⁵¹ TTRL has identified UDR Objective 1

⁴⁵² TTRL has identified UDR Policy 1, CNC Policies 1 and 4, CWQ Policy 2, BIO Policies 2, 3, 5 and 7, NFL Policies 1 and 2, MIN Policy 1, TOW Policy 2 and REL Policies 3 and 8.

monitored and the maintenance or enhancement of existing good to excellent coastal water quality.

- (d) Chapter 9: BIO Objective 1 and ER 1, 2, 3 and 6 read together seek to maintain and enhance the indigenous biodiversity of the Taranaki region, with a priority for areas that have significant indigenous biodiversity values with the result that the areal extent of indigenous ecosystems and habitats, including of aquatic flora and fauna, are maintained, that the ecological condition of ecosystems, habitats and in areas with regionally significant indigenous biodiversity values are maintained or enhanced and that the number and areal extent of ecosystems, habitats and areas with regionally significant indigenous biodiversity values and which are formally protected are increased.
- (e) Chapter 10.1: NFL Objective 1 and ER 1 read together seek to protect the outstanding natural features and landscapes of the Taranaki region from inappropriate subdivision, use and development, and to appropriately manage other natural areas, features and landscapes of value to the region to result in appropriate protection and enhancement of outstanding natural features and landscapes and other natural areas, features or landscapes of value.
- (f) Chapter 13: MIN Objective 1 and ER 1 and 2 read together seek to provide for use and development of the region's mineral resources while avoiding, remedying or mitigating any adverse effects on the environment with the result that appropriate access to and use of mineral resources is provided and adverse effects of mineral exploration, extraction and processing are avoided, remedied or mitigated.
- (g) Chapter 16" TOW Objective 1, KTA Objective 1, REL Objective 1 and TOW ER 2, KTA ER 1, REL ER 1 and 2, read together seek to take into account the principles of the Treaty of Waitangi, to have particular regard to the concept of kaitiakitanga in relation to managing the use, development and protection of natural and physical resources and to recognise and provide for the cultural and traditional relationship of Māori, including with their ancestral coastal environment and taonga within the Taranaki region with the result that resource management decisions take into account the principles of the Treaty of Waitangi and are reflective of the philosophy of kaitiakitanga, that the relationship of Iwi o Taranaki with water, sites, wāhi tapu and other taonga are maintained and enhanced and resulting in the protection of

wāhi tapu and other sites and resources of cultural significance from the adverse effects associated with the use and development of natural and physical resources.

47. For completeness, in terms of RPS policies I consider that policies CNC Policy 5, BIO Policy 4 and NFL Policy 3 are also relevant, in addition to those considered by TTRL. These policies are less directive and not in the nature of bottom lines in my opinion. In summary they provide recognition for the protection of other areas, features or landscapes in the coastal environment not covered by CNC Policy 4, matters to be considered in identifying ecosystems, habitats and areas with significant indigenous biodiversity values, and criteria in determining appropriate use and development in the protection of outstanding and other natural features and landscapes.
48. I set out my consideration of the more directive policies that I agree with TTRL are in a nature of a bottom line below.
49. In my opinion the nature and effect of the RPS as relevant to the coastal environment and the proposal can be described as: Enabling of appropriate use and development of natural resources, in a way that avoids, remedies and mitigates adverse effects on the environment, to support social and economic wellbeing and to maintain and enhance coastal water quality, indigenous biodiversity, to protect outstanding natural features and landscapes while giving priority to protection of natural character in important areas and priority to the protection of ecosystems, habitats and areas with significant indigenous biodiversity values and that resource management is carried out in a manner that takes into account the principles of the Treaty of Waitangi.⁴⁵³

Taranaki RPS bottom lines

50. I agree with TTRL that the Taranaki RPS does not generally use very directive or specific terms.
51. I agree also with TTRL that 5 policies (CNC Policy 1, CNC Policy 4, BIO Policy 3, NFL Policy 1, HIS Policy 2) provide something in the nature of a bottom line. While I agree with their

⁴⁵³ Chapter 4: Use and Development (UDR); Chapter 13 Minerals (MIN); Chapter 8.2 (CWQ): Maintaining and Enhancing Coastal Water Quality; Chapter 8.1: Coastal Environment (CNC); Chapter 9: Indigenous Biodiversity (BIO); Chapter 10: Natural features and landscapes, historic heritage and amenity value (NFL); Chapter 16 - Statement of resource management issues of significance to iwi authorities (TOW).

conclusions, I disagree with their reasoning and assessment of relevance to the proposal for the reasons I set out as follows.⁴⁵⁴

CNC Policy 1

52. I do not agree with TTRL⁴⁵⁵ that CNC Policy 1 applied in the manner required by CNC Policy 2 sets materially the same requirement as NZCPS Policy 13(1)(b). While all three policies are to protect natural character from inappropriate subdivision, use and development, NZCPS Policy 13(1)(b) sets out two requirements on how this is to be achieved. Firstly, using directive language, to “avoid significant adverse effects” and secondly in less directive language to “avoid, remedy or mitigate” other adverse effects.
53. CNC Policy 1 is for management to protect the natural character of the coastal environment from inappropriate use and development. CNC Policy 1 uses directive language that management “will be” carried out in a manner that protects the natural character of the coastal environment and sets out matters to be considered in determine natural character. Even when considered with CNC Policy 2, CNC Policy 1 does not distinguish between outstanding natural character and natural character in other areas.
54. I do not consider the reliance of TTRL⁴⁵⁶ on the assessment submitted with their application which concludes the only significant effects on natural character will be in the mining area itself is sufficient to make a conclusion on consistency with CNC Policy 1. This fails to recognise the potential for significant and major adverse effects identified by the DMC 2017 decision on the Project Reef.⁴⁵⁷
55. CNC Policy 2 is also for protection of natural character and while it uses the directive language “shall be” to this being achieved having regard to criteria in determining what is appropriate use and development. These criteria are not set out in directive terms or in any priority. I consider the statement of TTRL⁴⁵⁸ that the criteria allow for the possibility that there may be significant adverse effects or that some effects may be unavoidable is incomplete. These matters are within specific contexts, such that if significant adverse

⁴⁵⁴ The exception to this is HIS Policy 2, which I agree with TTRL is not of relevance.

⁴⁵⁵ TTRL memorandum 25 August 2023, [212]

⁴⁵⁶ TTRL memorandum [177-178]

⁴⁵⁷ The Project Reef is identified as having Outstanding value in Schedule 1 of the Taranaki Regional Coastal Plan

⁴⁵⁸ TTRL memorandum [211]

effects are likely then alternative locations should be considered and in terms of financial contributions being used to offset effects.

56. The CNC Policy 2 criteria also include 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 purposes⁴⁵⁹ and the benefits to the community of the use, development or occupation of the coastal marine area.⁴⁶⁰ I understand that as a result of the King Salmon decision what would be inappropriate should be considered on what is to be protected.⁴⁶¹ This means that achieving protection is the overriding consideration on what is appropriate.
57. I consider that CNC Policy 1 is in the nature of a bottom line and that this is not negated by CNC Policy 2.

CNC Policy 4

58. TTRL have considered CNC Policy 4 in terms of identified areas of Outstanding Natural Character, being the Traps. My reading of CNC Policy 4 is that it applies more broadly than outstanding natural character⁴⁶². In particular, the policy requires priority be given to protection of natural character, ecological and amenity values in areas of coastal environment of importance to the region, and that in identifying important areas matters to be considered include: importance for marine mammals or birds; the existence of nationally significant or outstanding coastal and marine landforms, landscapes; the cultural and spiritual values of tangata whenua; wāhi tapu and sites of importance to tangata whenua; and the existence of marine protected areas.
59. While I agree with TTRL that the Project Reef and The Traps are relevant, I consider that there may be other areas of importance which are also relevant. For example, Dr Barbara's evidence considered new areas of rocky reef as important biological areas for biodiversity and fish nurseries within the predicted plume extent.⁴⁶³ Given the uncertainties with the models and sediment plume, a further assessment of effects may be required.

⁴⁵⁹ CNC Policy 2(k), Taranaki RPS 2010

⁴⁶⁰ CNC Policy 2(l), Taranaki RPS 2010

⁴⁶¹ [105]

⁴⁶² The New Zealand Coastal Policy Statement 1994 which the RPS was prepared under is framed in such a way that indigenous biodiversity and natural features and landscapes come under the heading of natural character.

⁴⁶³ Paragraph 63, Dr Barbara 2023

BIO Policy 3

60. BIO Policy 3 requires priority be given to the protection, enhancement or restoration of terrestrial, freshwater and marine ecosystems, habitats and areas that have significant indigenous biodiversity values. I agree with TTRL that this corresponds to Policy 4 which directs matters to be considered in identifying significant areas. However, Policy 4 is inclusive and does not limit consideration to only those matters set out.
61. Ultimately TTRL has considered that BIO Policy 3 does not set any environmental bottom line on the basis that the area that may be affected by the proposal has not been identified as having significant biodiversity values. In my view it is not the lack of identification of areas but rather the lack of specificity in the wording that differentiates the policy from a bottom line.
62. On my search of the TTRL ecological expert evidence from 2016 and 2023 there has been no assessment of significance in terms of the RPS or the NZCPS.
63. The DMC (Alternative view) 2017 decision⁴⁶⁴ records that “The location of the mining site and its proximity to the coastal marine area will result in adverse effects on ecologically significant areas down current of the sediment plume extending as far as 20-30 km from the site towards Patea and Whanganui.” And that “There are a number of ecologically significant areas within 20 km of the mining discharge.”⁴⁶⁵

NFL Policy 1

64. TTRL consider that “How the policy is to be applied is explicitly addressed in NFL Policy 3, which sets out the criteria for assessing ‘appropriateness’. They then appear to rely on the criteria in NFL Policy 3 to apply their same findings as for NZCPS Policy 13(a) and to rely on economic evidence and findings of the DMC 2017 decision on those matters.
65. While I agree with TTRL that NFL Policy 3 is relevant to the application of Policy 1, I also understand as a result of *King Salmon*, what is “inappropriate” is to be determined on what is to be protected.⁴⁶⁶ My reading of both NFL policies 1 and 3 is that the outcome sought is protection of ONFLs. However, other than having regard to the criteria to determine what may be appropriate use and development under Policy 3, the NFL policies do not set out specific direction as to the extent of adverse effects that are to be

⁴⁶⁴ DMC (Alternative view) 2017 decision [117]

⁴⁶⁵ DMC (Alternative view) 2017 decision [135]

⁴⁶⁶ [101]

avoided. In this way they are not as directive as Policy 14 of the NZCPS. The relationship between NFL Policy 1 and Policy 3 is similar to that I have considered for CNC Policies 1 and 2 above. I consider that NFL Policy 1 is in the nature of a bottom line and that this is not negated by NFL Policy 3.

The extent of any inconsistencies with the Taranaki RPS

66. On the finding of the DMC 2017 decision that there would be significant and major adverse effects on the Project Reef which is identified as an area of outstanding natural character (ONC6) in the Coastal Plan for Taranaki. I consider the proposal would be inconsistent with the bottom line in CNC Policy 1.
67. On the evidence of Dr Cockrem regarding adverse effects on kororā, I consider the proposal would be inconsistent with CNC Policy 4, which prioritises the protection of natural character in areas of coastal importance. I also consider the proposal may be inconsistent with CNC Policy 4 in respect of adverse effects on other seabirds and marine mammals on the evidence I have considered with respect to Policy 11 of the NZCPS above.
68. The DMC 2017 decision found that there would be minor adverse effects as a result of the proposal on the North and South Traps which are identified as ONFL. However, experts have identified uncertainties with the modelling and sediment plume which may require a further assessment on effects to the Traps and other rocky reefs in the CMA. It is therefore uncertain whether the proposal is inconsistent with NFL Policy 1.
69. In my view the policies which are in the nature of a bottom line need to be included in considering the nature and effect of the RPS and any potential for inconsistency with it. These policies are important factors in the nature and effect of the RPS for achieving the outcomes set out in the objectives and environmental results anticipated.
70. Overall I consider the proposal is inconsistent with the nature and effect of the Taranaki RPS.

Nature and effect of the Regional Coastal Plan for Taranaki

71. The Regional Coastal Plan for Taranaki (the Coastal Plan) became operative on 4 September 2023. I note that while this operative date is after the date of the TTL memorandum was filed, my understanding is that there has been no change in wording from the proposed version they considered.

Nature and effect

72. I consider the following objectives of relevance to the nature and effect of the Coastal Plan with respect to the proposal. Objective 1: Integrated management; Objective 2: Use and development; Objective 4: Life-supporting capacity and mouri; Objective 5: Coastal water quality; Objective 6: Natural character; Objective 7: Natural features and landscapes; Objective 8: Indigenous biodiversity; Objective 9: Relationship of tangata whenua with the coastal environment; and Objective 10: Treaty of Waitangi.
73. Other than with respect to the inclusion of a specific objective on life-supporting capacity and mouri and a difference in the protection of natural character, natural landscapes and features, which I discuss below, I consider the nature and effect of the Coastal Plan to be similar to that for the NZCPS in relation to the proposal.
74. Of relevance to the proposal, the nature and effect of the Coastal Plan includes safeguarding the life-supporting capacity and mouri of coastal water.

Coastal Plan bottom lines

75. I generally agree with TTRL that policies 9, 15, 18 and 22 are in the nature of bottom lines.⁴⁶⁷ I also consider Policy 10 is in the nature of a bottom line. However, I hold a different view as to how these policies are to be considered with respect to the proposal which I set out below.

Policy 9

76. The direction for protection set out in Policy 9 is “to protect the visual quality and the physical, ecological and cultural integrity of coastal areas of outstanding value identified in Schedules 1 and 2” is different to the wording of Policies 13 and 15 of the NZCPS which is to preserve natural character and protect the natural features and natural landscapes of the coastal environment.
77. Policy 9 uses directive language “avoiding adverse effects” on values and characteristics that contribute to areas: having outstanding natural character; being outstanding natural features and landscape; to areas within or adjoining coastal management area – Outstanding Value. This includes those values and characteristics identified in Schedules 1 and 2. While I consider there may be some difference in wording, in terms of what is to be protected in the NZCPS, I consider that the direction on avoiding adverse effects accords with Policies 13(1)(a) and 15(a) of the NZCPS.

⁴⁶⁷ I also agree that Policies 26 and 28 relating to sewage discharges are not relevant to the proposal.

78. I consider this policy is directly relevant⁴⁶⁸ to considering the effects of the proposal in my opinion. The Coastal Plan identifies the Project Reef⁴⁶⁹ and North and South Traps⁴⁷⁰ in Schedule 1 and Schedule 2 as Outstanding Value, and as Areas of Outstanding Natural Character and the North and South Traps as also being Areas that are Outstanding Natural Features or Landscapes (ONFL).

Policy 10

79. Policy 10 reflects Policy 13(1)(b) and Policy 15(b) of the NZCPS, using directive language “avoiding significant adverse effects” to protect the natural character, features and landscapes of the coastal environment not addressed in Policy 9, and for other adverse effects being less directive, allowing for “avoiding, remedying and mitigating”. The policy also sets out matters to be had regard to in considering the extent of effects an activity.
80. While I am not aware of expert evidence for this case having specifically considered Policy 10, and this is not unexpected given its recent operative status⁴⁷¹, I nonetheless consider it provides a bottom line with respect to significant adverse effects on natural character and natural features and landscapes.
81. As referred to above the DMC 2017 decision identified adverse effects on a number of rocky reefs in the CMA and the evidence of Dr Barbara⁴⁷² considers information on new rocky reef areas.

Policy 15

82. I consider that Policy 15 of the coastal plan gives effect to Policy 11 of the NZCPS.
83. Policy 15 uses directive language to “avoid adverse effects” of activities on the matters listed under (a) and to “avoid significant adverse effects” on the matters listed under (b).
84. This includes avoiding adverse effects on taxa, ecosystems and vegetation identified in Schedule 4A. Based on the DMC 2017 decision conclusions on coastal erosion I consider

⁴⁶⁸ TTRL have considered Policy 9 is not directly relevant as, due to its location in the EEZ, the Project will not result in an impact on any values or characteristics of the areas identified in Schedules 1 and 2. TTRL memorandum [230]

⁴⁶⁹ 11 km offshore from Patea, DMC Decision August 2017 [188]

⁴⁷⁰ 6 km offshore from Patea, DMC Decision August 2017 [750]

⁴⁷¹ The Proposed Coastal Plan was notified in February 2018 and became operative on 4 September 2023.

⁴⁷² Paragraph 63-69, Dr Barbara evidence dated 29 September 2023. Also see paragraph 54 of the Joint statement of experts in the fields of sediment plume modelling and effects on benthic ecology.

it unlikely the proposal would have adverse effects on Schedule 4A sites.⁴⁷³ However, given the uncertainties on modelling and sediment plume considered by some experts it is not clear to me whether there may be adverse effects that the DMC in 2017 was not aware of.

85. Under Policy 15(c) the protection of significant indigenous biodiversity is to be achieved by “avoiding, remedying or mitigating the adverse effects of activities in significant seabird areas consistent with (a) and (b) above”.

86. The Coastal Plan maps identify the full extent of the CMA from approximately Otakaho extending south to the boundary of the Taranaki Region as a “significant seabird area” under the “significant marine animal and seabird area” map layer heading.⁴⁷⁴

87. In my opinion the identification of this area as being significant for seabirds is such that the requirements in Policy 15(a) and (b) should be directly applied when considering adverse effects on those matters within the area of the CMA in Taranaki adjacent to the proposal. That is whether or not the habitat or area is significant is not at issue, for seabirds in this area adverse effects and significant adverse effects are to be avoided in accordance with (a) and (b).

88. I understand that expert evidence is not agreed on the extent of adverse effects on marine mammals and sea birds.

Policy 18

89. I agree with TTRL⁴⁷⁵ that Policy 18(a) constitutes an environmental bottom line, and that the policy is not relevant due to the projects location in the EEZ.

90. I consider that Policy 18(b) is in the nature of a bottom line. The language of this policy clause is directive to “avoiding significant adverse effects” on the values associated with sites of significance to Māori identified in Schedules 6A and 6B. Sites are identified on the Coastal Plan maps as extending a short distance off shore. It is not clear to me whether

⁴⁷³ At [229] of their decision the DMC accepts evidence that the mining site is not a significant source for sand transport to the beaches and that the application will not increase coastal erosion. While I acknowledge this is not my expertise it seems unlikely based on that evidence that the proposal would have adverse effects on ecological sites unidentified in schedule 4A that are located on or near the beach/shoreline.

⁴⁷⁴ the area identified on the maps does not include areas for significant marine mammals

⁴⁷⁵ Paragraphs 234 and 235 of the TTRL memorandum

effects on these sites were considered in the DMC 2017 decision⁴⁷⁶ or have been considered by experts, including tangata whenua with respect to the proposal.

Policy 22

91. I consider that Policy 22(a), which uses directive language to “avoid adverse effects” on nationally significant and Policy 22(b) which is directive to “avoid significant adverse effects” on regionally significant surf breaks, may be relevant.⁴⁷⁷ The Coastal Plan identifies 2 regionally significant surf breaks at/near Waiinu beach. Policy 22 also includes less directive requirements to avoid, remedy or mitigate adverse effects on locally significant surf breaks in terms of potential for adverse effects on surf break.

The extent of any inconsistencies with the Coastal Plan for Taranaki

92. In my opinion the proposal is inconsistent with the bottom line in Policy 9 due to adverse effect on the Project Reef which is identified as ONC6 in the Coastal Plan. I base this on the findings of the DMC 2017 decision that there is potential for significant and major adverse effects on the Project Reef.⁴⁷⁸
93. I consider the proposal to be inconsistent with the bottom lines in Policy 10 on the basis of the DMC 2017 decision findings on potential for significant adverse effects on the values of The Crack and Graham Bank, which may also apply to the new reef to the south-east of Graham Bank.⁴⁷⁹
94. I consider that the proposal may also be inconsistent with Policy 9 and 10 due to adverse effects on other rocky reefs but that this cannot be determined at this time due to uncertainties with the model and sediment plume as discussed above.
95. In my opinion the proposal is inconsistent with Policy 15 with respect to adverse effects on kororā and may also be inconsistent with Policy 15 for other reasons, but this is uncertain for the reasons I set out with respect to Policy 11 of the NZCPS and information of effects above.

⁴⁷⁶ There is no reference to “sites of significance to Māori” in the DMC decision.

⁴⁷⁷ TTRL have considered Policy 22 is not directly relevant as the none of the 10 surf breaks inshore of the Project are listed as nationally significant and any effects within the CMA are less than minor at the coast line. TTRL memorandum [237].

⁴⁷⁸ DMC decision August 2017, paragraphs[350], [970] and [952]

⁴⁷⁹ identified in the Morrison review as explained in paragraphs 71 to 73, Dr Barbara’s marine ecology evidence, 29 September 2023

96. On the bottom lines in Policy 18 I am unable to draw a conclusion as to whether the proposal is inconsistent based on the information I have considered and due to the uncertainty identified with respect to the sediment model and sediment plume. In their 2017 decision the DMC⁴⁸⁰ [229] concluded on the basis that the mining site is not a significant source for sand transport to the beaches and that the application will not increase coastal erosion, that it was unlikely the proposal would have adverse effects on those sites.
97. With respect to effect on surf breaks under Policy 22, the DMC 2017 decision does not raise any concern of significant adverse effects on surf breaks. The decision⁴⁸¹ appears to rely on the findings of Report 6 that sand extraction will not have significant effects on sand supply to the beaches and will not promote beach erosion and Report 39 for the potential of only minor, if any, effect on surfing.
98. While it appears unlikely that the proposal would be inconsistent with Policy 22 on that basis, I consider there remains some uncertainty in drawing a final conclusion for similar reasons as Policy 18 above.
99. Overall, I consider the proposal inconsistent with the nature and effect of the Coastal Plan for Taranaki.

Nature and effect of the Horizons One Plan – Coastal provisions

100. I generally agree with TTRL⁴⁸² on the nature and effect of the Horizons One Plan⁴⁸³ when considered without its bottom lines. However, I disagree that “the grant of marine consent and marine discharge consent cannot be inconsistent with the nature and effect of the One Plan”.⁴⁸⁴ This is because I consider that, avoiding “as far as reasonably practical”⁴⁸⁵ is to be determined with regard to other relevant policy direction within the plan. For the reasons I discuss below, I consider it is possible and also likely that if the

⁴⁸⁰ [229] DMC 2017 decision

⁴⁸¹ DMC decision August 2017, [753] and [754]

⁴⁸² 242 to 245 TTRL memorandum 23 August 2023

⁴⁸³ The One Plan was amended on 27 February 2024 to give effect to the National Planning Standards. This has resulted in formatting and numbering changes to relevant provisions however provision wording remains the same as considered for the reconsideration of the TTR proposal in 2023/2024.

⁴⁸⁴ 246 TTRL memorandum 23 August 2023

⁴⁸⁵ In particular Policies 8-3 [should be 8-2(c)] and 8-4 as referred to by TTRL at [243] and [244]. Now RPS policies CE-CMA-P2 and CE-CMA- P4

application were considered under the Horizons One Plan it would be inconsistent with the nature and effect of that plan.

101. In addition to the two provisions, Objective 8-2 (now CE-CMA-O2) and Policy 8-6 (now CE-CMA-P6) identified by TTRL that provide something in the nature of a bottom line, I consider policies 5-3 and 5-4 (now LF-FW-P6 and RPS-LF-FW-P7), 18-9 and 18-12 (now MA-MTU-P8 and CMA-DISCH-P11) are also in the nature of a bottom line.

RPS Objective CE-CMA-O2

102. I agree with TTRL that Objective CE-CMA-O2 provides something in the nature of a bottom line. This objective sits within RPS Coastal environment, coastal marine area chapter and uses a directive term “ensuring” with respect to protection of the characteristics and Values listed in Tables 50 of RCP SCHED9⁴⁸⁶ and for the protection of natural character.”

103. I generally agree with TTRLs⁴⁸⁷ assessment with respect to the proposal. However, I do not consider their conclusions⁴⁸⁸ with respect to activity status and background suspended sediment concentrations particularly relevant. My understanding is that, regarding visual clarity, the DMC 2017 decision found⁴⁸⁹ “Although the precise quantum of change is not clear to us, it seems possible that there will be a more than 20% reduction in visibility in some parts of the CMA subject to the One Plan.”

RPS Policy CE-CMA-P6

104. Policy CE-CMA-P6 sits within the CE-CMA-Coastal Marine area chapter provisions and implements CE-CMA-O2 and CE-CMA-O3. This policy sets out how water in the CMA must be managed. This includes in a way that has regard to water quality targets in RCP-SCHED9 Part C.
105. Of relevance Table 55 in SCHED9 Part C, includes a target for visual clarity of more than 1.6m and not be reduced by more than 20% change.⁴⁹⁰ Policy CE-CMA-P6 also applies⁴⁹¹ RPS-LF-FW-P6 (ongoing compliance where water quality targets are met) to the CMA as if

⁴⁸⁶ Previously Tables I.1, I.2 and I.3 of Schedule 1.

⁴⁸⁷ Paragraphs 247 to 250 of TTRLs memorandum

⁴⁸⁸ Paragraph 251 of TTRLs memorandum

⁴⁸⁹ [1015] DMC 2017 decision

⁴⁹⁰ Table 1.7 Seawater Management Zone: Water Quality Target, Schedule I, Horizons One Plan

⁴⁹¹ Policies 5-4 (enhancement where water quality targets are not met), 5-9 (point source discharges to water) and 5-11 (human sewage discharges) are also applied however my understanding is that these are not of relevance to the proposal.

any reference to water in those policies is a reference to water in the CMA. This means that where existing water meets a target it must be managed in a manner that ensures the target continues to be met. Where existing water quality does not meet a target, it must be managed in a manner than enhances existing water quality to meet the water quality target in accordance with RPS-LF-FW-P7 (enhancement where water quality targets are not met).

106. On my reading the wording in Policies RPS-LF-FW-P6 and RPS-LF-FW-P7, which include the directive terms “must” and “ensures”, there is no other option than for water quality to be managed to meet water quality targets. This is in the form of a bottom line in my opinion.

Policies CMA-MTU-P8 and CMA-DISCH-P11

107. Policies CMA-MTU-P8 (deposition/disturbance of the seabed) and CMA-DISCH-P11 (discharges in the CMA) sit within the Regional Plan CMA - Coastal Marine Area, chapter. These policies include directive terms with respect to tikanga Māori, discharges and the inclusion of NZCPS policies.

108. Policies CMA-MTU-P8 and CMA-DISCH-P11 also both address adverse effects on tikanga Māori. Policy CMA-MTU-P8(6) is directive to “avoiding any adverse effects on tikanga Māori” for of activities involving the disturbance, deposition or removal on the seabed. However, Policy CMA-DISCH-P11 also addresses tikanga Māori, but with respect to discharges, is less directive, setting out that adverse effects are to be avoided as far as reasonably practicable and setting out what is to occur when this is not reasonably practicable. While I consider Policy MA-MTU-P8(6) could clearly be considered a bottom line in other situations, in the current case as disturbance and removal occur within the EEZ, only the deposition of sediment may be relevant within the CMA. However, it may be difficult to separate any effects of deposition under MA-MTU-P8(6) from discharge effects under CMA-DISCH-P11. As a result, effects of the proposal may be considered under the less directive requirements of Policy CMA-DISCH-P11 with respect to effects on tikanga Māori. Without assessing effects on tikanga Māori, which is beyond the scope of this evidence, it is not possible in my view to determine whether these policies provide a bottom line.

109. With respect to discharges, Policy CMA-DISCH-P11(5) includes requirements to ensure that any discharge, after reasonable mixing, must not result in floatable or suspended

materials or any conspicuous change in the colour or visual clarity of water in the coastal marine area or any significant adverse effects on aquatic life.

110. Policy CMA-DISCH-P11(5) uses directive terms “ensure” and “must not”. However, I consider the words “after reasonable mixing” and “conspicuous” result in some uncertainty as they are not defined within the Plan and would require expert opinion. While I consider the policy is somewhat in the nature of a bottom line without a clear limit being specified in the provision or expert advice, it is not possible to assess the proposal on this bottom line.

111. However, I consider those uncertainties are overcome with respect to any of the results, such as significant adverse effects on aquatic life, which fall within Policy 11 or 13 of the NZCPS under CMA-DISCH-P11(1). As set out above, I also consider that Policy CE-CMA-P6 provides a bottom line with respect to visual clarity for which targets are set in SCHED9 Part C.

112. Policies CMA-MTU-P8(1) and CMA-DISCH-P11(1) direct that decision makers must have regard to any relevant policies in the NZCPS. This brings in the bottom lines of the NZCPS discussed above when considering disturbance, deposition, discharges and noise within the CMA under the regional plan.

Whether the proposal is consistent with the nature and effects including bottom lines of the One Plan.

113. On the basis of the DMC 2017 decision finding of possibility for a more than 20% reduction in visibility in some parts of the CMA subject to the One Plan I consider the bottom line in Objective CE-CMA-O2 may not be met.

114. Similarly, to my consideration of Objective CE-CMA-O2 above with respect to visual clarity and the finding of the DMC 2017 decision, the proposal would be inconsistent with this bottom line in RPS Policy CE-CMA-P6.

115. I also find the proposal may be inconsistent with Policy CMA-DISCH-P11 with respect to visual clarity and may be inconsistent with both Policies CMA-DISCH-P11 and MA-MTU-P8 where bottom lines under the NZCPS relating to the effects of activities involving discharges, disturbance, removal or deposition are not met.

116. Overall I consider that the proposal may be inconsistent with the nature and effect of the One Plan but there is uncertainty at this time as to whether the bottom lines are met.

**