The review of EIAs under the exploration regulations: a cautionary tale

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An EIA and monitoring plan is required prior to the testing of mining equipment

EIA to be provided to the ISA a year prior to testing

Detailed criteria/ requirements for the content of the EIA and monitoring plan in ISBA/19/LTC/8

International Seabed Authority

ISBA/19/LTC/8

Legal and Technical Commission

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Recommendations for the guidance of contractors for the assessment of the possible environmental impacts arising from exploration for marine minerals in the Area

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- Will an EIA submitted pursuant to the Recommendations be subject to review by the LTC or by other components of the Authority?
- Will the Council have a role in this process given its responsibility to exercise control over activities in the Area per Article 162(2)(l)?
- Will the EIA review be accompanied by a formal decision (e.g., approval, approval with amendments, rejection)? And if so, by which organ of the Authority?
- Are there standards against which EIAs will be evaluated to assess not just "completeness, accuracy, and statistical reliability", but also the overall impact of the proposed activities on the marine environment, any possible harm, and applicable mitigation measures? Will such standards be publicly available?
- If it is determined by the ISA that a proposed activity is likely to cause an adverse environmental impact, what will be the consequences of that determination?
- What will be the process for reviewing and evaluating the environmental management and monitoring plan prior to and during its execution, to verify that no serious harm to the marine environment is likely to occur or occurs during testing; to ensure that the monitoring plan will provide for the information required as specified in the Recommendations including the observations and measurements required under paragraphs 29 and 30 of the Recommendations, and to ensure that the monitoring plan is executed consistent with the approved proposal?

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The good news

- The sponsoring states Belgium and Germany established stakeholder consultative processes;
- Belgium took on board written comments on the GSR EIA over a 60 day period (July-August 2018) and provided them to the ISA Secretariat;
- The ISA published both the Belgium contractor's EIA (GSR) and the German contractor's EIA (BGR) on the ISA website;
- The ISA Secretariat contracted reviews of the EIAs by three independent experts and published these on the website.

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Exploration Regulations for polymetallic nodules ISBA/19/C/17

Regulation 31 Protection and preservation of the marine environment

31.4: The [LTC] Commission shall develop and implement procedures for determining, on the basis of the best available scientific and technical information…whether proposed exploration activities in the Area would have serious harmful effects on vulnerable marine ecosystems and ensure that, if it is determined that certain proposed exploration activities would have serious harmful effects on vulnerable marine ecosystems, those activities are managed to prevent such effects or not authorized to proceed.

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Exploration Regulations for polymetallic nodules ISBA/19/C/17

Regulation 1.3

(f) “Serious harm to the marine environment” means any effect from activities in the Area on the marine environment which represents a significant adverse change in the marine environment determined according to the rules, regulations and procedures adopted by the Authority on the basis of internationally recognized standards and practices.

Exploration Regulations for polymetallic nodules ISBA/19/C/17

LTC is to make a determination as to whether the testing of the mining equipment would cause significant adverse change to vulnerable marine ecosystems and ensure that, if so, the testing are managed to prevent such effects or not authorized to proceed.

- What has happened? Has the LTC done this?
- What is Council's view on this? What is it's oversight role?

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What has happened so far?

- As far as we know, the LTC has not made a determination as to whether significant adverse change would or would not occur as a result of the testing;
- The next meeting of the LTC is in March 2019;
- The tests are schedule for April 2019;
- Neither the Council nor the Assembly has addressed this issue at the July 2018 meeting of the ISA;

- Regarding the testing:

- We're not entirely clear what the GSR monitoring plan consists of? (as distinct from the JPI Oceans MiningImpact2);
- How long will the monitoring take place to determine what the impacts of the testing were, including plume impacts on filter feeding and sediment dwelling species?

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Why is this important? What do we know about the deep-sea?

Global Marine Assessment/World Ocean Assessment
Chapter 36F - Open Ocean Deep Sea

- “This truly vast deep-sea realm constitutes the largest source of species and ecosystem diversity on Earth”

- “There is strong evidence that the richness and diversity of organisms in the deep sea exceeds all other known biomes… and supports the diverse ecosystem processes and functions necessary for the Earth’s natural systems to function”

- “Deep-sea ecosystems are crucial for global functioning; e.g., remineralization of organic matter in the deep sea regenerates nutrients that help fuel the oceanic primary production that accounts for about half of atmospheric oxygen production.”

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Biodiversity loss from deep-sea mining

correspondence

Biodiversity loss from deep-sea mining

To the Editor — The emerging deep-sea mining industry is seen by some to be an engine for economic development in the maritime sector[1]. The International Seabed Authority — the body that regulates mining activities on the seabed beyond national jurisdiction — must also protect the marine environment from harmful effects that arise from mining[2]. The International Seabed Authority is currently drafting a regulatory framework for deep-sea mining that includes measures for environmental protection. Responsible mining increasingly strives to work with no net loss of biodiversity[3]. Financial and regulatory frameworks commonly require extractive industries to use a four-tier mitigation hierarchy to prevent biodiversity loss in order of priority, biodiversity loss is to be avoided, minimized, remediated and — as a last resort — offset[4,5]. We argue here that mining with no net loss of biodiversity using this mitigation hierarchy in the deep sea is an unattainable goal.

The first tier of the mitigation hierarchy is avoidance. Potentially useful mitigation strategies in the deep sea include patchwork extraction, whereby some minerals with associated fauna are left undisturbed, or other means to limit the direct mining footprint. Even so, loss of biodiversity will be unavoidable because mining directly destroys habitat and indirectly degrades large volumes of the water column and areas of the seabed due to the generation of sediment plumes that are enriched in bioavailable metals.

Although biodiversity loss within mines is inevitable, innovative engineering design could reduce or minimize some risks to near- and far-field biodiversity. For example, shrouds fitted to cutting equipment might reduce the dispersion of sediment plumes and the footprint of plume impacts such as the burial of organisms. Similarly, vehicle design might limit compaction of seabed sediments. Of course, the efficacy of such efforts in mitigating biodiversity loss would need to be tested.

Remediation addresses the residual loss of biodiversity at and around a mine site after avoidance and minimization interventions. In the deep sea, native species are often slow to recruit and recolonize disturbed habitats. Slow recovery on the scale of decades to centuries, enormous spatial scales of mines for certain mineral resources (a single 30-year operation license to mine metal-rich nodules will involve an area about the size of Austria[6]) and the high cost of working in the deep sea may mean that remediation is unrealistic[7]. Further, the science of deep-sea benthic remediation is a nascent field[8]. It is far from established that remediation of industrial mine sites in the deep sea is feasible for any mineral resource, and we know of no remediation actions that can be applied to the water column.

The last resort in the mitigation hierarchy is in-kind or like-for-like offsets within a biogeographical region. When offsets cannot be located where the affected biodiversity is found, and where the affected biodiversity is important for geographically restricted functions such as connectivity (as is the case for the deep sea), in-kind offsets are not an appropriate mitigation strategy[9]. Out-of-kind offsets[10], such as restoring coral reefs in exchange for loss of deep-sea biodiversity, have been proposed, but this practice assumes that loss of largely unknown deep-sea species and ecosystems is acceptable. We question this assumption on scientific grounds. The relationship between any gain in biological diversity in an out-of-kind setting and loss of biological diversity in the deep sea is so ambiguous as to be scientifically meaningless. Further, compensating biodiversity loss in international waters with biodiversity gains in national waters could constitute a transfer of wealth that runs counter to the Law of the Sea, where benefits from deep seabed mining must accrue to the international community at large, as part of the common heritage of humankind. Given the paucity of other industrial activities in the deep sea (except perhaps fisheries), it is difficult to imagine a scenario where averted risk offsets[10] could apply; that is, where a mining operation could avert biodiversity losses from other activities.

The four-tier mitigation hierarchy used so often to minimize biodiversity loss in terrestrial mining and offshore oil and gas operations thus fails when applied to the deep ocean. Residual biodiversity loss cannot be mitigated through remediation or offsets and the goal of no net loss of biodiversity is not achievable for deep-seabed mining. Focus therefore must be on avoiding and minimizing harm. Most mining-induced loss of biodiversity in the deep sea is likely to last forever on human timescales, given the very slow natural rates of recovery in affected ecosystems. It is incumbent on the International Seabed Authority to communicate to the public the potentially serious implications of this loss of biodiversity and ask for a response. ❐

The Tu'i Malila vent field in the Lau Basin, southwest Pacific. Lau Basin foundation species (*Alviniconcha* spp. snails, *Ifremeria nautilei* snails, and *Bathymodiolus septemdierum* mussels) live in diffuse flow on the surfaces of metal-rich sulfide deposits.

KAREN ADERN, IN SITU SCIENCE ILLUSTRATION

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"Biodiversity losses from deep-sea mining are unavoidable and possibly irrevocable, an international team of 15 marine scientists, resource economists and legal scholars argue in a letter published today in the journal Nature Geoscience. The experts say the International Seabed Authority … must recognize this risk. They say it must also communicate the risk clearly to its member states and the public to inform discussions about whether deep-seabed mining should proceed, and if so, what standards and safeguards need to be put into place to minimize biodiversity loss..."

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- Will the ISA regulations be designed to prevent biodiversity loss?
- How much biodiversity loss will the ISA regulations allow or permit?
- Over what time frame given that in most cases the loss will be irreversible on human timescales?
- Can limits be placed and enforced to be sure that the 'allowable' loss is not exceeded?
- How will the ISA justify the biodiversity loss – e.g. what is the benefit in relation to the common heritage of humankind that would justify the loss of biodiversity in the Area?

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Coherence/Applicability to other uses of the marine environment
UNGA BBNJ negotiations

Sustainable Development Goal 14.2

"By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans"

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