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Kiwis Against Seabed Mining, Incorporated (KASM)

Reasons

KASM Submission
12 December 2016

Proposal Name: Trans-Tasman Resources Limited iron sand extraction and processing application (second application; previous application entitled Trans-Tasman Resources South Taranaki Bight Offshore Iron Sand Project Marine Project Consent)
EPA Reference: EEZ0000011 (previous application EEZ 0000004)
Applicant: Trans-Tasman Resources Limited
Notification Date: 17 September 2016
Submission Close: 5:00pm, Monday 12 December 2016
Submitter: Kiwis Against Seabed Mining (**KASM**)

This is a submission on the marine consent application lodged by Trans-Tasman Resources Limited (TTR) with the Environmental Protection Authority (EPA), together with the marine discharge application (together the "application"). The consent application is made pursuant to Section 38 of the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 (the "EEZ/CS Act") for the mining of iron sand at the South Taranaki Bight.

INTRODUCTION

TTR wants to mine iron sand in the South Taranaki Bight for the next 35 years. It has applied for marine consents and marine discharge consents to extract and process iron sand within 65.76 square kilometres (km^2) of seabed. TTR proposes to extract up to 50 million tonnes of iron sand per year, and discharge 45 million tonnes back to the ocean retaining 5 million tonnes of iron ore concentrate.

KASM opposes the applications in full as the proposed mining will devastate the marine environment within the mining area and have significant and unacceptable negative impacts on the surrounding marine area.

The application does not satisfy the purpose of the 2012 Act. As with the first application, the uncertainties in the scope and significance of the potential adverse environmental effects mean it should be denied. The known and potential impacts on primary productivity, known and potential impacts to benthic, known and potential impacts to other marine species and consequent ecosystem effects as well as the impacts on existing interests, notably iwi and fishing interests also mean the application should again be denied. The application does not protect rare and vulnerable ecosystems and the habitats of threatened species, there is a lack of economic benefits and there are questions around the viability of the operations especially concerning whether risk, health and safety concerns have been appropriately addressed. It is clear that the life-supporting capacity of the environment would not be safeguarded and that the adverse effects of the proposal could not be adequately avoided, remedied or mitigated.

As kaitiakitanga or stewards of the ocean we must protect our marine environment from such destructive practices. This is the second application; the first was quite rightly declined in 2014. This is for the same activity and is just as damaging. It is unacceptable that the public and iwi must oppose such applications, especially where industry continue to fund repeat applications in the hope that the outcome will be different.

1. THE PROPOSED SEABED MINING ACTIVITY WILL BE IN BREACH OF DOMESTIC AND INTERNATIONAL LAW

A. Statutory Regime: The application does not satisfy the requirements of the EEZ/CS Act. The application is not sustainable management of natural resources of the exclusive economic zone. The assessment of environmental effects is flawed, being based on inadequate scientific research. The applicant has failed to avoid, remedy or mitigate adverse effects to the marine environment.

The application does not satisfy the requirements of the Resource Management Act 1991 and New Zealand Coastal Policy Statement in regard to effects of the activity that exist within the Coastal Marine Area

B. Repeated Application: This application follows a previous application by TTR for the recovery of iron ore deposits in the same location in 2013. That application was declined by the Decision \-Making Committee (DMC) as being insufficient in terms of analysis of effects to the environment. TTR states that it has updated its assessment in order that it should now be able to set this issue aside. The new information provided by TTR fails once again to adequately address environmental and other concerns and should once again be declined.

C. Selling on of the consent: There is not even certainty that TTR itself intends to carry out the mining. There is a possibility that it may just sell the consent, leaving further uncertainty on who would do the mining and how.

D. Treaty breach: The application fails to provide active protection of Maori interests and taonga (particularly over fisheries), but also negates kaitiakitanga (or stewardship) by tangata whenua over the environment.

E. International Law: The application fails to apply key international treaties to which New Zealand is a party including the 1982 United Nations Convention on the Law of the Sea, the 1992 Convention on Biological Diversity and the 1986 Noumea Convention. By allowing this application to proceed New Zealand will be in breach of its obligation under these conventions and international law including to protect and preserve the marine environment.

F. Precautionary Approach: The applicant has not provided a robust application proving that their proposal is safe for the marine environment and poses no threat to future sustainability. Taking a precautionary approach to major projects of this nature is internationally recognised and legally required.

The EPA must apply the precautionary approach to this application and apply the

provisions of s10, s59(2) and s 61 of the EEZ CS Act to ensure that the marine environment is protected.

2. THE APPLICANT, TTR, HAS FAILED TO CARRY OUT ADEQUATE CONSULTATION

A. The applicant's consultation has been incomplete, insufficient and lacking integrity in the sharing of information. The information shared at meetings held by the applicant has been selective and inadequate. Despite, opposition from local iwi and tangata whenua, TTR has failed a second time to adequately engage. This has led to great difficulty for interested and affected parties to form an understanding of the total proposal and effects of the application.

B. The time frame for the submission process is too short. The Assessment of Effects alone is 320 pages long and its appendices 514 pages. There are over forty other reports attached to the application. Four weeks was an unrealistic timeframe for anyone who holds down a family and a full-time job to read through and understand this volume of information in order to put forward a comprehensive submission. Thankfully the time frame was extended twice, giving submitters an extra forty days, and this has enabled submitters a chance to provide more comprehensive submissions.

C. The Applicant attempted to further reduce public scrutiny by applying to keep important environmental information secret. As a matter of principle, all information relevant to the environment, as well as all information needed by submitters or prospective submitters, should be public. Redaction of information, even if accompanied by a confidentiality agreement, introduces a barrier to information, uncertainty, confusion and distrust into the process and has a chilling effect. This failing was corrected by the Environment Court in its decision of 8 November[1] where the redacted material was ordered to be released to the public.

3. THE PROPOSED MINING ACTIVITY WILL DEGRADE AND IRREVERSIBLE DESTROY OUR MARINE ENVIRONMENT

A. Direct Effects to Seabed Ecology: The seafloor supports a wide variety of organisms, including plants, mussels and other shellfish, worms and crustaceans, which in turn support an extremely healthy fishery through a complex food web. The suction dredging crawler will suck up to 8000 tonnes per hour and remove the entire top surface of the seabed to a depth of up to 11 metres. It is certain that any plants or animals living in the sediment from the 65 km^2 excavation hole will be destroyed during the mining and sorting process, turning the mined area plus a significant area around the mining sites, into a dead zone. Any plants or animals living on the seafloor at the tailing site will be smothered and killed. Regeneration times are unknown, if even regeneration is possible.

B. Indirect Impact to Seabed Ecology: Indirect impacts of the seabed mining are more varied and complex and cover a much larger area of the STB - perhaps as much as an

[1] *Kiwis Against Seabed Mining Incorporated v Environmental Protection Authority* [2016] NZEnvC 217 (8 November 2016).

order of magnitude larger than the mining zone. Many of these impacts are associated with the sediment plume generated by the mining and include changes to the physical, chemical and biological character of the water column and seafloor, which in turn alters ecosystem function and resilience of plants and animals all the way up through the food web, living in both the water column and on the seafloor. Many of the changes caused by the plume may not be immediately lethal, but instead are certain to stress the plants and animals in the water column and on the sea floor causing a reduction in plant and animal species diversity and abundance as well as ecosystem health and resilience over time.

C. **Plume impacts:** Sediment plumes consist of fine sediment that can remain in suspension for days at a time (as opposed to sand, which is heavier and will fall back to the seabed quickly). Sediment plumes are created at the time of mining and when the unwanted sand is dumped back down on the seafloor. The sediment plume will reduce the ability for life to exist in the surrounding area of the mining site. The plumes will impact phytoplankton and zooplankton and light penetration, affecting the food web. The discharged material is also chemically altered and will create adverse effects to the marine life, notably fish and larger marine mammals in the area. In total, the biology will be tremendously altered and re-colonisation will be a very slow process. The re-establishment of balanced seafloor biology may take decades.

TTR have now included flocculation into their plume modelling, whereby fine sediments combine with other materials to sink faster, to reduce the projected effects of the plume from what was modelled in the previous application. There is great uncertainty around the ability of TTR to maintain sediment particle size, and around whether or to what extent the mitigation effect will be achieved. TTR in its first application ignored flocculation: now it relies on it as a key influencing process in reducing the expected size of the plume. As the first DMC found, the proposed mining would have effects on the primary productivity of the STB, there would be decreases in both water column (phytoplankton) and benthic primary productivity that could result in a reduction of total primary production in the STB in the order of 10% and a reduction in energy input into the seabed ecosystem of up to 36%, there are likely to be significant effects on benthic productivity in areas under the sediment plume, and there is considerable uncertainty in predicting effects on the wider ecosystem and food web of the STB.

There is nothing to indicate that the several samples taken were at all representative of the sediments of the areas proposed to be mined. Flocculation improves with higher proportions of mud and clay, but the evidence previously made available indicates that the seabed is mainly sand, and the geological reports made available give no indication that most of the area has any significant amounts of mud or clay. It is likely that the former river beds would have higher proportions of mud and clay, so samples picked from such sites probably would not be representative. Apart from the purported evidence of a smaller plume, this application is very similar to that turned down in 2014. As the evidence for the smaller plume rests on samples which may well not be representative, it should be discounted until such time as TTR can show that the samples are indeed representative.

Moreover, the way flocculation affects settling was carried out using laboratory

experiments. There is uncertainty around how these parameters will be affected in the real marine environment and therefore around the size of the plume. Clearly it has a large effect on the model results but it appears that it was based on a limited number of samples. It is unknown how much will this process be affected by variability in fine sediment content throughout the mining area. The result is that that the extent and composition of the plume is still unknown and unknowable.

D. **Impacts to Benthic Ecology and sedimentation effects:** The covering of a few millimetres of sediment on the seafloor can cause the plants and animals living on and in the seafloor to be smothered, causing stress and resulting in a lowered ecosystem health and resilience. Although these effects are not always immediately lethal, they are still important. Over time sediment induced stress will result in lowered species diversity and abundance of these small (but very important) species at the base of the food web. The EPA Review of sediment mobilisation and transport states that some of the predicted effects are dependent on information provided by TTR and notes that commonly required information on the extent and duration of this smothering effect is missing. The application shouldn't have been allowed to proceed with such vital information missing.

E. **Impacts to Primary Productivity:** The South Taranaki Bight is a dynamic region with large plankton and zooplankton communities which are vulnerable to effects from the plume. Many other marine species rely on plankton and zoo plankton for food.

F. **Heavy Metal Content of the Seabed:** The higher the heavy metal content of the substrate the greater the effects from the plume as the higher volume of heavy metals released in the mining process would lead to a more toxic plume. Individual organisms need to be tested for tolerance to toxic metals, and independent review of heavy metal core samples and analysis should be undertaken and shared with the public so that the public is aware of what heavy metals could potentially be exposed and harm marine and human health, including through bioaccumulation and concentration through the food chain, following the proposed mining. As with the flocculation samples, there is no evidence that the heavy metals samples are not hand picked by TTR and unrepresentative of the whole area to be mined.

G. **Coastal Erosion:** Large scale mining of the Tasman seabed will remove non-renewable sand resources that supply west coast beaches up to Cape Reinga. It will cause increased coastal erosion both up and downstream from where any mining takes place. The South Taranaki area already has severe coastal erosion issues and this mining activity has potential to exacerbate the erosion.

H. **Marine Mammals:** There have been no required surveys of marine mammals in the area. This is despite the first DMC finding that more baseline work should have been undertaken prior to the application being lodged. They also said that "[w]e consider comprehensive and longer-term baseline studies of the presence of marine mammals in the STB would have assisted us to understand the importance of the STB to various species and what they use this area for (e.g foraging, breeding, calving, migrating etc.). The absence of this information leaves us uncertain as to the significance of the proposed mining area and the wider area of the STB affected by the mining operation to

cetaceans."

TTR only propose to conduct marine mammal species surveys as part of the later monitoring programme. This is unacceptable and contrary to the findings of the first DMC. TTR have had two years to carry out surveys. They have not bothered. The Committee will not have information about marine mammals that are or may be in the area. Marine mammal species such as blue whales and southern -right whales have a high potential to be impacted along with orca whales plus the highly at risk Maui and Hectors dolphins. Dolphins are also known to use Admiralty Bay. Southern right whales are nationally endangered and are known to pass through the area. We also already know that the area is an important blue whale foraging area. Any adverse impacts to the migratory and resident mammal species could be devastating and must be avoided. Marine mammals will be particularly sensitive to effects from the large underwater and heavy metal content of the plume. No ambient noise monitoring has been carried out, and there is scant information on the noise that will be generated. Marine mammals are also particularly sensitive to noise from the activity. Noise and the plume will drive marine mammals away from the area. Vulnerability to noise varies with frequency according to species. Without knowledge of marine mammal populations, resident and transient, vulnerability to noise is therefore unknown.

I. **Seabirds:** Surface noise and light from operations that run day and night will negatively affect seabirds and other wildlife. No attempt has been made to quantify these effects, and the only research has been done in an estuary, rather than open sea. As the first DMC found, there is a "lack of any field surveys undertaken and an understanding of the potential significance or not of birds in the STB. Given this, we find that we are still lacking an understanding of how important the STB is for seabirds and therefore the significance of the potential effects."

J. **Fisheries:** There are a wide range of fish species in the area. The project will impact those fish directly in the mining area, areas directly surrounding the site and those areas impacted by the plume. This could include spawning areas. As the first DMC found, there is significant uncertainty around the food web effects due to the primary production changes.

   There are important recreational and commercial fisheries that will be indirectly affected by the proposal. The direct and indirect damage to the benthos and marine environment including sedimentation and downstream effects will affect fisheries and the food web. The noise, light and seafloor disturbance has a high potential to place the commercial, recreational and customary fisheries at risk. Disturbance of the seafloor may also mobilise previously settled pollutants, such as heavy metals, that can bio-accumulate in fish species. As the first DMC found, there is particular concern for human health around copper and nickel.

K. **Penguins:** The area is a known habitat for threatened penguins, especially in the Coastal Marine Area which will be impacted by the plume.

L. **Impacts on Rocky Reefs in the area:** The extent of rocky reef habitat in the area is not

fully documented. The applicant has failed to adequately map all the rocky reefs in the area that may be affected by the activity. Again, the data in the application is unreliable. The reefs are biologically significant for the South Taranaki coast, providing habitat for encrusting and sessile fauna.

M. **Impacts to Coral**: It is likely that coral in the area will be smothered, but surveys have not been undertaken to identify them. This is an important effect which has been all but ignored.

4. THERE ARE OPERATIONAL RISKS WHICH WILL NOT BE ADEQUATELY PREVENTED OR MITIGATED

A. **Risks from the vessels**: The use of deep-sea moorings for stabilising the large extraction and export vessels will create adverse effects and destroy a large area of seabed. Oil spills have the potential to create significant adverse effects, particularly from the crude thick toxic heavy fuel transfer operations from ship to ship. There is no contingency plan as part of the application and instead TTR proposes to supply such plans later. This does not enable any analysis of risk to be properly undertaken because TTR itself is yet to undertake such analysis.

Waves in excess of 4 metres are routinely measured and have been in excess of 7 metres. With climate change storms, will likely get more intense and frequent. These are extreme conditions for vessel management, especially of a vessel of this size and a safety plan needs to be provided.

Use of Admiralty Bay in storm conditions is not an adequate plan. Admiralty Bay is an important feeding ground for about 200-300 male dusky dolphins each winter. DOC has expressed concern about habitat fragmentation in the bay and it appears that existing developments are already causing a decline in dolphin numbers. Bottlenose and common dolphins, NZ fur seals, gannets, shearwaters and king shags also use the area, which has commercial importance for mussel farms as well. There is a risk that spillage will occur during the transfer. It is not satisfactory that the Admiralty Bay risks are to be considered in a separate Resource Consent application, rather than looking in total at the impact of this application.

There is no analysis of the impacts to health and safety of workers from having such a large magnet on board.

Finally, there is inadequate analysis of the impacts of having a 80 Mega Watt power station on board the ship and potential effects from the heavy fuel exhaust including effects to residents on the coast.

Insurance: The applicant only intends to provide insurance cover of NZ$100m for environmental restoration of any “an unplanned event” during the term of seabed mining operations. Two issues arise from this. One is the definition of unplanned event, and the other is the amount. Even the in comparison relatively minor Rena disaster cost about $130m. Such an oil spill could be among the lesser effects arising from this application.

A substantial bond would be needed to counter the minimal vague insurance cover utilising Section 65 of the EEZ/CS Act to bring effective risk management.

5. OVERALL, NEW ZEALANDERS WILL NOT BENEFIT FROM THE PROPOSED MINING ACTIVITY

A. New Zealanders identify with the sea: Many New Zealanders have a unique and special relationship with the marine environment. The sea forms part of our identity. This application will undermine this relationship with the sea and all of its inhabitants.

B. Economic concerns: This is an overseas owned company, despite transparent efforts made to hide this fact. Profits will be directly exported overseas, while the risk of a environmental damage and potential ecological collapse in NZ remains. Low royalty rates of 2% will not deliver sufficient economic gains and will not provide economic benefits relative to economic losses resulting from the applicant's proposal. Private profit, public liability is not acceptable.

Despite wildly exaggerated claims by the company, there are minimal employment opportunities, yet New Zealand's clean green image and tourism will be undermined. As the first DMC found, any effects of the proposal on New Zealand's tourism brand would be difficult to measure. Most of the workforce will be taken up by overseas personnel and the "fly-in fly out" majority of workforce will not reside in Taranaki but come from elsewhere.

TTR claim that the industry will contribute $159 million to GDP. Even if this figure is accepted, in contrast to the claims accepted by the last DMC ($50 million, mainly the royalties and taxes), the economic benefits from this mining proposal pales into insignificance when compared against the economic costs: these include possible damage to the growing tourist industry; damage to the marine environment, damage arising from erosion, loss of surfing, swimmers, beach users, fishers and damage to the 'clean-green' image. This will in turn have ongoing adverse cumulative effects on coastal communities, people's livelihoods and their quality of life.

Once again, inadequate evidence has been accepted by the EPA. Further progress of this application should be deferred until all evidence is at hand.

Tourism is one of New Zealand's largest export industries. The applicant only focuses on impacts on tourism in the immediate local area and fails to consider cumulative adverse effects to the larger region and New Zealand's overall clean green image.

The impact to recreational and commercial fisheries has not been adequately addressed. The applicant acknowledges that impacts to commercial fisheries in the local area will take place and has not provided any evidence that compensation will be paid to that sector. Nor is there an economic analysis of the loss to the recreational fishing sector. The potential loss to people's economic wellbeing and impacts to the local and regional area who rely on Kaimoana and the sea for their day to day lives will create adverse effects to those communities.

The impact assessment presented uses a standard input-output (I-O) approach to assess the economic impacts of the project. While this is a relatively common approach to assessing projects, it is not necessarily appropriate to properly inform decision making on

projects such as TTR proposal. Firstly, I-O analysis is a proxy measure of economic activity, not economic value. Benefits are not compared to costs as in a proper benefit-cost analysis. Secondly, there are a number of well-documented problems related to the use of I-O analysis for large projects. The use of constant input coefficients is questionable for such large projects as it assumes constant production techniques, capital structures, and returns to capital. The analysis does not replicate the reality of the impacts of such large regional and bespoke projects well. Further, it is assumed that there will be a constant process and that the project will not influence input prices. Given the stated objective of prioritising input purchases in the local region, it would be unrealistic to expect there would be no impacts on prices, with local price pressures on inputs such as engineering services having negative impacts on competing local consumers. Finally, but most importantly, I-O analysis does not, and cannot assess projects that have impacts outside the parameters of the model such as environmental costs. For the DMC to be informed of the net benefits to the community from the project, only a robust and comprehensive benefit-cost analysis (BCA) is appropriate.

Other difficulties with the TTR model is that no information is provided on how those tables were produced, the assumptions used, and the economic structure assumed. Secondly, the consultants have made assumptions relating to the allocation of economic activity between the local (South Taranaki), regional (Whanganui) and national economies. However, there is nothing to suggest those distributions are realistic. And thirdly, the potential negative impacts on tourism, recreational and environmental values are not well addressed. The following further studies are required:

Tourism values. Estimate changes to tourism numbers attributable to the project (the regional reputational effect) and likely impact on tourists' consumer surplus and tourism operators' producer surplus. A contingent behavior approach would be appropriate for this study.

Local recreation amenity values. This would estimate potential changes to consumer surplus attributable to the project for key nature-based recreation activities (fishing, sea-kayaking etc.). A contingent behavior approach in conjunction with a travel cost study would be appropriate for this study.

Fisheries values. Building on the scientific studies of potential impacts on fish webs and population dynamics, a bio-economic modelling approach should be undertaken to assess any impacts on commercial fishing, including effects of any displacement of fishing effort.

Environmental values. Efforts should also be undertaken to assess the values associated with the loss of other ecosystem services and environmental values. Given the potential range of values, a choice modelling approach would be appropriate.

CONCLUSION

KASM requests to be heard.

KASM requests the DMC to grant permission for submitters or their counsel to allow cross

examination of the applicant's expert witnesses to provide for rigorous testing of the applicant's evidence.

KASM requests that hearing venues are set in place in regional areas other than Wellington and Taranaki and that a hearing should take place on a Marae.

The applications should be declined in full.