Submission from Straterra
to the Environment Committee
Inquiry into seabed mining in New Zealand
June 2023

Introduction

1. Straterra is the industry association representing the New Zealand minerals and mining sector (including coal). Our membership is comprised of mining companies, explorers, researchers, service providers, and support companies.
2. We welcome the opportunity to provide input into the Select Committee Inquiry into seabed mining in New Zealand undertaken by the Environment Committee.
3. We would like the opportunity to make an oral submission to the Committee, in support of this written submission.

Submission

4. This submission discusses the opportunities and issues around seabed mining in New Zealand's coastal marine area, its territorial sea and exclusive economic zone. It does not address seabed mining on the high seas.
5. We have prepared this submission using the Committee's terms of reference which were set out in the Committee's invitation to submit. But first we make these general comments about the importance of minerals and the opportunities from seabed mining.

General comments

6. We welcome this inquiry. It is a valuable opportunity to understand the importance of minerals to society and the potential that seabed mining has to offer New Zealand.
7. This submission starts with the point that a more technologically advanced, sustainable world needs more minerals and mining and we need to plan where that will happen.
8. Almost everything we depend on every day is either made from minerals or relies on minerals for its production and distribution. A green tech future will be reliant on even more minerals being mined than are today, including for the likes of electric vehicles, the batteries that operate them, and the electricity sourced to power those batteries.
9. We believe this inquiry further cements the need to take a strategic approach to mining in New Zealand. We need to follow many other countries and develop a critical minerals strategy. We can't isolate methods of mining (seabed or land) or what we mine until we are clear of where we want to go and how we are going to resource the massive societal changes ahead of us including renewable

energy and a heavy reliance on electricity. There are some very good examples of critical minerals strategies from the governments of Canada and Australia.

10. New Zealand's marine jurisdiction is prospective for many of these critical minerals and we need a regulatory framework which allows us to access them at a minimal and manageable cost to the environment.

11. As we point out in this submission, we acknowledge the environmental impact seabed mining can have and we emphasise the importance of having a sound regulatory framework to manage this. Seabed mining applications are best assessed on a case-by-case basis, with an objective science-based assessment of the merits. Managing and minimising the environmental impact must be fundamental to the conditions of any successful applications.

12. It is clear we have viable mining opportunities within New Zealand's territorial sea and exclusive economic zone to source critical minerals the world needs. We should be guided by research and science and be prepared to take some calculated risks to exploit these. We support all development work being looked at through a lens that does not consider environmental views alone, but that is balanced in a holistic approach that includes cultural, social, and economic impacts and benefits as well.

13. This is not an unknown frontier. Other jurisdictions have developed legislation, regulations and policy approaches to seabed mining including the United Kingdom, United States of America, and Japan. The Cook Islands has a Seabed Minerals Act and is planning to develop a seabed mining industry. Nauru also plans to develop seabed mining.

14. There are potentially billions of dollars of export receipts for New Zealand, and hundreds of jobs associated with seabed mining. Significant investment has been attracted to New Zealand to assess this potential and more could follow.

15. New Zealand has a provenance to be proud of – mining in New Zealand is governed by stringent environmental rules as well as strict employment and health and safety laws. We expect seabed mining to be no different.

16. Bans of mining are unwise because they close down options forever. Assessing mining applications on a case-by-case basis, as our regime currently does, makes much more sense. Bans also serve no purpose. They won't stop mining. They will shift it to places that might not have strict controls like New Zealand does. We will continue to import those minerals and the products made from them, turning a blind eye to provenance.

17. New Zealand is the ideal country to set the highest standards for seabed mining, as we have done for mining on land.

Committee's topics

Overview of seabed mining operations and proposals

18. Seabed mining has been operating successfully in New Zealand waters for more than 75 years.

19. It is currently occurring in several locations, mostly close to shore, where sand dredging/mining operations exist.

20. There is seabed mining for sand at Kaipara, and at Pakiri, in Northland which is occurring up to around five kilometres offshore. This sand is mainly for the production of concrete and for supply to the construction sector.

21. Further offshore, seabed mining activity is not currently occurring in New Zealand but there are at least four offshore exploration and mining permits that have been allocated for activities which have yet to receive consent.

22. Seabed mining occurs all around the world. The mining/dredging of offshore aggregate material (sand and gravel) alone forms a large industry estimated at over 150 million tonnes per annum for supply to the construction sector and for repairing eroded or storm damaged beaches.

23. Nauru, Kiribati, Tonga and the Cook Islands have sponsored exploration activities in the Pacific Ocean's Clarion Clipperton Zone which borders the territorial waters of these countries.

24. Deep see mining in the high seas (international waters) is being negotiated by governments through the International Seabed Authority. But that is beyond the scope of this submission.

The opportunities from seabed mining in New Zealand

25. The mineral resources contained within the seabed of New Zealand's territorial sea and exclusive economic zone have significant potential for our economy, our contribution to new energy sources such as solar panels, and the global supply of critical minerals. Many of these will be used in the area of renewable energy generation.

26. The seabed in New Zealand's marine jurisdiction contains prospectivity for minerals including: South Taranaki Bight (ironsands for steelmaking and vanadium); Chatham Rise (rock phosphate, and potentially, Rare Earth Elements REEs); Kermadec volcanic arc (gold, copper, zinc, barium and other metals); as well as aggregates, and deep-sea nodules. This is not an exhaustive list.

Vanadium-rich ironsands – western North Island

27. Over time there have been many Crown mineral permits relating to titanomagnetite resources offshore of the western North Island. These heavy mineral sands are noted for a vanadium byproduct, which, depending on commodity prices, can double the value of extraction.

28. The dominant proposal has been that of Trans-Tasman Resources Ltd (TTR), which continues to pursue regulatory approval since the decline of its first marine consent application in 2014.

29. Arguably, the environmental impacts of seabed mining in South Taranaki would be minimal because there is little biodiversity on the seabed, and the seafloor is one of frequently shifting sands from wave disturbance along a windswept part of New Zealand.

30. Vanadium is used in steel-strengthening alloys, e.g. reinforcing steel. It is also increasingly used in evolving technology for large-scale batteries for electricity storage.

Rock phosphate – Chatham Rise

31. Rock phosphate is a raw material in fertiliser manufacture, and is currently sourced from Western Sahara, a contested part of Morocco. A New Zealand source would be more desirable and would create local jobs.

Rare Earth Elements (REEs)

32. At an average depth of 110 metres below sea level, the surface of the Chatham Rise has rock phosphate (phosphorite) REE mineralisation, in the form of nodules surrounded by a muddy substrate.

33. REEs span a wide range of uses including renewable electricity technologies.

Sulphide mineral deposits – Kermadec volcanic arc

34. The Kermadec volcanic arc spans more than 800 kilometres from the Bay of Plenty in a northeasterly direction towards Tonga and is a present-day analogue of gold-copper deposits in the South American Andes and in Papua New Guinea, as examples.

35. A significant part of this area lies within the proposed Kermadec/Rangitāhua Ocean Sanctuary – which would ban seabed mining within it – progress on which has stalled since 2016. There is at present a moratorium on minerals activities in this area under the Crown Minerals Act 1991.

36. Any area where mining would occur is already subject to significant natural disturbance from undersea volcanism and related landslides, meaning undersea life in these environments is among the most resilient on Earth. By comparison, the impacts of mining would be negligible.

37. The Kermadec volcanic arc is a dynamic environment where the impacts of mining would be minuscule compared with that of natural disturbance.

Ironsands and aggregate – coastal marine area

38. Ironsand is an input into iron and steelmaking. Sand is used to produce concrete and for supply to the construction sector.

39. Both sand and ironsands are extracted in the coastal marine area

40. The Royal New Zealand Navy has identified the importance of New Zealand's marine jurisdiction for mineral resources of domestic and global significance, as shown in this article: The role of the deep sea in meeting global demand for critical minerals, in the July 2021 issue of Professional Journal of the RNZN.

41. In this article Commander John Sellwood says: "With some standout exceptions, New Zealand is less invested in the manufacturing industries that require the full range of critical minerals than our partners. But we are no less dependent on the final products. Our security will be enhanced by supporting efforts to ensure global supply chains are reliable, resilient and protected against state coercion."

Costs and risks of seabed mining in New Zealand, including environmental impacts in comparison to other methods for obtaining minerals (eg land-based)

42. We acknowledge that seabed mining can be invasive. But just as the environmental impacts of mining on land can be, and are managed, so can the impacts of mining on the seabed.

43. As with land-based mining, applications for seabed mining are assessed on a case-by-case basis and with an objective science-based assessment of the merits of the application. Managing and minimising the environmental impact must be fundamental to the conditions of any successful applications.

44. If consents are granted for offshore seabed mining, due to the conditions imposed around mitigating environmental impacts within the regulatory regime, along with the commercial realities of mining, the footprint is likely to be tiny and the impact both minimal and temporary.

45. Establishing the environmental impacts of seabed mining is challenging because the activity is under water, from shallow depths to the deep ocean.

46. Adaptive management of mining is needed to complement any call for a precautionary approach to mining. "Adaptive management" means learning by doing and adjusting operations accordingly. It is a practical approach to gaining more knowledge of the environmental impacts of mining on the marine environment.

Comparisons with land-based mining

47. Heavy mineral sands mining on land follows a similar process to that of seabed mining for the same resource. It entails excavation of ore, separation of the heavier components to produce an ore concentrate (for further processing), the return to the environment of the lighter sands, and recontouring of disturbed ground.

48. Seabed mining occurs on the seafloor or at shallow depths below the seafloor, in consideration of the economics. Underground mining on land can occur hundreds of metres below surface, again, depending on the economics.

49. On land, disturbed ground will return by itself over time to a former or different ecology or set of ecosystems. A miner on land can channel this natural process into more desirable environmental outcomes, or outcomes to comply with resource consent conditions. The seafloor, on the other hand, is bathed in ocean currents carrying the promise of life, i.e. plankton or the larvae of diverse fauna and flora. Where there are benthic (bottom of the sea) establishment opportunities, ocean life will take them.

50. Every mine on land is different as to the effects and their management, and the same is also true of seabed mining. Land mining projects are located in environments where the effects are different, and therefore, the management of those effects are different.

51. But the regime requires that the impacts of mining are managed to the highest environmental standards with companies spending millions of dollars each year on planting native species, ensuring the health of waterways, and controlling pests and predators. These case studies are provided to give examples of this.

52. A point in favour of seabed mining is the relative scale of mining disturbance compared with the area of the surrounding environment (also discussed above). In other words, only a very small proportion of the seafloor can be mined at any one time, because of the economics, including the cost of environmental management.

53. Any seabed mining proposal needs to be seen in this context. There will be local impacts; however, they are likely to be minor, or less than minor, in context. In some settings, the benthic environment will recover over time from mining, with or without site remediation. In other settings, there will be permanent harm to the benthic environment, and a different or altered ecosystem will establish locally post-mining.

54. Still, management needs to focus on restoring to the extent possible the seabed and allowing time for seafloor (benthic) ecosystems to re-establish. Depending on the situation, re-establishment of the seafloor could occur more quickly than natural re-establishment of ecosystems on land.

55. Other management methods aim to minimise impacts on marine mammals, and seabirds.

56. Before considering methods for seabed mining, as compared with mining on land, New Zealand needs the enabling policy settings for responsible exploration and mining, and experience shows these are lacking.

57. An additional approach to evaluating these effects is to consider them in the context of the benefits of mining in terms of minerals that New Zealand and the world needs, New Zealand jobs and other economic value for New Zealand.

How seabed mining is managed internationally and in New Zealand

New Zealand

58. The following statutes apply in New Zealand's marine jurisdiction to regulating the environmental effects of seabed mining:

- Resource Management Act 1991 – sustainable management of the coastal marine area (out to 12 nautical miles or 22 kilometres)
- Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ Act) – sustainable management in the EEZ (22km–185km from shore)
- Marine Mammals Protection Act 1978 – protection of marine mammals, including via marine mammal sanctuaries
- Fisheries Act 1977 – noting Benthic Protection Areas, which protect large areas of the seafloor in the EEZ from bottom trawling
- Crown Minerals Act 1991 – ability to establish moratoria on minerals activities at places, eg Kermadec volcanic arc
- Proposal for a Kermadec/Rangitāhua Ocean Sanctuary under special legislation.

Internationally

59. Seabed mining is not an unknown field. Other jurisdictions have gone through policy and regulatory processes that New Zealand can learn from.

60. Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO) – an Australian Government corporate entity – has reported on International Regulatory Regimes and Stakeholder Consultation for the Offshore Aggregate Industry: Models for Good Practice in Australia. This outlines the legislation, regulations and policy approaches in the United Kingdom, United States of America, and Japan.

How domestic regulatory settings are performing, including under the Crown Minerals Act 1991, Resource Management Act 1991, and Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (EEZ Act)

EEZ Act

61. The two proposals for seabed mining in the EEZ have been TTR's vanadium-rich ironsands project in the South Taranaki Bight, and Chatham Rock Phosphate's rock phosphate/REE project on the Chatham Rise.

62. The experience to date, via the Environmental Protection Authority process under the EEZ Act for considering marine consent applications, and subsequent and repeated court action, is that the EEZ Act makes it too challenging in New Zealand to gain marine consent.

63. Largely as a result, no seabed mining proponent has been successful to date in gaining operative marine consent to mine. There are several issues, including:

    - The inability to adaptively manage mine development and operations, to comply with marine consent conditions
    - This inability zeroes in on arguably the biggest effect of seabed mining, sediment discharges to seawater, which are the most readily manageable
    - The Court of Appeal's and the Supreme Court's interpretation of the sustainable management purpose of the EEZ Act – that mining must avoid all adverse effects on the marine environment – sets an impossibly high bar
    - The location of Chatham Rock Phosphate's mining permit within a Benthic Protection Area (BPA), see para 58, is problematic: if a decisionmaker cannot allow bottom trawling in a BPA, then how could mining receive approval?

EEZ Act purpose

64. The EEZ Act's purpose (s10) is "sustainable management", and to "protect the environment from pollution by regulating or prohibiting the discharge of harmful substances".

65. The Court of Appeal had interpreted the word "protect" to mean in relation to TTR's reapplication for marine consent, the avoidance of all adverse effects. That would be impossible to achieve, because mining would cause at least some sediment discharges into the water column. (It is worth noting, the marine environment in the TTR permit area already has significant natural turbidity.) This prevents granting of marine consent under s59 of the Act.

Adaptive management under the EEZ Act

66. In October 2018 a Ministry for the Environment/Ministry of Business, Innovation and Employment briefing paper was among papers released to the media under the Official Information Act 1982.

67. The briefing paper says: "There is ambiguity under the EEZ Act about the Environmental Protection Authority's ability to impose conditions on discharge or dumping applications that amount to an 'adaptive management approach'."

68. Re: TTR's reapplication for marine consent, it says: "The Crown agreed that the Act's provision 'precludes conditions designed to address and absence of adequate information about the effects of dumping or discharges, and the measures to address those effects, by providing for an adaptive management approach'."

69. "It seems unlikely that Parliament intended this, given that conditions should be imposed to manage any potential adverse effects of an activity on the environment or existing interest," the briefing paper says.

70. The question was how to amend the EEZ Act to provide for marine discharges to be adaptively managed. Officials provided three options to Ministers for a decision on how to fix the problem:

    - A regulatory streamlining omnibus bill to amend the EEZ Act as needed

- Special legislation under urgency to amend the EEZ Act
- An earlier proposal from MfE to include an amendment to the adaptive management provisions in a broader review of the EEZ Act.

71. None of these options have been pursued to date.

Resource Management Act 1991

72. The RMA system is proving to be challenging for the extraction in the coastal marine area, e.g. sand dredging for aggregate, including for concrete, in areas of New Zealand of high demand. This potentially constrains supply at a time of high need.

73. The current resource management reform is an opportunity to provide a fit-for-purpose statutory framework for activities on land and in the coastal marine area, including for responsible seabed mining. As matters stand, the Natural and Built Environment Bill fails this test.

The Marine Mammals Protection Act 1978

74. A further constraint is the Marine Mammals Protection Act 1978 (MMPA). This statute provides for the establishment and modification of the boundaries to, and conditions applying in marine mammal sanctuaries.

75. The Act specifically protects marine mammals from disturbance, including from activities such as seabed mining. We support marine mammal sanctuaries and we support this provision. But we are concerned that activities such as seismic surveying and seabed mining within sanctuaries are being opposed on the grounds that these activities threaten marine mammals which is not supported by science.

76. Marine consent conditions as regards to marine mammals under the EEZ Act will need to ensure compliance with the MMPA. Our advocacy for a case-by-case approach to regulating mining proposals applies to marine mammal sanctuaries.

Whether any change to domestic regulatory settings should apply to the coastal marine area, the EEZ and extended continental shelf, or both

77. In an ideal world, there would be a single environmental statute applying to New Zealand's marine jurisdiction, i.e. the coastal marine area, and the EEZ and the extended continental shelf.

78. In practice, there are legal differences between New Zealand's sovereign rights and responsibilities applying to the coastal marine area, and to the EEZ. On that basis, the current 22km boundary between the CMA and the EEZ should remain.

79. Both the RMA and the EEZ Act require thorough reform, as discussed earlier in this submission.

The prospect of any change to domestic regulatory settings being supportive of Pacific countries in considering their own positions on seabed mining

80. Different Pacific countries have different positions on seabed mining.

81. The Cook Islands, for instance, is actively promoting the exploration of seabed minerals with a view to the island country developing a seabed mining industry.

82. Seafloor nodules on the continental shelf are prospective for metals such as cobalt, copper, manganese and nickel.

83. In February 2022 the Cook Islands' government signed seabed minerals exploration licences for several exploration companies, including for a company it co-owns.

84. Prime Minister of the Cook Islands Mark Brown said at the time, as a flavour of his Government's policy: "Today our people are leaving to pick apples in New Zealand; tomorrow we will have our own apples to pick, and they sit on the floor of the ocean."

85. To support the Cook Islands' aspirations, the New Zealand Government could ensure our country has law and regulation for seabed mining aligned with that of the Cook Islands where international expertise – including from New Zealand – has been brought to bear.

86. In 2009 the Cook Islands, with drafting assistance from the Commonwealth Secretariat, passed the first dedicated legislation in the world to regulate seabed mining in an EEZ.

87. In 2019 the country passed the Seabed Minerals Act, which supersedes the earlier Act. The bill was drafted by New Zealand's Parliamentary Counsel Office. This Act has been amended twice subsequently. The Cook Islands' government is currently developing environmental management regulations for seabed mining.

A Te Ao Māori perspective on these issues.

88. We agree it is important for the committee to seek a Māori perspective on these issues. We do not purport to give one here but we make the following observations on Māori and mining.

89. Māori have been extracting mineral resources for many centuries and today many Māori work and have business interests in the sector. The percentage of Māori employed in mining is much higher than the equivalent figure for the population as a whole.

90. It needs to be noted that Māori have interests on both the environmental protection side and in the development of minerals for historical, cultural, and economic reasons. There are many different Te Ao Māori perspectives on the gifts of Tangaroa, including minerals.