Te Ipukarea Society - Questions and Responses

CIC Ltd

1. Do you have any comments on the application summary?	Applicant Response
Application Area. Why are so many of the blocks requested for exploration outside of the South Penrhyn Basin and High Density Nodule area? We were led to believe these exploration licenses were just for nodules only? What will they be looking for in these other areas? Also for the area adjacent to Niue, we imagine Niue should be contacted, especially as it looks like it may be adjacent to their NOW Marine Park. They are requesting approximately 10 times the area requested by the other 2 applicants, which seems a bit unusual and beyond the scope of only a 5 year exploration period.	Research from many previous expeditions and desktop analyses indicate that there are extensive fields of nodules that extend far beyond the South Penrhyn Basin (SPB). The reason that there is more data on the SPB is that this is where previous cruises concentrated their research, not because there are not potentially larger and more concentrated fields of nodules elsewhere. In addition, focusing on only gathering environmental baseline data in one area will not be as effective in understanding the biodiversity, biomass, ecology, and oceanographic data throughout the entire Cook Islands' EEZ. Extensive research throughout different areas of the EEZ will be important for understanding how impacts in any given area may affect other areas within the EEZ. - The research is to gain as much environmental baseline data as possible, not just to look at nodules. - Contacting or sharing research information with the government of Niue would be the responsibility of the Cook Islands' Government, as would the sharing of any data as it would be outside the parameters of the license. That said, the research results will be publicly available and so available not only to Niue, but to any other nations or stakeholders with an interest. - Our science team believes that we need to study such a large area in order to truly understand the potential environmental impact of nodule harvesting as well as the regional connectedness of marine life, ecosystems and physical/chemical properties throughout a large portion of the Cook Islands' EEZ. Studying only a small, localized area would only provide insight into impacts in that small area and not give an idea of whether certain species and ocean processes exist in different areas around the Cook Islands' EEZ.
Why does the summary describe nodules while not describing the life forms that rely on them? It is a PR exercise.	-Please refer to Attachment 3a from the Environmental Management Programme to see a list of the equipment and methodology that will be used to collect environmental baseline studies, including studies that will focus on life forms on and around the nodules (e.g. Box Coring, Multi Coring, ROV, time lapse cameras and landers).
2. Do you have comments on the non-technical Summary?	**Applicant Response**
How will CIC assure no harm is done to the marine environment during exploration? What if sufficient mitigation is not possible to prevent "serious" harm? Who defines "serious"? The benchmark should not be "serious". Significant?	-Please refer to section 2.10 of the Environmental Management Programme for a description of the methodology and protocols being employed in the course of the proposed research – and a preliminary assessment of what, if any, impact would be expected on the marine environment from the exploration activities.

	- “Serious Harm” is the standard that is being employed by the International Seabed Authority to describe the threshold of harm to the environment which is considered unacceptable. In the case of the Cook Islands, this threshold will be determined by the Government and stakeholders.
While we agree that seamounts should definitely not be mined, any information gathered about them during exploration should be shared.	We agree that seamounts should be given a wide berth in the course of any activity that might impact the tremendous biodiversity and biomass that is found in their proximity. Any information that is gathered about life around seamounts through the course of the research will of course be shared with the Government and all stakeholders.
The introduction on climate change is an attempt to mislead the public. There is no evidence that there are insufficient terrestrial sources to meet needs for renewable energy. Moreover, this narrative ignores reuse and recycling, transitioning to a circular economy and changing technological needs. Seabed mining will constitute opening up an enormous new, unnecessary and damaging industrial activity in the ocean.	- There is extensive peer-reviewed evidence available publicly which shows that terrestrial mines will not be able to meet the demand for the metals necessary to complete the world’s conversion to renewable energy and reduce CO2 emissions which will be necessary to address climate change[1] [2]. Additionally, recycling metals will not fill the gap for the foreseeable future because there are not enough metals currently in circulation – and it is estimated that there will not be until we have many times the amount of metals in the market than exist today[3] [4]. Whether deep sea minerals can fill that void with less damage to the earth’s environment than terrestrial mining (which we already know wreaks havoc with the environment) is something that the research being undertaken will help ascertain. [1] Rachidi, N. R., Nwaila, G. T., Zhang, S. E., Bourdeau, J. E., & Ghorbani, Y. (2021, October 20). Assessing cobalt supply sustainability through production forecasting and implications for green energy policies. Resources Policy. Retrieved December 9, 2021, from https://www.sciencedirect.com/science/article/pii/S0301420721004323. [2] Heijlen, W., Franceschi, G., Duhayon, C., & Nijen, K. V. (2021, July 2). Assessing the adequacy of the global land-based mine development pipeline in the light of future high-demand scenarios: The case of the battery-metals nickel (NI) and cobalt (CO). Resources Policy. Retrieved December 9, 2021, from https://www.sciencedirect.com/science/article/pii/S0301420721002166. [3] Espinoza, L. A. T. (2012). The contribution of recycling to the supply of metals and minerals . Retrieved December 9, 2021, from http://pratclif.com/2015/mines-ressources/polinares/chapter8.pdf. [4] Global EV Outlook 2020 - .NET framework. (n.d.). Retrieved December 9, 2021, from https://iea.blob.core.windows.net/assets/af46e012-18c2-44d6-becd-bad21fa844fd/Global_EV_Outlook_2020.pdf.
And herein lies the problem. These people do not recognize the nodule surface as a habitat for unique biodiversity, about which we know very little.	- One of the primary objectives of this Exploration work to take place under the exploration license is to research biodiversity as it relates to the surface of nodules, but also on their surrounding environment to better grasp how the ecosystem in this deep ocean

	environment functions, what impacts would result from a harvesting operation, and how those impacts compare to the damage that is done to biodiversity and ecosystems on land as a result of terrestrial mining. -While this deep environment is foreign to us, it is important to keep in mind that the deep ocean covers the majority of the planet, and while it hasn't been studied nearly as much as terrestrial and shallow water environments, the fact that this environment comes across as unique is primarily because it so difficult and costly to research, not because it is a rare environmental habitat when compared to the rest of the planet. Based on many research cruises over the past 50 years, a great deal more is known about the abyssal zone in some locations than people realize, and the intent of this exploration program is to have a detailed understanding of the abyssal zone in the Cook Islands' EEZ – enough to make decisions on sustainable and responsible management of this area. -Please refer to Attachment 3a from the Environmental Management Programme to see a list of the equipment and methodology that will be used to collect environmental baseline studies, including studies that will focus on life forms both on and around the nodules (eg Box Coring, Multi Coring, ROV, time lapse cameras and landers).
Environment Responsibility. Need to also be in line with international standards and guidelines, as a minimum.	We agree that international standards and protocols should be followed, and as stated in our Nontechnical Summary, we intend to do so.
3. Do you have any comments on the video presentation?	**Applicant Response**
No Questions Posed	
4. Do you have any comments on the Environmental Management Programme?	**Applicant Response**
There are no systematic marine mammal studies proposed. This is obviously inadequate. Whales are susceptible to noise and proposed operations will emit significant noise. Nor are there systematic fish studies. The inherent bias in the proposed EMMP is shown in the term 'harvesting'. Crops are harvested. Taro is harvested. Minerals are mined. This is not a serious document. They have not even conducted a site visit.	-CIC is currently in the process of developing a systematic marine mammal protocol that will allow data collected on the research vessels to be used by various academic institutions, the Cook Islands' Government and other stakeholders. While the proposed exploration cruises will be designed to accomplish multiple exploration objectives, CIC agrees that it is of utmost importance to have a predefined protocol for marine mammal (as well as bird and elasmobranch) observation and recording program. This will be critical for gathering meaningful data that can be used to better understand potential impacts, to inform marine regulations, and to provide a framework for comprehensive conservation strategies. While CIC does not anticipate having any measurable impact on pelagic fish communities, it will be employing scientific experts and marine biologists to monitor and collect similarly

	valuable data on benthic and demersal scavengers using the methodologies outlined in Table 3.1 of the Environmental Management Programme. - The terms “mining”, “harvesting”, “gathering” and “recovering” are all used at various times by not only us, but others in the field when referring to recovering nodules. This is because there is no accurate term that has been agreed upon which strictly applies to the process of gathering nodules. According to the Cambridge Dictionary, the first definition of “mining” is “the industry or activity of removing substances such as coal or metal from the ground by digging” and the definition of “Mine” is “to dig coal or another substance out of the ground”. We do not usually use the term “mining” because we believe that neither of these definitions accurately reflect picking up nodules off the bottom of the ocean; they do not require digging or pulling a substance out of the ground. Unfortunately, when the term “mining” is used, it leads to a misunderstanding of the process and it tends to mislead the public about the nature of the activity. As for the definition of “Harvest”, that term is often used beyond just crops, and according to the Cambridge Dictionary, one definition of “harvest” is “to collect a natural resource in order to use it effectively.” We believe that this accurately describes picking up nodules and their potential usage. - If by “site visit”, you are referring to an offshore expedition, CIC Ltd has neither made a site visit nor conducted any ocean research cruises because these typically would have required an exploration license, which is what CIC is applying for in the SBMA tender process. While it may have been possible to obtain a research permit to conduct preliminary offshore scientific studies, the status of the revisions to the Seabed Minerals Act and associated regulations during the past four years meant that this was not a viable option. However, a vast amount of historical data from previous marine scientific expeditions in the Cook Islands’ EEZ and their resulting publications allowed CIC to conduct extensive desktop analysis and achieve similar results to what could have been learned under the restrictive parameters of a research permit. -If by “site visit” you mean visiting the Cook Islands – many visits have been made over the past 8 years by many members of the CIC team, including our CEO Greg Stemm and his wife who have lived in the Cook Islands since March of 2020, as well as having made many other previous trips.
5. General comments	

At the IUCN World Conservation Congress in September, States and NGOs alike adopted Motion 69, which called on all State Members, individually and through relevant international fora, to support and implement a moratorium on deep seabed mining, the issuing of new exploitation and new exploration contracts, and the adoption of seabed mining regulations for exploitation, including 'exploitation' regulations by the International Seabed Authority. Impacts include the destruction of deep-sea biodiversity, toxic sediment plumes and noise, which will be long term and from which deep-sea ecosystems may never recover or be restored. This would be contrary to our commitments including the Leaders' Pledge for Nature commitment to undertake urgent actions over the next ten years to put nature and biodiversity on a path to recovery by 2030, the G7 2030 Nature Compact commitment to reverse biodiversity loss and environmental degradation and the goals of the United Nations Decade on ecosystem restoration.	Our understanding is that Motion 69 does not call outright for a temporal moratorium and your question did not include the last section of Motion 69 including "unless and until", which is an important qualifier to the statement you quoted. Motion 69 concludes with: The IUCN World Conservation Congress, at its session in Marseille, France: CALLS on all State Members, individually and through relevant international fora, to: a. support and implement a moratorium on deep seabed mining, issuing of new exploitation and new exploration contracts, and the adoption of seabed mining regulations for exploitation, including 'exploitation' regulations by the International Seabed Authority (ISA), unless and until: i. rigorous and transparent impact assessments have been conducted, the environmental, social, cultural and economic risks of deep seabed mining are comprehensively understood, and the effective protection of the marine environment can be ensured; ii. the precautionary principle, ecosystem approach, and the polluter pays principle have been implemented; iii. policies to ensure the responsible production and use of metals, such as the reduction of demand for primary metals, a transformation to a resource-efficient circular economy, and responsible terrestrial mining practices, have been developed and implemented; and iv. public consultation mechanisms have been incorporated into all decision-making processes related to deep-sea mining ensuring effective engagement allowing for independent review, and, where relevant, that the free, prior and informed consent of indigenous peoples is respected and consent from potentially affected communities is achieved; and b. promote the reform of the ISA to ensure transparent, accountable, inclusive, effective and environmentally responsible decision making and regulation. We agree that the call for extensive research before any Deepsea mineral mining or harvesting takes place is something that is prudent, and this concept is reflected in our own company's policies as well as policies being adopted by nations and organizations around the world, including the Cook Islands in their own Seabed Minerals Act and Regulations. At this point in time - before extensive research has been conducted - no one knows whether, or to what degree, there will be "destruction of deep-sea biodiversity, toxic sediment plumes and noise" if nodule harvesting were to take place. This is the purpose of the extensive research that is being proposed under the Seabed Minerals Act and Regulations for Exploration. In almost every case, the international statements by worldwide organizations in relation to Deepsea mining are requests for a "pause" or a "moratorium" until the proper research

	has been undertaken and policies put in place – not an outright call for a temporal moratorium or ban. As an example, the "The Marine Expert Statement Calling for a Pause to Deep-Sea Mining" which is now signed by over 600 marine scientists, has been erroneously referred to as "calling for a ban or 10-year moratorium on deep sea mining". However, it is important to note that this statement concludes with this statement: "For the reasons outlined above, we strongly recommend that the transition to the exploitation of mineral resources be paused until sufficient and robust scientific information has been obtained to make informed decisions as to whether deep-sea mining can be authorized without significant damage to the marine environment and, if so, under what conditions." We agree with this statement, and we believe that the Cook Islands' Seabed Minerals Act and the associated regulations also reflect a clear agreement with these principles.

CIICSR Ltd

1. Do you have any comments on the application summary?	Applicant Response
We have not seen the full application documents so are unable to comment fully. A 'short public summary' is clearly inadequate. Note we have requested more details from SBMA, and have been refused based on commercial sensitivity. We have followed up, asking what sort of commercially sensitive information is contained in the applications, but have not received a response.	CIICSR: The full CIICSR Application document contains commercially sensitive information such as technology descriptions and detailed planning which is likely unique to CIIC-SR given our partner, GSR, is the technology leader in this space. We would be happy to provide a presentation or hold a meeting where we can provide further detail, if desired.
2. Do you have comments on CIICSR Ltd non-technical Summary?	**Applicant Response**
Introduction. We have not been able to access the report of the 2019 research trip. According to the proposal to the research committee, there is a requirement that a report be submitted. We note that the OPM has a copy of the OML research report, but cannot locate the CIIC-SR report.	CIICSR: We appreciate your interest in the 2019 Cruise Report. The report contains confidential information, a particular issue while undergoing a tender process with potential competitors. Rather than provide the report in its entirety to each person or group that asks for it, if our application is successful, we will gladly post a summary report (with all the key information) on a public website for anyone to access. "
Environmental impacts (section 10) The reference to the SBM Act 2019 is not sufficient to justify the mitigation. That is not a peer reviewed publication.	CIICSR: The reference is taken from the SBM Act identifying "36AA Tier 1 to 3 activities" (see image). **"36AA Tier 1 to 3 activities** "(1) A tier 1 activity is an activity that has only minimal environmental impact and is able to be undertaken without conditions. "(2) A tier 2 activity is an activity that has some but not significant environmental impacts and may be undertaken— "(a) with the consent of the permitting authority; and "(b) subject to any conditions imposed by the Authority. "(3) A tier 3 activity is an activity which will cause or is likely to cause significant environmental impact, and may only be undertaken in accordance with sections 36 to 36C. "(4) Regulations may be made under this Act— "(a) regulating the undertaking of Tier 1, Tier 2, and Tier 3 activities; and "(b) categorising specified activities as Tier 1, Tier 2, or Tier 3 category activities.
Box 1. We don't accept that cobalt is a critical need for the future. There are alternative technologies that do not require cobalt, and will not require the deep seabed to be mined.	CIIC SR: The list of critical minerals of the EU [1], USA [2] & Canada [3] all have cobalt listed. Also, the International Energy Agency sees a large deficit in the supply of future cobalt [4], even when alternative technologies are included in the product mix (page 96, IEA, 2021). Our understanding is that cobalt helps to stabilise battery chemistry, making batteries safer and less likely to explode/catch fire. [1] https://rmis.jrc.ec.europa.eu/?page=crm-list-2020-e294f6

	[2] https://www.federalregister.gov/documents/2021/11/09/2021-24488/2021-draft-list-of-critical-minerals [3] https://www.nrcan.gc.ca/sites/nrcan/files/mineralsmetals/pdf/Critical_Minerals_List_2021-EN.pdf [4] https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions
Statements like: there no chance of meeting climate change targets while meeting societal needs for access to energy. Even if you assume there is a need for society to access more energy, this statement is not true, as society can learn to do without all this technology. We did in the past, and we should not continue our pursuit of new technology if it comes at the expense of our global environmental health.	CIIC SR: The world is moving away from a fossil-fuel economy to a renewable energy economy, thereby switching one technology for another (metal-intensive) technology. The IEA estimates – in a net-zero 2050 scenario – which is necessary to stay below 1.5 Degrees Celsius, the whole world needs 8x more TWh/year coming from renewables by 2050 (page 312)[5]. According to Krane at al. (2021), a renewable energy future will consume significantly less raw materials compared to today's fossil fuel economy [6]. As for where the new metals come from, we feel it is important [5] https://iea.blob.core.windows.net/assets/888004cf-1a38-4716-9e0c-3b0e3fdbf609/WorldEnergyOutlook2021.pdf [6] https://linkinghub.elsevier.com/retrieve/pii/S2214629621004035
The renewables energy revolution does not require deep sea minerals. A number of companies have already pledged not to use deep sea minerals, and already electric vehicle manufacturers are switching to battery technologies that do not use cobalt, nickel etc.	CIIC SR: What these companies have actually signed up for (Link: https://www.noseabedmining.org) is the following – Quote: "Before any potential deep seabed mining occurs, it needs to be clearly demonstrated that such activities can be managed in a way that ensures the effective protection of the marine environment." Note we agree with this statement and this is already envisaged in the draft regulations of the International Seabed Authority and by the Seabed Minerals Act of the Cook Islands.
We need a transformational, circular economy in order to have a hope of avoiding worsening the biodiversity crisis as well as the climate crisis.	CIIC SR: According to the IEA[4], recycling will only provide 10% of primary supply in 2040. If all metals will be sourced from land, this will dramatically impact biodiversity as well as the climate crisis [7], [8], [9]. It is important that we source 'new metal' in the least harmful way possible. At this stage, all options should be considered until the research/data/knowledge tells us otherwise. [7] https://www.nature.com/articles/s41467-020-17928-5

	[8] https://www.sciencedirect.com/science/article/pii/S0959378021000820 [9] https://www.nature.com/articles/s41467-020-18661-9
China vehicle manufacturer BYD announced that it is adopting LFP (lithium-iron-phosphate) technology and removing cobalt, nickel and manganese from its vehicle batteries entirely. Companies such as Volvo Group, BMW Group, Volkswagen Group, Google, Samsung SDI and Philips to name a few, reject the idea that we must mine the deep sea for metals. Financial Institutions such as Triodos Bank, BBVA and Lloyds Bank are also steering clear of this industry.	CIIC SR: While LFP technologies are used for low-performance applications, Nickel-Manganese-Cobalt (NMC) technologies will be used for high-performance technologies (e.g. long-haul vehicles and vehicles operating in colder climates). Unfortunately, LFP technologies will exacerbate the waste problem as there are no valuable metals in the battery (iron & phosphate), compared to high-value metals (nickel, cobalt & manganese) in the NMC batteries - meaning recycling and material re-use rates will be higher with the NMC batteries. So, contrary to the idea that LFP will reduce our impact on society, it will effectively postpone recycling activities of EVs.
The World Economic Forum said that "The economic viability of exploration and extraction in the deep sea as of 2030 must be carefully evaluated in light of advances in battery and other technology as well as circular economy benefits. More research is required to thoroughly consider the environmental implications before increasing the exploitation of these resources." (https://www3.weforum.org/docs/WEF_A_Vision_for_a_Sustainable_Battery_Value_Chain_in_2030_Report.pdf)	CIIC SR: We agree
Underwater dust clouds or 'sediment plumes' created by DSM operations risk smothering macro algae (Drazen et al., 2019), which represent a significant proposition of all carbon sequestered in marine sediments and the deep ocean (Jensen & Duarte 2016), which could have serious consequences, potentially disrupting the transport of carbon into the deep.	CIIC SR: Oceanographers at MIT, the Scripps Institution of Oceanography, and elsewhere carried out an experiment at sea to study the sediment plumes that mining vessels might release back into the ocean water column [10]. As a result, the behaviour of these plumes can now be forecasted with greatly increased confidence, with better data on discharge rates, thresholds, and ocean turbulence levels improving accuracy still further. The study shows that even in a scenario that assumes 20 mining operations over a 20-year period, the total volume of ocean water that may, even momentarily, exceed an impact threshold of 20 micrograms per litre (twice the background level) is just 0.2% of the volume of the Pacific Ocean. Note, too, that midwater column impacts can be avoided by keeping any sediment plumes at or just above the seafloor. We would be pleased to discuss this further. [10 http://www.nature.com/articles/s41893-019-0222-5

While there is no comparable study for seabed mining yet, a recent study found that fishing boats that bottom-trawl the ocean floor may release as much carbon dioxide as the entire aviation industry (Sala et al, 2021).	CIIC SR: Indeed, as per Sala et al. (2021), the bottom-trawling industry impacts 4,900,000km2 of ocean floor per year. Conversely, one mining operation would impact 200km2 per year, representing 0.004% of the area impacted by trawling. Also, Orcutt et al. (2020), Levin et al. (2020) and Hilmi et al. (2021) already confirmed that the impact would be trivial [11], [12], and [13]. [11] http://www.nature.com/articles/s43247-021-00213-81 [12] https://aslopubs.onlinelibrary.wiley.com/doi/abs/10.1002/lno.11403 [13] https://www.nature.com/articles/s41893-020-0558-x
At the IUCN World Conservation Congress in September, States and NGOs alike adopted Motion 69, which called on all State Members, individually and through relevant international fora, to support and implement a moratorium on deep seabed mining, the issuing of new exploitation and new exploration contracts, and the adoption of seabed mining regulations for exploitation, including 'exploitation' regulations by the International Seabed Authority.	CIIC SR: The moratorium that was adopted by the members had a series of conditions, many of which are already being implemented [14]. [14] https://www.frontiersin.org/articles/10.3389/fclim.2021.710546/full [15] https://deme-gsr.com/news/gsr-responds-to-iucn-deep-seabed-mining-moratorium-vote/
Impacts include the destruction of deep-sea biodiversity, toxic sediment plumes and noise, which will be long term and from which deep-sea ecosystems may never recover or be restored. This would be contrary to our commitments including the Leaders' Pledge for Nature commitment to undertake urgent actions over the next ten years to put nature and biodiversity on a path to recovery by 2030, the G7 2030 Nature Compact commitment to reverse biodiversity loss and environmental degradation and the goals of the United Nations Decade on ecosystem restoration.	CIIC SR: All mining, whether based on land or on the seabed, has an environmental impact. Please refer to Sonter et al., 2020: *"Mining potentially influences 50 million km2 of Earth's land surface, with 8% coinciding with Protected Areas, 7% with Key Biodiversity Areas, and 16% with Remaining Wilderness. Most mining areas (82%) target materials needed for renewable energy production, and areas that overlap with Protected Areas and Remaining Wilderness contain a greater density of mines (our indicator of threat severity) compared to the overlapping mining areas that target other materials."* It is important that we choose the options that do least harm to the planet we are trying to protect. While further research is needed, research completed to date indicates the sediment plumes associated with polymetallic nodule mining are unlikely to be toxic. This will be evaluated further in the exploration phase.
3. Do you have any comments on the video presentation?	**Applicant Response**
No Questions Posed	
4. Do you have any comments on the Environmental Management Programme?	**Applicant Response**
This is inadequate. There is no systematic survey for marine mammals: only 'opportunistic sightings' Likewise pelagic communities are only to be surveyed with 'opportunistically' deployed rigs. That is patently inadequate.	CIICSR: We believe there has been a misunderstanding here - the pelagic component makes up a great deal of the workload. Please note the early stages of exploration will include detailed environmental baseline and EIA

	planning and an EIA Scoping Report will be completed, with input from Cook Islanders and other relevant experts. We would be happy to discuss further.
5. General comments	
No Questions Posed	

Moana Minerals Ltd

1. Do you have any comments on the application summary?	Applicant Response
We have not seen the full application documents so are unable to comment fully. A 'short public summary' is clearly inadequate. Note we have requested more details from SBMA, and have been refused based on commercial sensitivity. We have followed up, asking what sort of commercially sensitive information is contained in the applications, but have not received a response.	This question is related to the SBMA process and information disclosure is for the determination of the SBMA taking into account the provisions of the Seabed Minerals Act 2019 and its guidelines. As such it is not appropriate for Moana Minerals to respond.
The IUCN World Conservation Congress in September, States and NGOs alike adopted Motion 69, which called on all State Members, individually and through relevant international fora, to support and implement a moratorium on deep seabed mining, the issuing of new exploitation and new exploration contracts, and the adoption of seabed mining regulations for exploitation, including 'exploitation' regulations by the International Seabed Authority. Impacts include the destruction of deep-sea biodiversity, toxic sediment plumes and noise, which will be long term and from which deep-sea ecosystems may never recover or be restored. This would be contrary to our commitments including the Leaders' Pledge for Nature commitment to undertake urgent actions over the next ten years to put nature and biodiversity on a path to recovery by 2030, the G7 2030 Nature Compact commitment to reverse biodiversity loss and environmental degradation and the goals of the United Nations Decade on ecosystem restoration.	This comment is a general statement of opposition that is best directed to and addressed by members of parliament and the Government rather than the SBMA or any applicant. Moana Minerals is applying for an exploration licence under certain rights obtained under the Seabed Minerals Act 2009 and preserved under the Seabed Minerals Act 2019. However, recognising that it is part of Moana Minerals' duty to inform and support understandings, the following response is provided: This representation of Motion 69 is not accurate as it omits the relevant clauses – namely that mining should not commence unless and until: i. rigorous and transparent impact assessments have been conducted, the environmental, social, cultural and economic risks of deep seabed mining are comprehensively understood, and the effective protection of the marine environment can be ensured; ii. the precautionary principle, ecosystem approach, and the polluter pays principle have been implemented; iii. policies to ensure the responsible production and use of metals, such as the reduction of demand for primary metals, a transformation to a resource-efficient circular economy, and responsible terrestrial mining practices, have been developed and implemented; and iv. public consultation mechanisms have been incorporated into all decision-making processes related to deep-sea mining ensuring effective engagement allowing for independent review, and, where relevant, that the free, prior and informed consent of indigenous peoples is respected and consent from potentially affected communities is achieved; and v. to promote the reform of the ISA to ensure transparent, accountable, inclusive, effective and environmentally responsible decision making and regulation

	It is our understanding the processes being undertaken by SBMA, and through the Environmental and Social Impact Assessment, are to ensure that these conditions are met. The reference to ISA is not directly relevant to Cook Islands. However, best practices have formed in the ISA jurisdiction under stringent international review are indeed informing Moana Minerals' design of studies and impact assessment processes in Cook Islands. The 40+ years of deep-sea research in the CCZ and other abyssal zones allows Cook Islands to benefit from an understanding of what the international best practice is, and importantly, what research coming out of the CCZ has been informative and what information is required to support evidence-based decision making. The UN environment programme identified three major environmental challenges: climate change, loss of biodiversity and the overuse of critical natural resources. Transformational technologies are required to address climate change and transition away from practices that lead to deforestation, pollution of freshwater resources and loss of biodiversity in terrestrial and nearshore-continental shelf-continental slope marine environments where biodiversity is richest. The respondent's claims of 'destruction of deep-sea biodiversity' and 'toxic sediment plumes' are not founded in evidence. No information is available at this time as to the biodiversity in question, how it will be impacted by deep-sea mining, or the toxicity of plumes. Furthermore, there is a need for such statements around biodiversity to be contextualised. Finally, regarding the statement of 'our commitment' to Leader's Pledge for Nature and the G7 2030 Natural Compact, we note the following: • These global initiatives are of course to be commended and supported; however, it is also important to note that Cook Islands is not signatory to the former and is not part of the G7. Moana Minerals recognises that a key aspect of these considerations is the question of what Cook Islanders want to do with their resource and how Cook Islands wants to balance economic and social welfare and development. • Deforestation, illegal wildlife trade, litter and unsustainable fishing practices were considered the primary threats in the G7 Nature Compact. • Pillar 3 of the G7 Nature Compact calls for conservation and restoration, including ocean ecosystems. The Marae Moana Act 2017 is a world-leading mechanism for

	achieving these goals- in Cook Islands - and deep-sea mining needs to meet the 9 Marae Moana principles before being screened-in as an approved practice. The Leader's Pledge for Nature reflects many of the commitments enunciated in the Convention on Biological Diversity (of which Cook Islands is a signatory) and the Precautional Principle as it is applied to deep-sea mining.
2. Do you have comments on the non-technical Summary?	**Applicant Response**
Under Team, there is so suggestion of locals being involved?	Our operations will be based in the Cook Islands and Moana Mineral's local office in Avarua, Rarotonga will include a Cook Islander appointed as a liaison officer. There will be range of jobs advertised including, seafarers, logistics, administrative, technical and science positions. In accordance with Immigration's policy those jobs will be advertised and Cook Islanders able and willing to fill the jobs will be preferred over others. Our operations will also be supported logistically from Cook Islands.
On p. 3, under economic viability, hard to see how they can call this a low cost project, if they are trying to get nodules up from 5000m depth in an environmentally sound way	Common practice in the mining industry to determine the cost of mining is to compare the cash cost to produce one kilogram or pound of a specific material whilst allowing for by-product credits. Using this mechanism to compare production of cobalt sourced from Cook Islands nodules to current terrestrial sources of cobalt, we find the cash cost to produce one pound or kilogram of cobalt from nodules is at the low end of the cobalt cash cost curve supporting our assertion of this being a low-cost mining project.
p. 7. "In order to justify the sizable future investment to develop a commercial nodule recovery capability and bring critical metals to market, Moana needs to both upgrade confidence of the resource from "Inferred" to "Measured and Indicated" (distinct measures of confidence in line with global mineral reserve and resource reporting standards) and confirm the total potential size of the nodule resource with the Application Area, both of which require additional sampling." They would also need to show that the environmental impacts can be kept within a predetermined low standard.	Under Cook Islands law, an Environmental Impact Assessment would need to be completed and an environmental permit would need to be issued before mining commences. In recognition of the important social dimension, Moana Minerals will complete an Environmental *and Social* Impact Assessment (ESIA) as part of our Exploration Work Program. The performance criteria for accepted levels of impact will be set in accordance with the ESIA findings and ongoing consideration by regulators, technical reviewers, and stakeholders.
P. 7. "These same box cores also provide tremendous potential for collecting benthic flora and fauna samples as part of the environmental program." Yes, but as a byproduct. It would be best to have some methodology that targets biodiversity specifically, rather than collecting it incidentally	We concur, sample collection should be specific rather than incidental to other activities, however this reference was to highlight the great opportunity to gather opportunistic biological samples in addition to the comprehensive targeted biological sampling program detailed in the work program. The environmental studies will use box corers for dedicated studies, in combination with sharing box cores with the geological studies. The environmental studies will also make use of multicores and other sampling devices.

P. 8. "Moana's lead for local engagement and office operations in the Cook Islands will be a local Cook Island national. Moana's office," Who will this be? Are they identified yet? Conflicts of interest need to be avoided, e.g. they should not be a member of a SBM advisory committee, board, etc., or past members.	Moana has identified potential candidates, but it is intended the job be advertised in a transparent process. We agree that due care must be taken to avoid any impropriety and avoid any conflicts of interest. Moana has a Code of Conduct under which we conduct all our activities.
P. 9. Under Markets. "More responsibly" No need for word "more". Just responsibly. The bar is already set too low.	No response necessary.
3. Do you have any comments on the video presentation?	**Applicant Response**
No Questions Posed	
4. Do you have any comments on the Environmental Management Programme?	**Applicant Response**
This is a general, high level, desktop study. It is not a serious EMMP, and proposes no specific programme of baseline studies. There are no marine mammal or fish studies proposed. This is a fundamental flaw. It should be rejected.	The Environmental Management Programme is not an EMMP. An EMMP can only be designed on the basis of information from the project area, which is why EMMPs are produced in the later phases of an EIA. A future EMMP will outline the monitoring program that will connect with permit conditions. The Environmental Management Programme required in the exploration tendering process sought to define the high-level structure of the environmental and social studies and identify the high-level risks of exploration. The Work Plan document in the exploration application details the environmental and social studies. Whale and fish studies are included in the study program. Furthermore, in parallel, Moana Minerals is completing an Environmental and Social Impact Assessment Scoping Study. The Scoping Study details the specifics of the environmental and social data requirements, the design of the studies and the ecosystem-based management approach to the program of work. Preliminary assessments of the Moana Minerals project, commencing in 2018, identified that whales (humpback migrations in particular) and noise were among the main issues for consideration in the Environmental Impact Assessment. Indeed, this awareness was the catalyst for the development of the PelagOS offshore observing system, recognising the importance of seafarers working together to provide standardised observations of wildlife at-sea. This awareness was also the catalyst for Moana Minerals presenting to the 2019 South Pacific Whale Research Consortium Conference and was also the catalyst for engaging in discussion with an existing whale research NGO operating in Cook Islands to identify collaborative research opportunities.
5. General comments	

No Questions Posed	