From: NZ Sport Fishing Council and others.

To: Environment Committee
en@parliament.govt.nz

Date: 22 June 2023

Submission: Inquiry into seabed mining in New Zealand

1. **We submit in support** of an immediate ban on seabed mining in New Zealand's Exclusive Economic Zone (**EEZ**), due to unavoidable environmental damage.

2. **We support** the submission from Kiwis Against Seabed Mining (KASM) on this matter.

3. **We wish to be heard** by the Environment Committee in support of this submission.

Submitters

4. This submission summarises the collective views of the New Zealand Sport Fishing Council, our outreach arm LegaSea, New Plymouth Sportfishing & Underwater Club, the New Zealand Angling & Casting Association and New Zealand Underwater, on seabed mining in New Zealand's waters.

5. The New Zealand Sport Fishing Council (**NZSFC**) has a prior interest in seabed mining. In 2013, 2014, and 2016 we submitted in opposition to the Trans-Tasman Resources Ltd resource consent application to mine the seabed in the South Taranaki Bight. Our submission was developed in conjunction with and in support of our local NZSFC club, the New Plymouth Sportfishing & Underwater Club.

Equity and social risks

6. There are a range of social and cultural flow-on equity costs of seabed mining in New Zealand and its Pacific territories.

7. Seabed mining can have an adverse impact on fish populations, which can subsequently impact community livelihood and other economic activities involving fish. This includes impacts on fishing access through fish availability, habitat productivity, and tourism.

8. Fishing is a core part of many New Zealanders' livelihood. Sustaining fish populations is crucial in providing for our social, economic, and cultural well-being. Fishing supports commercial fishing businesses, recreational fishing enterprises, and contributes to Māori customary needs. Recreational Fishing in New Zealand: A Billion Dollar Industry (Southwick 2017), found recreational fishers alone spend around $946 million each year on their fishing.

9. Fish populations and access to fishing in New Zealand are already severely compromised by an inadequate Quota Management System that fails to protect and sustain New Zealand inshore fish stocks at acceptable, abundant levels. We cannot risk jeopardising the environment that sustains these fish populations.

10. Also, chemical release from the seabed due to disturbance from bottom contact fishing methods can have direct impacts on human health due to the bioaccumulation of compounds released and working their way up the marine food chain, to eventual human consumption.[1] Although the magnitude of this risk remains unclear, the impact of this would be disastrous for New Zealand.

Environmental risks

11. The short-term and long-term environmental risks of seabed mining are indisputable. Seabed mining causes environmental damage that extends beyond the zone being mined.

12. Research shows deep-sea habitats are unable to recover naturally from deep-seabed mining. The New Zealand EEZ is mostly deep-sea habitat beyond 200m in depth where light reach is limited. Since creatures inhabiting deep-sea habitats are slow growing and vulnerable to disturbance, future recovery of mined habitats or potential for habitat restoration appears inconceivable.[2] Deep-sea habitats provide important ecosystem services and must not be reduced to rubble by the destructive processes involved in seabed mining.

13. Below are some of the many impacts of seabed mining on the underwater environment.

14. **Impact 1:** Resource removal, otherwise known as extraction. Resource removal from seabed mining at the surface level leads to reduced flora, fauna, biodiversity, and seabed habitat availability. Fish populations and biogenic habitats are already at high risk due to climate change and other adverse seafloor activities such as bottom trawling. We cannot afford to further compromise the environment for monetary gain.

[1] Hamley, G.J. *The implications of seabed mining in the Area for the human right to health.* RECIEL. 2022; 31(3): 389- 398. doi:10.1111/reel.12471

[2] Amon, D. J., *et al.* 2022. *Commentary. Heading to the deep end without knowing how to swim: Do we need deep-seabed mining?* One Earth, Volume 5, issue 3, pp. 220-223. https://doi.org/10.1016/j.oneear.2022.02.013

a. Seabed mining has long-term effects such as "irreversible changes, decline, or loss in key ecosystem functions such as nutrient and carbon cycling, maintenance of population connectivity, regulation of food webs, especially in directly disturbed areas."[3]

15. **Impact 2:** Sediment plumes from mining disturbance (collector plumes) directly affect benthic communities (species and habitats) and affect water columns, areas of vital species, and nutrient movement. Some seabed communities are able to recover if sediment coverage is a small amount which can be easily shifted by currents however, sediment tolerance differs between species and places.

    a. Research suggests that sediment resettlement from return water (dewatering plumes) can occur on benthic environments that are untouched by any mobile, seafloor equipment, smothering habitats that aren't even directly affected by mining processes but unfortunately happen to be there.

    b. Seabed mining equipment (drilling, towing mining equipment) impacts carbon sinks, by releasing carbon back into the atmosphere.

16. **Impact 3:** Chemical release from the seabed due to disturbance. When sediment is disturbed, naturally occurring components will be released from anoxic (oxygenless) layers. In coastal areas with high organic matter content, hydrogen sulphide (H_2S) is abundant. The release of H_2S is a well-known concern within coastal dredging and mining activities as it poses toxicity threats to marine organisms. Metal toxicity can occur from mining for sulphides, having sub-lethal or lethal impacts on benthic organisms.[4]

    a. High metal concentrations in the water column can reduce oxygen availability in the environment and bioaccumulation in fish.

17. Seabed mining is just one of many activities adversely affecting the marine environment. The adverse effects of seabed mining are well documented and ought to be sufficient to support a ban on such activity. Because of the damage caused to the benthic environment, we have for many years advocated for a ban on all mobile, bottom-contact industrial fishing methods, including bottom trawling and dredging, in New Zealand waters.

Alternative methods to extract minerals

18. The risks associated with seabed mining discount sustainability claims by the mining industry. Seabed mining causes environmental damage, and if the industry reasoning is that *"mining is in*

[3] Amon, D. J., *et al.* 2022. *Assessment of scientific gaps related to the effective environmental management of deep-seabed mining*, Marine Policy, Volume 138. https://doi.org/10.1016/j.marpol.2022.105006

[4] Kaikkonen, L., Venesjärvi, R., Nygård, H., & Kuikka, S. 2018. *Assessing the impacts of seabed mineral extraction in the deep sea and coastal marine environments: Current methods and recommendations for environmental risk assessment,* Marine Pollution Bulletin, Volume 135, pp. 1183-1197, https://doi.org/10.1016/j.marpolbul.2018.08.055.

fact part of the solution to the climate change issue, not the problem,"[5] they have got to be joking. Mineral extraction is not necessary to provide sustainable technologies.

19. The perceived benefits of aggregate, coal, and mineral extraction are outdated. We live in a century where so much of our technology has been enhanced by minerals that can now be reused, or alternative solutions can be found. We can reuse minerals already extracted. While some minerals are plentiful, they are still finite.

    "Mechanical stress due to the removal of seafloor substrate is the most direct pressure from mineral extraction. The time scales of mineral concretion formation range from hundreds to thousands of years for ferromanganese concretions, to millions of years for deep-sea nodules." (Schulz and Zabel, 2006).

20. Refining the reuse and recycling of metal e-waste would reduce the need for seabed mining. Processes such as urban mining are becoming more cost-effective than virgin mining,[6] and potential alternatives to seabed mining include bioleaching.

21. Rather than imposing stricter regulations on seabed mining, we urge the Environment Committee to consider viable extraction alternatives that safeguard our environment and future well-being.

[5] https://straterra.co.nz/wp-content/uploads/2023/04/Submission-Improving-economic-resilience.pdf

[6] Zeng, X., Mathews, J.A., Li, J. 2018. *Urban Mining of E-Waste is Becoming More Cost-Effective Than Virgin Mining.* Environ. Sci. Technol. 2018, 52, 8, 4835–4841. https://doi.org/10.1021/acs.est.7b04909