Hon Shane Jones

Minister for Oceans and Fisheries
Minister for Regional Development
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MIN25-0882

31 October 2025

Hon Kit Toogood KC
Fast-track Expert Panel Chair
substantive@fasttrack.govt.nz

Tēnā koe Kit,

As noted in my letter of 20 October, this letter provides responses to Part One of the Minute 10 information request.

The responses to the Part One, Attachment A information request are provided in **Appendix One** and supporting Appendices.

In some cases, the information provides an alternative analysis to that requested by the Panel due to the request triggering confidentiality conditions. **Appendix One** outlines any variances in the analysis, and outlines information caveats and limitations on sharing the information.

Zipped shape files and spreadsheets of fishing data are also provided along with this letter.

My letters of 6 October, 20 October, and this letter complete the responses to questions A1-D16. I hope that you find this information helpful. If you have any further questions or requests please contact my office.

Nāku noa, nā,

Hon Shane Jones
Minister for Oceans and Fisheries

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Appendix One: Responses to Part One, Attachment A of Minute 10 information request

	Data	Response
A1	Provide maps, geographic information system (GIS) files (for use in QGIS), and applicable metadata/method notes for the following: a. proposed mining block(s) as used to inform the Ministry for Primary Industries' (MPI's) comments; b. any sediment plume footprint(s) used to inform MPI's assessment of overlap with fishing areas and habitats; c. any additional fine-scale analysis grid MPI can provide to support the assessment of localised effects; and d. any data on benthic habitats and species in and surrounding the sediment plume footprint(s) MPI considers relevant for capturing considerations related to habitat connectivity, for example, migration patterns and seasonal use of the area.	1a and 1b. The analysis provided in response to questions A2 and A3 assesses the requested information on the basis of the map provided in **Appendix Two** depicting the mining area and areas affected by the plume as defined by the application. The response provided by the Minister of Oceans and Fisheries on the 6 October considered impacts on the basis of the mining and plume areas amalgamated into one area. 1c. Finer scale information on the assessment of potential localised effects can be drawn from the Morrison et al. 2022 report and the material provided by MPI on potential habitat of particular significance for fisheries management (see C7 below). 1d. The Morrison et al. 2022 report provides some information in relation to this request. The Panel may also be able to obtain additional information from Taranaki Regional Council and the Department of Conservation.
A2	Electronic Reporting (ER) and real-time position reporting (GPR) summaries 2019/20–2023/24: Provide, within the proposed mining area and sediment plume area(s) only (if possible), annual vessel counts, fishing events, effort and catch by stock/Quota Management Area (QMA) and method, with filters, aggregation /confidentiality rules, and known limitations. If this information cannot be provided	Information on the number of vessels and permit holders (clients) using particular methods in the mining area and plume areas from the 2019/20 to 2023/24 fishing years is provided in the file titled "**All_areas_FisherCountsByGear_2019-24**". A 'count' means a vessel/permit holder that had at least one fishing event that started or passed through the related VTM mining/plume area. Information on the weight of landings within the mining and plume areas from the 2019/20 to 2023/24 fishing years is provided in the file titled "**All_areas_Landing_ByGear_2019-24**". All values are an annual average

<table>
<tr><td></td><td>Data</td><td>Response</td></tr>
<tr><td></td><td>within these areas, please provide it in the most relevant alternative spatial scale.</td><td>over that time period, correspond to estimated landings in kilograms, and should be treated as indicative only.[1]

Estimated landings have been further attributed to fishing methods only for method groups (explained in the “Notes” tab of the file) with three or more permit holders. The total annual average landings includes those methods not shown (that is, those with fewer than three permit holders). Values representing landings from methods used by fewer than three fishers have not been provided due to the commercially sensitive nature of those data.

Fisheries New Zealand (FNZ) has prepared these reports on the basis of information provided to it in returns provided by fishers. FNZ does not accept responsibility for the completeness or accuracy of the information on which this report is based.</td></tr>
<tr><td>A3</td><td>Species/value table: Provide “top species by value” as CSV (stock code, method, month, QMA, value basis, any imputations) for relevant species.</td><td>Monthly event counts from the 2019/20 to 2023/24 fishing years are provided in the file titled “Monthly_event_counts_2019-24”. Values represent the total number of fishing events that started or passed through a VTM mining or plume area per month over the above timeframe. Some months have been aggregated to ensure at least three permit holders are captured per record (to adhere to FNZ standards regarding commercial sensitivity, as above).

Estimated annual average landings and estimated port value[2] of potentially affected landings from within the proposed mine area and modelled plume areas[3].
<table>
<tr><th>Area</th><th>Estimated annual average landings (kg)</th><th>Estimated port value (NZD)</th></tr>
<tr><td>Proposed project area</td><td>1,490</td><td>5,222</td></tr>
<tr><td>Mining A 99th percentile SCC</td><td>67,580</td><td>199,918</td></tr>
<tr><td>Mining A median SCC</td><td>243</td><td>858</td></tr>
<tr><td>Mining B 99th percentile SCC</td><td>42,214</td><td>201,494</td></tr>
<tr><td>Mining B median SSC</td><td>200</td><td>548</td></tr>
</table></td></tr>
</table>

[1] More fulsome methodology can be found at: https://www.mpi.govt.nz/dmsdocument/29675-aebr-2018200-forecasting-quantity-of-displaced-fishing-part-2-catchmapper-mapping-eez-catch-and-effort.
[2] Port value is based on the port price from the 2023/24 fishing year only. It is important to note that port price is an average of what commercial fishers receive across a Quota Management Area, not what the fish is worth at market (which is higher). Nor does it reflect the income for licensed fish receivers (including wholesalers and/or processors) and retailers.
[3] Based on Figure 2-1 in MacDiarmid, A., MacGibbon, D., and Anderson, O. 2024. South Taranaki Bight Fishing 1 October 2007 – 30 September 2023. Prepared for Trans Tasman Resources Ltd. 37 p.

	Data	Response
		Further granularity regarding stock code, method, and month have not been provided because those values are commercially sensitive, as they represent landings from fewer than three fishers. FNZ has prepared this report on the basis of information provided to it in returns provided by fishers. FNZ does not accept responsibility for the completeness or accuracy of the information on which this report is based.
B: Effort shifts and constraints		
B4a	Recent inshore settings: Describe (include maps) any relevant closures or management changes in the area potentially affected by the proposed mining activity since 2020 (for example, set net restrictions).	A map showing fisheries related management areas is provided in **Appendix Three**.
B4b	Provide before/after effort comparisons for the area and discuss any shifts, including likely causes. State MPI's confidence in the attribution of shifts.	The information requested predates implementation of ER and GPR. There is not sufficient ER/GPR data to provide a suitable before/after analysis. There may be a number of reasons why fisher behaviour/catches may have changed. The Panel may wish to discuss any effort shifts with fishing representatives.
B5a	QMA boundaries and feasibility to shift: Provide maps of relevant QMAs and any examples of legal displacement options/constraints relevant to the proposed mining activities and MPI's method for estimating displacement feasibility/costs.	General Fisheries Management Area (FMA) boundaries for the relevant FMA have been provided in **Appendix Four**. However, individual stocks have QMAs that may differ from these general FMA boundaries. Individual QMA boundaries can be found on the MPI Data Portal: https://data-mpi.opendata.arcgis.com/search?tags=Fisheries%2Cfisheries%2520new%2520zealand
B5b	Feasibility to shift QMA boundaries: Provide maps of relevant QMAs and any examples of legal displacement options/constraints relevant to the proposed mining activities and MPI's method for estimating displacement feasibility/costs. Feasibility to shift	Note a very limited number of QMAs have been subdivided, to better reflect ecological differences and manage stock sustainability. An example is the subdivision of PAU3 (a pāua QMA) after the earthquake to enable targeted management and recovery of the northern section of that area. Moving a QMA boundary would have significant administrative and operational consequences. Note also that every species fished within an area has an individual QMA. These areas are based on administrative and biological factors for the species (see B5a).

	Data	Response
	QMA boundaries: Provide maps of relevant QMAs and any examples of legal displacement options/constraints relevant to the proposed mining activities and MPI's method for estimating displacement feasibility/costs.	Section 25(2) of the Fisheries Act 1996 (Fisheries Act) specifies two mechanisms by which QMAs can be changed. The Minister can make a recommendation to change a boundary if: 1) 75 percent or more of quota ownings agree and request that a QMA change be made, and they have a plan for how Individual Transferable Quota (ITQ) would be re-allocated; 2) he/she considers it is necessary to ensure sustainability, and a plan must also provide for the re-allocation of ITQ. The second mechanism would require reallocation of quota shares between pre-existing and new QMAs per species and could impinge upon treaty settlements.
B5c	Any examples of legal displacement options/constraints relevant to the proposed mining activities and MPI's method for estimating displacement feasibility/costs.	The link below provides an example of how the undue adverse effects test is applied to consider impacts of marine farm applications on fishers: https://www.mpi.govt.nz/fishing-aquaculture/aquaculture-fish-and-shellfish-farming/setting-up-a-marine-farm/undue-adverse-effects-test-for-marine-farms
B6	Local vs QMA-average: Recommend an approach to identify localised (within the area potentially affected by the proposed mining activity) dependency/impact and provide any available summaries (for example, counts, events, catch/effort for the period 2019/20–2023/24)	Refer to the material provided in response to A2 and A3, noting we are not able to provide more granular information on the stocks taken within the mine area and plume areas at the level of detail requested due to the commercial sensitivity of those data.
C: Assessment of habitats, sensitive taxa, ecological function		
C7	Habitats of particular significance for fisheries management (HPSFM): Provide any criteria used by MPI for identifying HPSFM. Describe any identified HPSFM within the potential sediment plume footprint (including Pātea Shoals/Rolling Grounds; blue cod	The Guidelines for identification of Habitat of Particular Significance for Fisheries Management (HoPS) (**the Guidelines**) sent on 20 October 2025 provides the criteria used to identified habitats to inform consideration of section 9(c) of the Fisheries Act 1996. Further information on the process and progress in developing the HoPS register can be found on the MPI website: https://www.mpi.govt.nz/fishing-aquaculture/sustainable-fisheries/habitat-of-particular-significance-for-fisheries-management

	Data	Response
	nursery areas) and provide maps/shapefiles, references, and a brief confidence statement. Provide any criteria used by MPI for identifying HPSFM Describe any identified HPSFM within the potential sediment plume footprint Provide maps/shapefiles, references, and a brief confidence statement	Section 2.4 of the Guidelines provides an overview on the process applied to assess confidence in the evidence supporting identification of HoPS. Information on potential HoPS at Pātea Shoals has been derived from Morrison et al., 2022 and international literature related to sensitivities of habitat types present in areas identified as blue cod nurseries. This information has been presented in previous reviews of sustainability measures for stocks within this FMA (for example, SNA 8[4] (see page 326). The confidence in the evidence for this potential HoPS will be reviewed by the FNZ Aquatic and the Biodiversity Research Advisory Group (BRAG) and the Aquatic Environment Working Group (AEWG) before the end of 2025. Once the confidence in the evidence has been reviewed by these scientific working groups, and the evidence reviewed by FNZ, the HoPS are added to the register of HoPS published on the FNZ website.
C8	We have been advised that habitats of particular significance to fisheries management (HPSFM) exist within the area that will be impacted by the Proposal. Is this correct? If so, please provide plans that set out their location(s) and provide a description of the habitat and why it is of particular significance. More particularly, we have been advised that the Pātea Shoals has been identified as a potential HPSFM. If correct, what status (if any) does the Pātea Shoals potential HPSFM have under the Fisheries Act 1996? Further, what are the timeframes associated with the Ministry confirming (or otherwise) whether the Pātea Shoals is to be identified as HPSFM?	See above for information (C7) on potential HoPS in the project area. The process for identifying HoPS, including the collation of evidence of potential HoPS, review of the confidence in that assessment, and publishing of HoPS on an online register is discussed in the Guidelines. The section 9 environmental principles of the Fisheries Act must be taken into account by all persons exercising or performing functions, duties, or powers under this Act, in relation to the utilisation of fisheries resources or ensuring sustainability. Section 9(c) of the Act states that habitat of particular significance for fisheries management should be protected. The evidence for the potential HoPS in the Pātea Shoals is being prepared for review by the FNZ Science Working Groups before the end of 2025, alongside a number of other inshore potential HoPS. The evidence for the potential HoPS in the Pātea Shoals has already been used in fisheries management advice when taking section 9(c) into account, aligning with the information principles under section 10 of the Act. As an example, this is evidenced in the review of sustainability measures for the snapper stock in this FMA (SNA 8[4] (for example, see p326)).
C9	Assessment of material harm on blue cod nursery habitat: Describe the indicators MPI would use to	With respect to fishing impacts FNZ considers habitat's sensitivity (tolerance and resilience) and exposure to pressures caused by fishing to determine whether a HoPS is at risk of adverse effects of fishing. This is outlined in Part Three of the Guidelines.

[4] https://www.mpi.govt.nz/dmsdocument/65364-Review-of-sustainability-measures-for-the-2024-October-sustainability-round-Decision-document

	Data	Response
	assess “material harm” (for example, suspended sediment concentration, biogenic cover, juvenile density) and triggers/thresholds for identifying “material harm”.	The sensitivity of the potential HoPS at Pātea Shoals to a range of pressures (which could be fishing or non-fishing related) is outlined in the material presented in previous FNZ publications.[4] The 2022 multibeam and camera surveys presented in Morrison et al., 2022 identified a network of patch reefs where juvenile blue cod were strongly associated with dog cockles on surrounding soft sediments and sponge gardens on reefs. Reefs also support *Ecklonia radiata* and other macroalgae. Note the towed video transects do not cover the full extent of the reef identified by the multibeam data. Sponges have medium sensitivity to marine heatwaves and medium sensitivity to siltation rate changes. They have medium sensitivity to disturbance of the surface of the seabed. Kelp (*Ecklonia radiata*) has high sensitivity to a change in seabed type, and medium sensitivity to sedimentation rate changes, disturbance of the surface of the seabed, and removal of non-target species. It may also be sensitive to the spread of non-indigenous species . The mixed turfing seaweeds on the reef have medium sensitivity to changes in suspended solids (water clarity) and low sensitivity to heavy siltation (up to 30cm of fine material added in a single discrete event). A number of New Zealand and overseas field-based studies and reviews have contributed to the evidence supporting the sensitivity of sponges and kelp. We have a high level of confidence in the evidence on the sensitivity of sponges and kelp habitats. Overseas reviews have contributed to the evidence supporting the sensitivity of turfing seaweed. We have a medium level of confidence in the evidence on the sensitivity of sponges and kelp habitats. Note FNZ’s focus of the risk assessment for HoPS is on the attributes of the habitat considered to support the functional role the habitat provides for the fisheries resource. In the case of the habitats at Pātea Shoals the juvenile blue cod are closely associated with the biogenic habitat in the locations identified as blue cod nursery habitat in Morrison et al., 2022. Material harm would be an impact to the habitat that disrupts the functional role of the habitat as a nursery. To determine the risk of material harm more broadly (that is, beyond risks from fishing, which has been the focus of FNZ’s risk assessment), baseline research on blue cod nurseries would be needed to identify suitable indicators to be monitored that relate to ecologically-meaningful thresholds.[6] This could be informed by the stressors to which these nursery habitats are sensitive to that were identified by FNZ, and overlap between nursery habitats and other stressor footprints.

	Data	Response
C10	Monitoring of blue cod nursery habitat: Describe approaches for pre/during-operation monitoring (metrics, locations, frequency) MPI would recommend/consider appropriate.	Nurseries are particularly significant because of their role in enhancing juvenile fish abundance, growth, and survival. This role can be driven by a number of factors, including their ability to provide food and shelter for small fish. As such, monitoring of juvenile blue cod habitat could include methods that consider the quality and availability of resources for juvenile blue cod, density or condition of juvenile blue cod, or degree of interaction between blue cod nursery habitat and stressors resulting from mining activity: • Settlement and occupancy of nursery habitat: It is thought that blue cod larvae settle in deep (greater than 120 metres) offshore waters before juveniles move inshore to sandy areas and open reefs (such as those at Pātea Shoals). Continued monitoring of juvenile blue cod abundance in areas previously identified as nurseries would support understanding of whether juvenile blue cod continue to successfully settle and persist in high proportions within areas previously identified as nurseries. See Morrison et al., 2022 for methodology on quantifying juvenile blue cod abundance. • Persistence of healthy habitat and associated forage: Complex habitat, such as the sponge- and algal-dominated habitat at Pātea Shoals, can be significantly positively correlated with juvenile blue cod density. Juvenile blue cod associated with complex habitat can also grow faster and have a more diverse diet than those associated with less complex habitat. Therefore, monitoring the abundance, richness, and condition of habitat-forming taxa (for example, sponges, algae) and associated taxa that could be forage for juvenile blue cod (for example, crustaceans, molluscs, polychaetes) may be appropriate. Other methodologies, such as benthic functional integrity, could also be considered here. • Interactions between blue cod nursery habitat and stressors from mining activities: Morrison et al., 2022 identified a network of patch reefs where juvenile blue cod were strongly associated with dog cockles on surrounding soft sediments and sponge gardens on reefs. These reefs also support *Ecklonia radiata* and other macroalgae. This habitat is likely to be sensitive to changes in siltation/sedimentation and water clarity. As such, regular monitoring of suspended sediment concentration and light attenuation, particularly at sites in deeper water, would support understanding duration and intensity of exposure of juvenile nursery habitat to pressures and thus risk to that habitat. While it may be appropriate to continue monitoring areas previously identified as blue cod nurseries, more complete mapping of reef extent and juvenile fish abundance within the wider affected area could identify other priority areas for monitoring (for example, other nursery habitat). Understanding the extent and distribution of other reefs that may support similar functions could provide for a monitoring regime that is more reflective of the level of risk to blue cod nurseries from mining activity (as discussed below in C11). The above monitoring considerations are non-exhaustive, but could support understanding whether the functional role of the habitat as a nursery at the locations identified as HoPS could be adversely affected by the mining activity. We suggest further consultation with experts on juvenile fish-habitat associations would provide further detail on the specifics of monitoring design, particularly in relation to ecologically meaningful

	Data	Response
		thresholds/limits related to habitat degradation. We also suggest considering broader recommendations within the literature regarding baseline monitoring[5] and threshold setting.[6]
C11	Substrate/outcrops and pre-start surveys: For areas in which hard-bottom/biogenic habitats have not yet been mapped but are potentially present, specify recommended survey methods, quality assurance criteria (for example, for ground truthing, statistical parameters), and data analysis and presentation method, including how outputs should be compared to plume modelling.	Robust pre-operation survey information is important for understanding environmental baselines, identifying appropriate indicators, informing monitoring, assessing impacts/risk from stressors resulting from mining activity, and determining thresholds for intervention or mitigation. In circumstances where information is uncertain (such as in circumstances where pre-start survey information may be incomplete), a precautionary approach may be appropriate (as recommended in international guidance related to seabed mining). There are a number of sources that can be used to identify potential reef locations, including local diver/fisher knowledge, LINZ charts, and the Department of Conservation putative reef polygon layer. As presented in Morrison et al., 2022 (and adapted elsewhere), these sources can be used to identify areas to survey using a multibeam echosounder. A benthic terrain model can be applied to those data to identify topographic features that can subsequently be groundtruthed using a towed underwater video camera to understand habitat characteristics and abundance of associated taxa (including juvenile fish). The risk to those habitats and associated taxa from pressures resulting from the mining activity will depend on their sensitivity to those pressures and will need to be considered on a case-by-case basis. We suggest reviewing the methodology of Morrison et al., 2022 in the first instance, and discussing the most appropriate methods for quantifying potential risk from mining activities with relevant experts.
C12	Sensitive taxa and coastal prohibitions: Provide relevant MPI's assessment of potential effects on sedimentation- or suspended sediment-sensitive taxa (for example, surf clams) and identify any statutory or policy prohibitions on commercial take relevant to those taxa (including those from Treaty settlement instruments, customary instruments such as mātaitai/ taiāpure/ temporary closures, or fisheries regulations/ notices), with instrument references and maps.	Generally, suspended sediment can reduce the amount of photosynthesis in the water column and on the seafloor. Sedimentation can also reduce photosynthesis at the seafloor, and on intertidal reefs. Photosynthesis is the basis of the food web on which fisheries species depend, either directly (in the case of some larvae and many suspension/ filter feeders) or indirectly via secondary production (both benthic and pelagic, and including zooplanktivores). A reduction in macroalgae at the seafloor could reduce the availability of habitat to species that occur on rocky shores, subtidal reefs, and that utilise drift algae as habitat. This is considered explicitly in relation to habitats of particular significance for fisheries management but macroalgae form vital habitat for many species. Suspended sediment can damage or clog the feeding apparatus of suspension/ filter feeders, whilst sedimentation may smother fisheries species that cannot move, or reduce the chance of them settling out from the water column and onto rocky reefs. We have provided information on a subset of species which are known to occur in the plume area, based on species relevant to commercial fishers and iwi and for which we have evidence that there may be a higher risk of sensitivity to suspended sediment and sedimentation (see **Appendix Five**). We also provide prohibitions relevant to those species. We recognise there is substantial uncertainty as to how food webs will be affected by the proposed activities, but note the changes to primary production/photosynthesis both in the

[5] For example, Christiansen S, Bräger S and Jaeckel A (2022) Evaluating the quality of environmental baselines for deep seabed mining. Front. Mar. Sci. 9:898711. doi: 10.3389/fmars.2022.898711

[6] For example, Hitchin B, Smith S, Kroger K, Jones DOB, Jaeckel A, Mestre NC, Ardron J, Escobar E, van der Grint J and Amaro T (2023) Thresholds in deep-seabed mining: a primer for their Development. Mar. Pol. 149: 105505.

	Data	Response
		water column and at the seafloor discussed by Cahoon, Pinkerton, and Hawes (2015) in their modelling work on primary production included in the Taranaki VTM application. **Commercial fisheries:** Landing data for species caught in the plume area during the previous five fishing years (2019 – 2024) were compared to best available information on sensitivity to sediments. Available information is summarised in **Appendix Five** (Table One). **Customary fisheries:** Species identified by iwi in Fisheries Protocols as particularly significant to them were compared to best available information on sensitivity to sediments. Available information is summarised in **Appendix Five** (Table Two – Ngā Rauru Kītahi, and Table Three – Ngāti Ruanui). A map showing Fisheries Protocol Areas is provided. The fisheries protocol area for each governance entity means the area identified in the map, together with the adjacent waters. These areas are not limited to, and may apply more widely than, rohe moana described in other maps provided to the panel. The Fisheries Protocols also indicate taonga species. In addition, there are other protocols for other iwi with interests in the plume area that do not identify species for prohibition in the same way as the Fisheries Protocols included here (see for example, https://whakatau.govt.nz/assets/Treaty-Settlements/FIND_Treaty_Settlements/Ngati-Apa-North-Island/DOS_documents/Ngati-Apa-North-Island-Deed-of-Settlement-Schedule-8-Oct-2008.pdf). FNZ notes the special relationship between tangata whenua and all species of fish, aquatic life and seaweed. The Panel may wish to discuss this with the relevant iwi and hapū. **Statutory or policy prohibitions relevant to commercial fisheries resources in the area** **Set net fishing prohibited** – Fisheries (Central Area Commercial Fishing) Regulations 1986: 7D (1) (c). A commercial fisher must not use a set net for fishing. Relevant to, for example, kingfish, blue warehou. **Areas closed to longliners** – Fisheries (Commercial Fishing) Regulations 2001: 24 (2) (a). Foreign-owned New Zealand fishing vessels that are used for any tuna longline fishing must not fish in the New Zealand territorial sea at any time. Relevant to snapper. **Restriction on method of taking seaweed** – Fisheries (Central Area Commercial Fishing) Regulations 1986: 14H – No person shall take any seaweed by any method other than hand-gathering – relevant to, for example, blue cod and kingfish.

	Data	Response
		Shellfish prohibition – Fisheries (Central Area Commercial Fishing) Regulations 1986: 12 (3) – No commercial fisher shall take by any fishing method, or have in possession, any paua or mussels – relevant to species identified under Fisheries Protocols. **Kina take prohibited except by hand-gathering** – Fisheries (Central Area Commercial Fishing) Regulations 1986: 14B (5) – No commercial fisher shall take any kina for the purpose of sale, by any means other than hand-gathering – relevant to species identified under Fisheries Protocols. **Spatial closures** There are no mātaitai, taiāpure, or temporary closures under s 186 of the Fisheries Act in the plume area. **Habitats of particular significance to fisheries management (HoPS)** Sensitivities of the potential HoPS at Pātea Shoals and the risk assessment used for HoPS are discussed in C7, C8 and C9.
C13	Assessment of nursery function for species other than blue cod provided by habitat: Recommend methods suitable for assessing whether the proposed activities have adverse effects on the nursery function for species other than blue cod provided by the benthic habitat in the area potentially impacted by sediment deposition or increased suspended sediment concentration. Recommend methods for pre-commencement surveying and during- and post-operation monitoring.	The focus of FNZ's work in the Pātea Shoals has been on blue cod, as the available evidence demonstrated the habitat in these locations supported an abundance of juvenile blue cod that indicated these areas are utilised as nursery habitats by this species. Presence of juveniles of other species is discussed in the Morrison et al. 2022 report, for example juvenile scarlet wrasse were found in close association with some *Caulerpa* meadows, sponge clusters and gardens; juvenile leatherjacket with *Ecklonia* forest; but the report did not characterise the areas where these species were found as nursery habitats for those species.
D: Good practice options for monitoring and data handling		
D14	What are good practice examples of monitoring and reporting of the effects of activities such as seabed mining on fisheries and nursery habitats?	Some elements related to monitoring and reporting the effects of mining activities on juvenile blue cod nursery habitats were discussed in the response to question C.10. However, the particulars of monitoring and reporting of the effects of activities such as seabed mining on other nursery habitats may differ depending on the sensitivity of those habitats (and the species that use them) to stressors from mining activities and should be considered on a case-by-case basis.

	Data	Response
		The same is true for monitoring and reporting of effects on fisheries, as increased suspended sediment and decreased light attenuation can affect fished species and associated food webs in different ways, including impacts on settlement, growth, feeding, respiration, and productivity. As above, the likelihood and intensity of an impact will depend on the sensitivity of fished species and the resources they rely on within the ecosystem. We suggest further consultation with experts on the impact of sedimentation and juvenile fish-habitat associations would provide further detail on the specifics of monitoring design, particularly in relation to ecologically meaningful thresholds/limits. We also suggest considering broader recommendations within the literature regarding baseline monitoring[5] and threshold development[6].
D15	Are the following relevant/useful, and if so how?: • Fisheries: metrics, locations, frequency, review thresholds; • Habitat: metrics (for example, light attenuation, SSC, biogenic cover, juvenile presence), locations, frequency, thresholds); and • Governance: independent review arrangements, notification to fishers/iwi, and response actions Please include examples of how these are applied in this and other New Zealand contexts.	See D14 for a discussion of monitoring considerations. See D16 for examples of arrangements that provide for notification to iwi/stakeholders of management progress and provide an opportunity for iwi input and participation and stakeholder engagement in fisheries management.
D16	Data sharing mechanics: Outline practical data-sharing arrangements MPI would suggest (formats, timing, recipients, confidentiality treatment) for ongoing reporting of operational information/progress and/or monitoring results to iwi/fishers/regulators, if considered useful.	FNZ utilises a number of processes to engage with iwi/fishers/other stakeholders on fisheries management matters. Examples include: • The Iwi Fisheries Forums discussed in the response provided to the Attachment B (Minute 10) information request; • Advisory Groups participated in by iwi and stakeholder representatives. For example, a Hauraki Gulf Fisheries Plan Advisory Group has been established to support implementation of the Hauraki Gulf Fisheries Plan; • Direct engagement with representative organisations (such as Seafood New Zealand, the Rock Lobster Industry Council, and New Zealand Federation of Commercial Fishers) and environmental non-

	Data	Response
		government groups. Some of these organisations have regular newsletters provided to all members and/or subscribers; and • The FNZ science working groups who provide independent review of the science projects commissioned by FNZ. More information on these groups can be found here: https://www.mpi.govt.nz/science/fisheries-research-and-science/fisheries-research-processes A webpage where progress updates and new information can be provided would be a less interactive but also one helpful and simple way to share information. Alerts can be set up to subscribers when new information is published. Some agencies have data sharing portals. The following provides an example: https://www.mpi.govt.nz/legal/legislation-standards-and-reviews/fisheries-legislation/maps-of-nz-fisheries

Appendix Two: the mining area and areas affected by the plume as defined by the application

Appendix Three: Fisheries related management areas

Appendix Four: General Fisheries Management Areas

Appendix Five. Supporting information including sensitivities to sedimentation for C12.

Information on sensitivity to sediments for these species has been sourced from fisheries plenary documents

https://www.FNZ.govt.nz/fishing-aquaculture/fisheries-management/fish-stock-status/plenary-reports-for-individual-species

https://piritahi.cohesion.net.nz/Sites/MIR/MC/Lists/MinisterialCorrespondence/MIN25-0882/r250255_TaranakiVTM_fisheries_protocol_v1.pdf?d=w1f7c0815174e444c969baf41fbe1a195

https://piritahi.cohesion.net.nz/Sites/MIR/MC/Lists/MinisterialCorrespondence/MIN25-0882/r250255_TaranakiVTM_customary_fisheries_areas_v2%20with%20project%20area.pdf?d=w34a4c95fe398427983f6f7118e54835e

Table One. Commercially important species fished in the plume area of interest and their likely sensitivities to sedimentation and suspended sediment.

Fisheries species	Sensitivity as adults	Sensitivity as juveniles
Surf clams including triangle shell, deep water tuatua, large trough shell, and ringed dosinia	Surf clams occur in shallow water along dissipative sandy beaches and form zones of different species dependent on sediment type, mobility, and the disturbance (wave) regime. Changes in sediment grain size may alter habitat characteristics and affect clam abundance and distribution. Surf clams are infaunal filter feeders, obtaining food from the bottom two to three centimetres of the water column; they are dependent on primary production in the water column, which may be altered by suspended sediment. Suspended sediment could also directly reduce feeding efficiency, growth, and thereby affect reproduction.	Surf clam larvae are pelagic and dependent on sufficient primary production in the water column to survive to settlement. We have no understanding of how long recruitment may take within the plume area if there was a negative impact of sediment on the local population.

Snapper	Adults require clear, productive waters for spawning (Crossland 1981), but we do not have information to determine if snapper spawn in the plume area.	Unknown
Blue warehou	Adults are mainly pelagic and have a diet of pelagic species (for example, salps, euphausids) which are themselves dependent on primary production in the water column. Primary production may be affected by mining activities.	Unknown
Blue cod	Unknown	Juvenile habitat may be sensitive to sedimentation – see C7, C8 and C9
Kingfish	Unknown	Juveniles are pelagic and utilise floating rafts of kelp for shelter. Changes to macroalgae production might alter habitat availability for juvenile fish.
Rough and smooth skate	Unknown	Skates reproduce by laying yolky eggs enclosed in leathery cases, on the seabed in spring-summer. Time to hatching varies from eight to 15 months, depending on water temperature. Burial is a risk during this time.

Table Two: Species identified by Ngā Rauru Kītahi Fisheries Protocol as very important, and their likely sensitivities to sedimentation and suspended sediment

Fisheries resource	Process	Risk
Pupu – cats eyes, *Turbo smaragdus*	Benthic grazers on rocky shores	Food availability may be reduced
Kotoretore – sea anemone, *Actina* spp.	Predators of zooplankton	Food availability may be reduced
Rori – (including ngutungutukaka) – shield shell, *Scutus breviculus*	Benthic grazers on rocky shores	Food availability may be reduced
Kuku – mussels, *Perna canaliculus, Mytilus edulis*	Filter feeders	Food availability and feeding efficiency may be reduced, and suspended sediment may affect

		feeding structures (gills) when suspended sediment is chronic / high

Table Three: Species identified by Ngāti Ruanui Fisheries Protocol as very important, and their likely sensitivities to sedimentation and suspended sediment.

Fisheries resource	Process	Risk
Pupu – cats eyes, *Turbo smaragdus*	Benthic grazers on rocky shores	Food availability may be reduced
Kuku – mussels, *Perna canaliculus, Mytilus edulis*	Filter feeders	Food availability and feeding efficiency may be reduced, and suspended sediment may affect feeding structures (gills) when suspended sediment is chronic/high
Pipi	Filter feeders dwelling in clean sandy mud	Food availability and feeding efficiency may be reduced, and suspended sediment may affect feeding structures (gills) when suspended sediment is chronic/high
Kina – sea urchin	Benthic grazers on rocky shores / subtidal reefs	Food availability may be reduced and larval settlement impacted
Pāua – *Haliotis* spp.	Benthic grazers on rocky shores	Food availability including macroalgae may be reduced and larval settlement impacted