



COMMENTARY ON
“Developing a Regulatory Framework for Mineral Exploitation in the Area”
Report to Stakeholders (ISBA/Cons/2015/1)
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This document is submitted by DOSI – the Deep-Ocean Stewardship Initiative – a union of experts crossing disciplines, sectors and countries formed to provide expert input and to develop new ideas for sustainable use and management of deep-ocean resources. Endorsement by DOSI members is presented at the end. More information on DOSI is available at www.indeep-project.org/deep-ocean-stewardship-initiative.

Recommendations from the Deep-Ocean Stewardship Initiative:

From the responses of the DOSI community, several recommendations emerged that underlie or complement the specific commentary offered in the pages below.

1. Given multiple approaches in different nations, defining the ISA Environmental Impact Assessment (EIA) process is an important first step that is unclear in the process.
2. ISA is responsible for developing the regional Strategic Environmental Assessment (SEA) thus the Legal and Technical Commission will need to define how development should be executed.
3. Some terms (e.g., Environmental Management Plan, serious environmental harm) will need to be defined before development of Rules, Regulations and Procedures (RPP) can move forward.
4. Templates for the Environmental Impact Statements (EIS) and Environmental Management Plans (EMP) should be drafted by a panel of experts, with scientific (including all oceanographic disciplines), conservation, economic and legal expertise.
5. Establishment of a standing independent Review Board for environmental issues (and perhaps other issues) would promote the public perception of fair assessment of potential harm to non-mineral resources and the environment. A standing Review Board could also provide continuity across contractors in the review process. It will be important to uphold and maintain a balance between the responsibility to administer mining activities and to ensure effective protection from harm in development of guidelines and review of operations related to exploitation. This may become more difficult as the exploitation phase approaches.
6. Establishment of a workflow for Rules, Regulations & Procedures (RRP) development would identify where the dependencies lie especially related to environmental processes. For example, as more licences are granted in a region, the less flexibility remains to develop a sound SEMP in the context of the regional SEA.

Preamble

As part of its mandate, the ISA is tasked with protecting the marine environment, as expressed in Article 145 of UNCLOS. Therefore, effective environmental management systems are required to assess, address and minimize environmental impacts from mining activities in the deep sea. The LTC and all stakeholders understand that the regulations set in place now will be judged in a hundred years. Thus it is important to invest the effort to forge far-seeing guidelines. The LTC does not underestimate the tasks ahead and prioritizing activities is wise.

Specific Comments

SECTION 2: Draft Structure for Exploitation Regulations

pp. 5, 6, 7

- A glossary with rigorously defined terms (not simply acronym expansion) will avoid confusion in the future. Full definitions reflecting international norms, or use of a national norm as a model in the absence of international norms, are necessary.
- The outline is about single project approval and, as such, is inconsistent with one of the important precepts of environmental assessment, namely, that it should be done in the context of a *regional* Strategic Environmental Assessment and a *regional* Strategic Environmental Management Plan. How the EIA and Social Impact Assessment (SIA) acknowledge and respond to the SEA and SEMP should be explicit.
 - Strategic Environmental Assessments and Strategic Environmental Management Plans should precede Exploitation activities for each major region (Clarion-Clipperton Zone, Mid Atlantic Ridge etc.). All individual EIA requirements should be developed to contain material needed to conduct strategic environmental planning. Data should be made accessible and standardization (of sampling, data types, and data format) should be required so that the SEA and SEMP can proceed. Mining ought not to occur on a first come first-served basis with cumulative environmental impact as an afterthought. An SEA and SEMP should guide selection of mining activity size, location, timing, methodology, spatial pattern and more. It should also lay out protected areas (or Areas of Particular Environmental Interest: APEIs) with the anticipation that the region's seabed mineral resources may be fully exploited. SEAs should view mining within the context of other regional human activities (fishing, oil and gas activity, etc), and climate change impacts on the resilience of marine ecosystems.
- Application materials include an EIS and EMP, SIA and SAP, but lack reference to activities that precede development of these tools, namely scoping and consideration of alternatives.
- The ISA is supposed to consider the Common Heritage of Mankind, and act in the interest of all humankind, including future generations. Contractor project applications should be required to explicitly address this responsibility with regard to natural capital (mineral and biological).
- Include timing/duration along with size and location of exploitation areas to allow assessment of chronic/acute effects and potential mitigation of cumulative impacts.

SECTION 2, Part I: Introduction

p. 8

- Development of the “Use of Terms and scope” section is a fundamental first step and key to effective management of exploitation and environmental protection.

SECTION 2, Part II: Applications for approval of plans of work for exploitation in the form of contracts

p. 8

- Form of Application: Option 2 would ensure each exploitation area receives due diligence in terms of environmental considerations and would place the burden on the contractor to demonstrate convincingly why there are no “material” differences between sites.

Separate documents (Feasibility study, EIS and EMP) for each exploitation area are most appropriate because material differences will be very subjective and susceptible to both methodological and interpretative bias.

- An overview set of documents (EIS and EMP) should address potential interactions (e.g., synergistic impacts) and broader scale effects of multiple exploitation areas within a claim.

p. 9

- Financial and Technical capabilities should include capability to deliver EIS/SIA as well as EMP/SAP obligations.

p. 11

- Data and information should include an Environmental Impact Assessment scoping/alternatives report. **Thus an ISA Action is also required: develop EIA guidelines.**

p. 12

- On page 12 is the first reference to the EIA together with the EIS. Please define the role of the EIA and the interactions among stakeholders, agency and contractors.
- Point (i) under “An EIS must be”: It will be necessary to clarify what an “independent consulting firm” is and what is expected in “verification”. If this process is prior to submission then there should be discussion of verification standards.
 - For post submission review, it would be suitable to appoint an independent scientific body, composed of scientists *not* involved in the EIA preparation of this or other claims. Establishment of an independent Review Board for such documents is recommended to ensure sufficient levels of expertise, impartiality and continuity.
- Point (ii) “Prepared in a language to facilitate review...” Does ‘language’ mean the tongue or the style? If the former, then all materials should be available at least in English as it is the *de facto* science language and will be needed for international review.
- Point (iii) Clear definition of baseline should be established. The EIS baseline should a) include a compilation and summary of all previous scientific work at a site and similar settings; b) include temporal studies to understand natural variability; c) be drafted, independently reviewed and finalized; and d) be publicly available.
 - Existing baseline requirements for each resource should be reassessed in light of a) new knowledge about the ecosystems developed since initial regulations were

established b) new technologies and changing costs of existing technologies (e.g., environmental sequencing), c) ecosystem services impacted, d) information required to assess cumulative impacts.

- The EIS draft: Key issues to address include identification of significant impact in each system, missing information needed to assess significant impact, and context-specific nature of local impact and cumulative impact.
 - A clear statement of what sorts of impacts are important in the deep sea is needed. Most shallow marine EIS focus on threatened and endangered species or fishing. There should be a distinction between [and requirement to address] structural impact (abundance, composition, species and genetic diversity), functional impact (e.g., food webs, rates of bioturbation, connectivity) plus market and non-market ecosystem services (e.g., carbon sequestration, existence value).
 - Drafting of EIS and EMP guidelines needs to be approved, and probably even drafted, by a panel or working group of experts as indicated in Actions column.
- “...endorse an inter-disciplinary approach.” Not clear what this concept entails.
- Environmental Impact Areas will be different for distinct structural, functional and services attributes. Thus, rather than identifying a single area for each mining activity, we need to identify an area associated with each impact type – e.g., may be different for substrate alteration, connectivity, noise etc. (A new term is needed so as not to confuse with Environmental Impact Assessment.)

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- EMP Point i): It will be necessary to clarify what an “independent consulting firm” is and what is expected in “verification”.
 - Much of this work is resource-specific. Existing methodologies, sampling and archiving should be developed in light of technology changes and reassessed periodically. The level of standardization should be reassessed. Identification of criteria and thresholds should be context-dependent and viewed in light of cumulative impacts, local climate change: probably needs a workshop of experts to address it. An entire regulation should be developed about data including accessibility, format, maintenance etc. **Thus an ISA Action is required.**
- Point iv): The goals of these zones should be stated with respect to all forms of impact. Different preservation zones may be required to maintain different functions or services. It may be that different impacts will require different zones thus a method to develop the integration or compromise may be necessary. Is there potential for networking with nearby nation states to create a network of protected areas? Temporal framework of preservation areas is needed (when established – are they permanent?). Thus, due consideration is required in the Guidelines.
- Point v): These should not all be lumped together. Monitoring, management, conservation and remediation/restoration/rehabilitation each should be treated separately with concerted focus on defining ultimate goals of each.
- Who will approve the EMP? As ISA has a stake in the mining activities – independence is not assured nor are appearances good. Thus the recommendation for a Review Board.
- Similarly, “inspection regime”: Who will inspect? An independent body is needed with appropriate expertise and no stake in mining activities.

DOSI Response

- “precautionary approach”: A statement is needed of what the precautionary approach is and how it should be applied in seabed mining in the context of an EMP. E.g., does this mean mine less area? Less frequently? Further spacing? Don’t mine? This should also include a review of the ISA’s procedural and institutional competences with a view to ensuring that the ISA is a position to fully apply the steps required by the precautionary approach, (e.g. risk assessment; selecting measures that are effective in and proportionate to achieving the agreed level of environmental protection; ability to adapt protective measures on an ongoing basis, public participation to address subjective elements of the risk management)
 - The Best Environmental Practice (BEP) should also reflect up-to-date approaches to habitat mapping and geospatial analysis, connectivity, predictive modeling of environmental outcomes. Descriptive approaches are not acceptable with the exceptional tools are now available.
 - “conditions attaching to EMP approval”: Beyond enforcement, there should be strong penalties developed in advance for different types of violations and include compensation/mitigation requirements.
 - As with the EIS, the EMP guidelines should be a joint effort by experts in EMPs and by experts in deep-sea environments.
 - Multi-stakeholder workshop review of EIS and EMP templates is useful.
- p. 15
- “block order” implies that the temporal component of mining is considered: which block when and for how long – suggest that it be explicit.
- p. 16
- “principles” should include the availability of a reference/preservation area *and* connectivity of biological populations.
- p. 18
- Public Review: A panel of experts should be convened as soon as possible to draft the procedures for vetting EIS, EMP and SEMP documents. Ultimately, there should be a Review Board of independent experts for initial review, subsequent evaluation of public comment, and final review of applicants’ modifications based on recommendations.
- p.19
- “substantial evidence of risk of serious harm”: the proposed technical paper is critical and it needs to be linked to environmental baseline requirements to ensure that sufficient information is available to make this assessment.
 - It is inevitable that mining will yield dramatic environmental damage on local scales. The time and space scales over which this harm is serious or significant is a major uncertainty; these scales will be habitat and resource dependent (i.e., polymetallic nodules, massive sulfides, cobalt-rich crusts on seamounts, etc.).
 - The concepts of species extinction risks, and disruptions of population connectivity should be incorporated into the definition of serious environmental harm.

DOSI Response

- Consideration and approval of plans...: Additional steps and procedures are required, with independent review bodies or panels (i.e., a Review Board) reviewing EIS, EMP etc., incorporating public comment, and making recommendations to the LTC.
- Independent technical expert working group/subcommittees should be formalized under the regulatory framework to ensure fair and similar treatment of all applications. Establishing the recommended independent Review Board of experts is the first necessary step. A further step could be to establish an Environmental Commission in addition to the LTC. This would be a way to address the challenges facing the LTC with regard to workload, environmental management expertise, transparency, public participation, and availability outside of formal meeting times. This Environmental Commission could fulfill the ISA's far-reaching environmental obligations under LOSC Articles 145, 150(b), 153, 162(2)(w), (x), 165(2)(c)-(h), (k)-(l), 165(3), 209 and the 1994 Implementing Agreement, Section 1(5).

p. 20

- It is important that the ISA retains control of exploitation activities (See LOSC, Article 153). The current system of exploration contracts does not achieve that. Alternatives are listed e.g. in the ISA's Technical Study No. 11, pages 23-27.

p. 21

- Duration of contracts/renewal: criteria should include environmental considerations, such as adaptive management of environmental damage as the scales and nature of impacts become clearer in association with a particular mining technology and level of mining intensity. Many impacts will not be assessable until the mining operation has been underway for a number of years. For example, chronic, continuous activity may cause greater harm than an acute, intense action. A substantive environmental review after five years, paid for by the contractor, would be important to include in the RRP. Strongly agree the working paper is an A Priority.

p. 22

- Include environmental performance criteria in any renewal process, with review of monitoring outcomes.

p. 24

- The Conservation of Natural Resources should be addressed in all phases – feasibility, SEA, EIA, EMAs. The report focus is on disposal of waste (presumably return water, tailings, incidental discharges) but the definition of “waste” vs. other impact is required (resuspended sediments, released contaminants, CO₂ discharge, noise, discarded equipment). And how will the ISA regulate this at the seabed, water column, and surface? Will there be surprise testing? Required sample submission? The International Maritime Organization should be engaged.
- Discharges into the surface ocean, in particular mining wastes or tailings, which do not fall under the London Convention on Dumping, are the biggest risk to the pelagic marine ecosystems.

p. 25

- Labour standards: considerations of human rights, safety, working conditions, etc., are critical for an ISA sanctioned activity.

p. 26

- Periodic review should include review of all environmental monitoring data. It should evaluate environmental impacts, concordance with the EIS, whether adequately addressed by the EMP, whether they are acceptable within the SEMP, and whether modifications to the EMP or other actions are necessary. The scale and intensity of “serious environmental harm” could be determined during this review, and appropriate adaptive management procedures implemented. Since the impacted ecosystems are so poorly known and the mining technology wholly new or unused in these environments, the 5-year reviews will be absolutely critical for evaluating and managing environmental impacts. It is important that the ISA retains the procedural competence to require the contractor to amend environmental standards through such periodic reviews. In the present regulatory framework, the ISA does not have such competences, which significantly undermines its ability to organize and control seabed mining on behalf of mankind (LOSC, Article 153(1)).
- Termination of sponsorship: How will the cost of post-contract monitoring of environmental recovery be covered by a contractor? An initial deposit? Who will carry out the monitoring? The ISA could prepare a study on the various options, including the option to carry out all environmental studies and monitoring obligations through a central, independent consortium funded by the contractors, rather than by each contractor individually.
- Responsibility and Liability: We do not agree that developing these principles is a Priority C; an independent working group to determine these principles, especially for environmental damage, is needed.

SECTION 2, Part IV Protection and preservation of the marine environment

p. 27

- The second bullet in Part IV captures many concerns and the task ahead.
- The recommended expert working groups should develop the SEAs/SEMPs. Spatially based management tools (i.e., erection of marine protected areas or APEIs) are urgently needed for all habitats targeted in the Area before further exploration, and certainly exploitation, licenses are granted. In the CCZ, the ability to erect an effective network of MPAs (or APEIs) is already impacted by existing, legally binding exploration contract areas; this may also be true along certain sections of mid-ocean ridges.

p. 28

- Environmental management: We do not agree that development of the suggested guidelines is a Priority C, rather, such guidelines from experts are necessary to move to exploitation. Guidelines should incorporate the uncertainty of deep-sea scientific knowledge. Adoption of OSPAR guidelines should be carefully considered since the scale of activities, and knowledge of impacted ecosystems, may be quite different. OSPAR may be a good starting point.

p. 29

- SEMP: Part IV calls for a strategic environmental management plan, but skips the assessment step – the scoping and consideration of alternatives at a high level: the regional Strategic Environmental Assessment.
- Need to develop a template for annual reporting of environmental targets and performance by Contractors.

p. 31

- Restoration and rehabilitation – Restoration of nodule, sulphide and crust areas is highly unlikely for many reasons including cost and scale. Because of the slow rates of abyssal ecosystem recovery, even if restoration appeared to be technologically, logistically and financially feasible, it would require decades to evaluate its efficacy.
 - No ISA regulation on this item is proposed but prior to mining the ISA will have to confront whether they are able to identify acceptable mitigation for lost habitat, functions and services. Will off-site, or out-of-kind, restoration be allowed? Generation of an independently managed research fund/agency (separate from contractors) that sponsors studies to address the science of mining impacts and develop actions that enhance post-mining system recovery for some ecosystems may be considered as a mitigation option.

p. 32

- Environmental liability fund. This fund is essential to address post-contract environmental monitoring of exploited areas. It is not covered by insurance nor is it research. The obligations of contractors to contribute to this fund should be defined at the time of granting of exploitation licenses.

p. 33

- Confidentiality of data. Confidentiality of environmental data is a fundamental obstacle to the evaluation by independent parties of environmental harm and efficacy of the EMP. Only technological data should be confidential but not including rates of resource

recovery, generation of wastes, or other information that has bearing on environmental impacts.

p. 34

- The inspection regime should include an independent Review Board of experts. Ad hoc panels will not ensure even-handed treatment across contractors.

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- Suspension and termination of contract and penalties should also consider detection of unanticipated serious/significant environmental harm or damage.

SECTION 3, High Level Issues

DOSI identifies several high-level issues not covered in this document:

1. Drafting the ISA EIA process with consensus from stakeholders.
2. Scoping and alternative considerations with stakeholder engagement, contractor response, and stakeholder review (EIA).
3. Examining how EIAs and EMPs will integrate regional SEA outcomes and be properly imbedded in regional SEMP.
4. Monitoring and Auditing Plans need to be included as part of the EIA; environmental monitoring requirements are notably absent.
5. Timeline and dependencies: while the prioritization gives some order, a dependency-related work flow is necessary. For example, granting more licences will significantly constrain the operation of adaptive management in the context of SEA and SEMP.
6. Linkage of ‘substantial evidence of serious harm’ to environmental baseline requirements, so that this assessment can be made and understood by all stakeholders; needs to be transparent and modeled.
7. Oversight of APEIs (and then other preservation/set-aside areas).
In the current oversight of the CCZ APEIs, are EIAs required for baseline study of the APEIs? Several cruises have visited and sampled APEIs this year. To remain objective, ISA and researchers need to agree to minimal impact, and for shared, standardized data from APEIs.
8. Formation of a global Expertise/Instrumentation/Knowledge pool or facility for use by contractors. Each agency with mining claims will likely not be able to develop the complete taxonomic, technical, ecological, and other expertise required to conduct high quality baseline studies and monitoring of all necessary phenomena. Rather than risk weaker EIA/EIS requirements, consider assembly of an expert pool of knowledge and instrumentation and laboratory facilities for hire from across the globe.
9. Addressing how activities proposed will serve the Common Heritage of Mankind, including the interests of future generations.

SECTION 5, Draft Action Plan

p. 46

- The ISA EIA process needs to be outlined first. Process should include experts in deep-sea environments as well as experts in EIA in drafting EIS guidelines. Same for SIA, EMP.

p. 47

- Public review: first develop a full EIA approach, including SEA, including goals.

p. 48

- Performance requirements – include environmental performance?

p. 49

- Protection/Preservation of marine environment: a paper describing the EIA/SEA process as intended by the ISA (A priority).
- Adaptive management should be priority A as it affects every aspect of the regulatory framework. The ISA's competences and the contractor's obligations should reflect adaptive management for it to not become an empty concept in the Mining Code.

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