



Secretariat,
International Seabed Authority
14-20 Port Royal Street
Kingston, Jamaica
(submitted via email to ola@isa.org.jm)

June 11, 2021

RE: Stakeholder Consultation - Draft standard and guidelines for environmental impact assessments

Sir/Madam,

Below, find below our Commentary on the Draft standard and guidelines for environmental impact assessments as issued in May 2021.

As Group Leads, we submit on behalf of the **Deep-Sea Minerals Working Group of DOSI, the Deep-Ocean Stewardship Initiative**. The list of contributors is presented at the beginning of the document. Express Consent for sharing is granted.

Sincerely,

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TEMPLATE FOR COMMENTS

<i>Document reviewed</i>	
Title of the draft being reviewed:	Draft Standard and Guidelines for Environmental Impact Assessment Process
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<i>General Comments</i>	
<p>The following DOSI experts commented on this document: Dr. Diva Amon, SpeSeas, Trinidad and Tobago; Natural History Museum, London, UK Dr. Patricia Esquete, University of Aveiro, Portugal Dr. Sabine Gollner, Royal NIOZ, The Netherlands Dr. Jesse van der Grient, University of Hawai’i, USA Dr. Aline Jaeckel, University of New South Wales, Australia Dr. Holly Niner, University of Plymouth, UK Prof. Lisa Levin, Scripps Institution of Oceanography, USA Elisabetta Menini, Duke University, USA Prof. Verena Tunnicliffe, University of Victoria, Canada Dr. Phillip Turner, Independent Scientist, UK</p>	

We acknowledge the efforts of the LTC and consultants to draft an initial version of these standards and guidelines for the environmental impact assessment process. Drafting such a document for the remote and comparably poorly-known deep-sea ecosystems and a nascent industry is a very difficult task, but will be critical for conservation and sustainable management of the ocean.

Please find below our general concerns as well as a list of specific comments. We also include suggestions for improving the document, as well as supporting references.

Scoping

The section on the Scoping Report should be restructured to expressly require an applicant or Contractor to produce a Scoping Report and then set out what that Report must entail. The Standards should clearly state that it is compulsory for a Scoping Report to be subject to public comments (as indicated in the EIA Guidelines). The Standards should clearly set out the process for reviewing the Scoping Report – see suggestions in table below (Pg. 3 in EIA Standard).

Review and Decision-Making

The standards and guidelines, similar to the draft Exploitation Regulations, should set out adequate review and decision-making processes for the Scoping Report, EIS, and EMMP. Clear procedures and responsibilities are fundamental to ensuring effective protection of the marine environment. See suggested changes below (Pg. 5 in EIA Standard).

Mitigation Hierarchy

The guideline suggests both restoration and biodiversity offsets as relevant to the seabed mining context. Current scientific literature suggests that post-mining restoration in deep-sea environments may be impossible, hence offsets are inappropriate and would lead to a net loss of biodiversity (e.g., Niner et al., 2018). While the Guideline may include the full mitigation hierarchy in line with standard environmental management practice, it is important that focus be placed on the first two steps of the mitigation hierarchy: avoid and minimize. We also note the definition of offsets and the offsetting process used is incorrect. Notably, there is no definition of what the aim of offsetting is (e.g., net benefit or no net loss), which specific elements of biodiversity are being measured, and how each scenario is being established. Further, the criteria of additionality/equivalence are missing. See details in the table below.

Process of Developing the Standards and Guidelines

DOSI would like to see more transparency around the process for drafting the standards and guidelines. For example, a list of contributors and affiliations (both

formal members of the technical working group, and formal and informal consultants) should be included. There is no information in the public domain about how contributors were selected, whether objective criteria were applied, and whether conflict of interests were declared and/or managed.

Definition of Key Terms

Throughout the text, there are multiple references to “Best Available Techniques” and “Good Industrial Practice”, with no clarity on where information on these should be sought or what this refers to. While there are lessons to be learned from existing practices, including other deep-sea or offshore industries, a new industry such as deep-seabed mining should be seeking to break new ground with regards to sustainability and environmental performance. Further, it is not clear who will uphold standards for “Best Available Techniques” and “Good Industrial Practice”.

Guidance/Standards for the Collection of Social and Economic Data

There is no guidance for the collection, storage and sharing of social and economic baseline data, including ecosystem services. This should be rectified so social and economic data; otherwise social and economic data cannot be compared or scaled making impact difficult, if not impossible, to determine.

Stakeholder Consultation

Guidance or best practice is missing on how to ensure that stakeholder identification is appropriate and comprehensive. How can those that have been historically missed or marginalized from consultation be included or notified of opportunities for consultation? We suggest consultation is required and advertised appropriately (including with appropriate timescales) with, at minimum, stakeholders in all adjacent states, other potentially affected states as well as states through which some link is established to the proposed project including civil society, traditional owners and indigenous communities. We also highlight the importance of considering whether capacity building efforts are necessary to support participation in consultation exercises.

Cumulative Impacts

Scoping should define how cumulative impacts will be assessed, as well as what is included or excluded and the rationale for this. Guidance from the ISA on how to assess this (e.g., what projects/activities should be included and how to approach assessing those that are planned or foreseeable) would be helpful.

Expert Opinion

<p>There is provision to rely quite heavily on expert opinion given anticipated high degrees of uncertainty in assessment. Best practice guidance should be provided on how to undertake this, specifically how to select experts and how to appropriately process the information obtained through such exercises.</p>		
<p>Climate change</p> <p>Climate change is mentioned in the context of identifying other international laws and instruments (line 641) and in a reference (Mastrandrea et al., 2010) (line 1314) that is not cited in the guidelines. It should be recognized in the context of cumulative impacts. See details in the table below.</p>		
<p><i>Specific Comments</i></p>		
Page	Line	Comment
1	21	The EIA Standards and Guidelines only focus on the exploitation phase. Are separate Standards and Guidelines envisaged for EIAs conducted during the exploration phase?
1	40-49	An additional aim of the standard for EIAs should be to meet the ISA’s strategic environmental goals and objectives which need to be incorporated in the draft regulations and broken down into measurable goals, objectives, targets, thresholds, indicators. This will be necessary to define ‘serious harm’ and to provide clarity to applicants, the LTC, and States as to how environmental protection is to be balanced with mining operations. See, e.g., Tunncliffe et al., 2020.
1	43	The objective of the EIA (protect and preserve the marine environment) is not sufficiently detailed to guide the EIA. Please further clarify. A clear statement of environmental objectives must exist to assess impacts including on what, e.g., biodiversity, ecosystem structure, function, services, all of the above?
1	52	There is no guidance for the collection, storage and sharing of social and economic baseline data, including ecosystem services. This should be rectified so social and economic data; otherwise social and economic data cannot be compared or scaled making impact difficult, if not impossible, to determine.

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2	60-61	The ERA should also include a process to identify, analyse and evaluate the nature and extent of activities and risks to ecosystem services.
2	Flow chart	The steps of mitigation, reporting, review, decision-making and monitoring do not allow for assessment of success of mitigation measures. Monitoring and reporting of mitigation measures are required to ensure that impacts are accounted for. Please include an avenue for the use of or response to monitoring data.
3	87-94	<p>“Screening: An EIA should also be expressly required when any Material Change to a Plan of Works is proposed.”</p> <p>Please clarify who is responsible for the <i>screening process</i> to determine if a project must be subject to an EIS or EIA.</p>
3	95-100	Scoping should also define how cumulative impacts are going to be assessed, what method will be used to define what is included or excluded, and rationale for this. Guidance from the ISA on how to assess this (e.g., what projects/activities should be included and how to approach assessing those that are planned or foreseeable) would be helpful.
3	104	More detail on how the ISA foresees operationalising “reasonable” would be helpful. Please clarify whether the precautionary principle (as outlined at line 120) will be used to inform how this is applied.
3	101-125	<p>The section about the Scoping Report should be restructured to expressly require an applicant or Contractor to produce a Scoping Report and then set out what that Report must entail.</p> <p>The Standards should clearly state that it is compulsory for a Scoping Report to be subject to public comments (as indicated in the EIA Guidelines).</p> <p>The Standards should clearly set out the process for reviewing the Scoping Report.</p> <ol style="list-style-type: none"> 1. Scoping Report open for public review 2. Scoping Report and all comments to be submitted to the applicant/Contractor who may add responses. 3. Scoping Report, all comments and responses to be submitted to the Commission.

		<p>4. The Commission should then review the Scoping Report together with all comments and potential responses from the applicant/Contractor.</p> <p>5. The Commission should make recommendations to the applicant/Contractor to:</p> <ul style="list-style-type: none"> a. revise any aspect of the Scoping Report or the underlying ERA; b. amend the proposed terms of reference for the EIA; and/or c. re-submit a revised Scoping Report for stakeholder review and consideration by the Commission. <p>Step 6 is a crucial procedural safeguard to ensure the EIA process can function as a key tool for environmental protection.</p> <p>Additionally, transparency around this process is essential, so it would be helpful if steps could be outlined that facilitate this.</p>
3	108	<p>Scoping: Considering alternatives is key during EIAs to enable the ISA to determine the least harmful option. Alternatives should include a “no action” option.</p>
3	108	<p>The use of the mitigation hierarchy should be referenced here. Following this, there should be a specific reference to the need for avoidance measures to be explored, outlining the options for the project. Minimisation measures should then be outlined.</p> <p>This section should also reference the precautionary principle and how this has been applied in assessment of avoidance and minimisation.</p>
3	119	<p>Scoping: Identifying uncertainties is key during an EIA. The Standard should require a Scoping report identifying uncertainties and proposals for how to respond to them.</p>
4	133	<p>Mitigation: Suggest rephrasing “development of mitigation’ to ‘inform avoidance and minimisation measures to limit unavoidable impacts”. This recognises the incompatibility of offsets with deep-sea environments and clearly sets the first two stages of the mitigation hierarchy (avoidance and minimisation) as the necessary focus for impact management (see further comments below on the mitigation hierarchy).</p>

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		This section should also reference the precautionary principle and how this has been applied in assessment of avoidance and minimisation.
4	140	Suggest “Cumulative and combined impacts both at the project and regional scale”.
4	150-153	Impacts should be assessed at all relevant scales and against relevant legal principles, including abilities to meet the Common Heritage of Humankind and international human rights legislation. This is particularly relevant when considering the potential disruption to ecosystem services that may in turn restrict abilities for nations and communities to meet aims of no hunger (SDG 2) and health and wellbeing (SDG 3).
4	158-163	<p>Offsetting is not a viable option for deep-seabed mining (e.g., Niner et al., 2018) and as such, it would be worth considering how the ISA will determine acceptable impact or loss of biodiversity. Following this, the issue of compensation for unavoidable and accepted impacts should be considered with respect to the demands of the mining code, UNCLOS and other relevant legislation.</p> <p>Furthermore, the precautionary principle will need to be incorporated into such assessments. Further detail on how the ISA will weigh impact against feasibility (technical and economic) would assist transparency.</p>
4	161-163	Suggest a different order of priority in examination of alternatives: “Contractor shall include examination of alternatives to establish <u>the most environmentally sound, safe and technically and economically feasible</u> approaches for achieving the project objectives”.
5	171 - 175	Review and decision-making: The standards and guidelines for EIA should clearly set out the competencies of the Commission and the Council to review the Scoping Report, EIS, and EMMP and guide the applicant/contractor during the EIA process, and ultimately approve/reject the EIS. Clear procedures and responsibilities are fundamental to ensuring effective protection of the marine environment.

	<p>The current provisions regarding review and decision-making, simply cross-referencing the draft exploitation regulations, are inadequate.</p> <p>The S&G should specifically require the Commission to determine:</p> <ol style="list-style-type: none">1. whether an EIS was prepared in accordance with regulation 47 and the relevant standards and guidelines, including being based on sufficient environmental baseline data and information adequate to allow prior assessment of, and informed judgments about, the possible environmental effects of the planned activities;2. whether the predicted environmental impacts are acceptable and lower than the thresholds set in the relevant REMP [and Standard on environmental objectives?] and can meet the relevant environmental goals and objectives;3. whether the proposed work would cause “any effect ... which represents: ... loss of scientific or economic values which is unreasonable in relation to the benefit derived from the activity in question” as was suggested by the ISA Preparatory Commission (LOS/PCN/SCN.3/WP.6/Add.5 (8 February 1990), article 2(2)); and4. whether the applicant has demonstrated the required monitoring capabilities, including the capacity to monitor key environmental parameters and ecosystem components, to determine the actual environmental effects during activities in the Area, in line with the [Regional Monitoring Plan and Standard for EMMP?]. <p>The standards and guidelines should state that where the Commission determines that any of the above criteria are not satisfied, it must require further work from the applicant/Contractor or recommend disapproval of the application/Material Change. The regulations and standards should provide for the Commission to seek independent scientific advice when reviewing EIA documents and the EIS/EMMP (e.g., on aspects not covered by the scientific disciplines represented in the Commission).</p> <p>The regulations and Standard should require the Commission to give detailed reasons for recommending approval/rejection of an EIA/EIS and EMMP. This should include a summary of any</p>
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		uncertainties associated with the EIS. This supports both transparency and assists the Council in its decision-making.
5	176	Monitoring of impacts is crucial and should not be left solely to the contractor. An independent monitoring programme is needed, e.g., funded by contractors collectively and organised by the ISA using its powers under UNCLOS, art 165(2)(h). Engagement with sponsoring states is possible here. See UNCLOS, article 204, requiring states to “keep under surveillance the effects of any activities which they permit or in which they engage in order to determine whether these activities are likely to pollute the marine environment.”
6	233 - 235	Please add the statement that is found within the document “Collation of specific drafting suggestions by member of the Council” related to the exploitation regulation draft: “In accordance with Regulation 47 of the Exploitation Regulations, the EIA process: (a) Must be informed by relevant baseline data that capture, <u>spatial</u> , temporal and seasonal variations; (b) Identifies, predicts, evaluates and mitigates the physicochemical, biological, socioeconomic and other relevant effects of the proposed mining activities”
6	239	“The environmental impact assessment should include an environmental risk assessment...” as required in C para 9.
6	243	Please clarify what and who defines “acceptable levels”?
6	261	Suggest adding at the end of para 5 “EIA review or audit steps could be undertaken when there is a substantive adjustment to the relevant REMP and may correspond with a review or audit of the EIS and EMMP”. This reflects the text within para 65 of the ‘Draft Guidelines on tools and techniques for hazard identification and risk assessments’, making clear that changes to the REMP need to be considered.
7	281 onwards	How should stakeholder identification ensure that it is appropriate and comprehensive? How can those that have been historically missed or marginalized from consultation be included or notified of opportunities for consultation? We suggest consultation is required and advertised appropriately (with appropriate timescales) in all adjacent states or states through

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		which some link is established to the proposed project. We also highlight the importance of considering whether capacity building efforts are necessary to support participation in consultation exercises.
8	288 - 290	Suggested change: “This should be summarized in a Scoping Report which is shared with <u>public</u> stakeholders, in order to seek feedback on the planned content and emphasis of the EIA.”
8	293	Suggest the review also assess work available from other Contractors in the region/resource. The more learned from the experiences of others, the better.
8	307	Strongly agree that “[e]ffective and comprehensive stakeholder engagement is needed from the scoping stage throughout the entire EIA process.” We strongly suggest this should also be reflected in the Exploitation Regulations and the EIA Standard.
8	310	Requirements, processes and standards for data sharing should be included at this point.
8	316	Please insert human rights after “social issues” to ensure that this is not missed from the list of concerns.
10	384	“A review of the current environment (including social and economic) values and systems...” Please assess punctuation - is it a review of the environment or values held about the environment? Please clarify what is meant by “systems”.
10	384	The Environmental Risk Assessment section requires consideration of environmental and socio-economic values (evidence by line 384) but no detail is given on the range of values to consider. This section should be edited to cross reference the other guidelines and could include a table providing an overview of the different values to consider. Including, but not limited to: fisheries, marine traffic, on-going marine scientific research, habitats internationally recognised as EBSAs or VMEs, sites of archaeological or historical importance, uses of the ocean by traditional owners and indigenous communities, as well as the cultural significance of ocean spaces by local and indigenous communities.

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9	388	Please amend to “A review of the intended project’s activities including identifying those likely to have Environmental Effects and effects on ecosystem services”.
10	393	Suggest the review also assess work available from other Contractors in the region/resource. The more learned from the experiences of others, the better.
10	400	Risk should be viewed in one standard “way” across Contractors. Freedom to define “risk” to suit the operation means there may not be consistency across Contractors. Suggest the ISO standard be applied and defined in the S&G for Risk Assessment.
10	405-408	Text should also be inserted here that a rationale/justification for the selection of experts and the methods through which “expert opinion” is elicited should be clearly outlined.
10	411	This Guideline is about Environmental Risk Assessment and should cover the full range of risks as is done in the terrestrial sector. The Risk Register should include all accidents that involve environmental hazards. The approach to subsequent ERA is the same process as planned activities and the environmental effects deal with the same “levels of knowledge and uncertainty”. Given that accidents can generate the greatest environmental consequences, this single sentence on the topic appears inadequate.
12	477	Each identified impact should be linked to the causal event in the “activities”.
13-15	Table 1	As Table 1 demonstrates, an EIA requires judgement calls (here called “consequence levels”) that have not been set yet. Given that these include not only scientific considerations but value-judgments and political decisions about how much harm to the common heritage is deemed “acceptable”, the LTC or the Secretariat will not be the appropriate organs to make these decisions.
13 - 16	Tables	The tables are useful as examples that can be adapted. Hopefully, Contractors will not devise widely differing schemes so that comparisons can be made many decades from now.
17	546-548	“There are, however, more sophisticated approaches to risk assessment than solely the use of matrices, and these may be

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		considered as more information becomes available.” Examples of these approaches should be given rather than relying on external sources and additional research by the applicant or Contractor.
18	558	Suggest including “...the latter still need to be documented in the ERA and EIS (where justification is required for concluding they are not considered relevant)...” so that it is clear even the activities of low risk need to be documented in the EIS.
	572	Please add “....and ecosystem services”.
18	586	Please amend to “42. The ERA process may <i>should</i> involve a suitable range of experts and <u>public</u> stakeholders, so that differing views and perspectives on risks can be incorporated and the quality of the evidence base and extent of agreement on it factored into the process.”
19	594	Please amend to ‘Scoping may [must] include a stakeholder identification exercise which provides the applicant or Contractor with a preliminary stakeholder list in relation to the project. Consultation with these identified stakeholders during the scoping phase may [must] then be carried out to inform development of the Scoping Report.’
19	603	We welcome requirements for early liaison with stakeholders but sufficient time for effective and equal participation of any stakeholder including those not identified by the Contractor is necessary. Definition of “sufficient time” should be provided.
19	613	Requirements to outline how key stakeholders have been identified, and also outline processes for engagement of those missed by this Contractor-led process should be included.
19	617	Please amend to “A proposed approach for dissemination of study results to key <u>and public</u> stakeholders in order to obtain and consider feedback.”
19	627	Presentation of feasible and discounted alternatives should also demonstrate how impacts have been avoided or reduced to demonstrate how the mitigation hierarchy has been followed.
20	671	Suggest adding at the end “, including additional stakeholder consultations”.

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		If there are significant project changes or new information that changes the scoping of the project, the changes/new information should be shared with stakeholders as this may fundamentally change their views and the results of previous consultations.
21	683	Please add after regional activities... “and climate-induced changes.”
22	695	Baseline data needs to be collected in a structured way that enables a robust assessment against an impacted state, and can be integrated into common and scaled assessments.
23	787	Suggest that the different scales at which significance should be assessed at are included. Again, this should include relevant societal goals such as the Convention of Biological Diversity, the SDGs, human rights law, etc.
23	789	Table 3 – Suggest removal of “positive” or “negative”. It would be more appropriate to frame this point of assessment in the context of change – some changes might be viewed as positive i.e., recolonization by certain species after disturbance but this might be with different species than that which contribute to important ecosystem services.
23	794	in Table 3 under Line 794, please add “Is the area vulnerable to major climate-induced environmental change?”
23	797	The different types of ecosystem services should be specified to avoid overlooking any particular service. For more information see Le et al., 2017. Suggest “Does the affected area provide important ecosystem services (i.e., provisioning, regulating or cultural ecosystem services, or important supporting services upon which other ecosystem services depend).”
26	895	The term “ecosystem services” appears four times within the Standards and Guidelines for EIAs but the term is not defined anywhere, risking inadequate consideration of the multitude of different ecosystem services. Suggest adding a footnote to line 895 providing a definition of the term and examples of each ecosystem-service type.

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		Suggested footnote: “Ecosystem services are the multitude of benefits provided by ecosystems to humans, they can be separated into three general categories: provisioning services (i.e., the outputs and products generated by an ecosystem such as fish, minerals and pharmaceuticals), regulating services (i.e., benefits from the regulation of environmental processes such as carbon sequestration) and cultural services (i.e., non-material benefits such as educational opportunities, natural and cultural heritage, existence value). These ecosystem services are supported by different ecological functions (e.g., primary and secondary productivity, nutrient and element cycling, breeding grounds and nursery habitat), which are in turn supported by the physical, chemical and biological properties of a system (i.e., ecosystem structures).”
28	946	Para 75 on uncertainties is essential and important to maintain in future revisions of the EIA Guideline.
29	979-996	Please include what the process is if impacts exceed acceptable thresholds.
30	1030	All mitigation options that have been considered, including those discarded as well as the chosen options, should be recorded and reasoned. Suggest adding this detail into para 85, as follows: “Whatever process is adopted to facilitate the evaluation of options, it is important that it is undertaken in a structured and logical way, and that the decisions reached are properly recorded and reasoned for later incorporation into the appropriate section of the EIS. This includes the recording of alternatives and mitigation options that have been considered but ultimately discarded, and the reasons for that decision.”
30	1041-1043	The text recognises that rehabilitation and offsetting are difficult in a deep-sea mining context; therefore, explicit emphasis should be given to the first two stages of the mitigation hierarchy. For example: “In some seabed mining situations in the Area, rehabilitation or offsetting of effects on the Marine Environment may be difficult to achieve. These may still be considered but only when all options to avoid/prevent as well as minimise impacts have been considered and exhausted, but residual impacts remain.”

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31	1058	Mitigation hierarchy - minimising impact: Suggest adding that minimisation is generally achieved through technical measures or design that reduce the magnitude or significance of an identified impact.
31	1066	Mitigation hierarchy – restore: Restoration techniques for the deep seabed are not yet available and are unlikely to be possible “ <i>on timescales relevant to management and possibly for many human generations</i> ” (See Niner et al., 2018. Accordingly, this should promote increased attention to the first two steps of the mitigation hierarchy: avoidance and minimisation.
30-32	1042-1098	<p>As demonstrated in the literature: ‘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), <u>in-kind offsets are not an appropriate mitigation strategy</u>. ... 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.’ (See Van Dover et al., 2017.</p> <p>The CBD has published (23rd April 2021) an updated document on the <u>scientific and technical information to support the review of the proposed goals and targets in the updated zero draft of the post-2020 global biodiversity framework (CBD/SBSTTA/24/3/ADD2/REV1)</u>. It refers extensively to ‘no net loss’ and ‘net gain’ concepts and highlights the risks of using those concepts without setting measurable biodiversity targets and applying adequate safeguards (para 21). This document clearly states: “....safeguards would be needed to, among other things, ensure that any loss is replaced by the same or similar ecosystems and that critical ecosystems and functions are not lost.” It also is explicit in its recognition of the need for special consideration for ecosystems “currently impossible to restore, such as some marine ecosystems.”</p>

The definition of offset in para 94 does not reflect scientific consensus. The term “biodiversity offset” is frequently misapplied and misused. True offsets require new and additional benefits and “measurable and commensurate gains”. See Bull et al., 2016.

The sentence “In terrestrial and some coastal jurisdictions, offset measures can include situations where the offset area is unlike the impacted area” may be true, but these programmes are not meeting their stated aims and have been heavily criticised for an inability to meet the criteria such as demonstrating equivalence of offsets. Where ‘out of kind’ offsets are supported, clear accounting is necessary to demonstrate that the criteria (note the criteria outlined at para 96 is not complete and should include that of demonstrable equivalence and additionality) for offsetting success is necessary. See Niner et al., 2017.

PRZs or APEIs cannot serve as offsets as these are not under threat and will likely not be equivalent in size and ecology to the areas impacted by mining. As Niner et al. (2018) conclude: “Notably, [APEIs] do not provide new and additional biodiversity benefits and thus do not actually offset residual losses of biodiversity that might be incurred by a mining project.” An example for an averted loss offset would be the removal of bottom trawling pressures to offset mining impacts on seamounts.

The environmental criteria for offset sites fail to list equivalence and additionality as key criteria:

- Ecological equivalence: Loss is replaced by the same or similar ecosystems so that critical ecosystems and functions are not lost (borrowing text from the CBD document)
- Additionality: Any offset measures being considered need to provide new and additional biodiversity benefits compared to measures already in place or required by the Authority.

In any event, rehabilitation and offsetting are difficult in a deep-sea mining context; therefore, explicit emphasis should be given to the first two stages of the mitigation hierarchy. For example: “In some seabed mining situations in the Area, rehabilitation or offsetting of effects on the Marine Environment may be difficult

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		to achieve. These may still be considered but only when all options to avoid/prevent as well as minimise impacts have been considered and exhausted, but residual impacts remain.”
31	1057-1061	Reference to ‘Engineering designs’ is misleading here, generally minimisation is achieved through technical measures or design that reduces the magnitude or significance of an identified impact. Suggest rephrasing to describe minimisation measures as those that – “require ongoing action to eliminate corresponding impacts (e.g. carrying out extraction activities during certain times of year so as to avoid the nesting season of a bird species)”. See Bull et al., (2016).
31	1063-1075	<p>It is important for the ISA to clearly outline the aim for this stage of the mitigation hierarchy.</p> <p>1. Restoration to return an area to the original ecosystem or basic ecological functions/ecosystem services. Please clarify what is meant by this and how it can be measured? Furthermore, restoration techniques for the deep seabed remain uncertain and are unlikely to be possible “on timescales relevant to management and possibly for many human generations”. See Niner et al., 2018. Accordingly, this should promote increased attention to avoidance and minimisation measures.</p> <p>While increasing the knowledge base for rehabilitation options will potentially help manage the impacts of future deep sea mining projects (although the timescales required to appropriately assess this are likely to be prohibitive to its utility), this should not be considered as an appropriate trade for impact.</p>
32	1082-1083	The sentence “In terrestrial and some coastal jurisdictions, offset measures can include situations where the offset area is unlike the impacted area” may be true, but these programmes are not meeting their stated aims and have been heavily criticised for an inability to meet the criteria such as demonstrating equivalence of offsets. Where ‘out of kind’ offsets are supported, clear accounting is necessary to demonstrate that the criteria (note the criteria outlined at para 96 is not complete and should include that of demonstrable equivalence and additionality) for offsetting success is necessary. As such, we recommend deleting the above sentence.

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35	1199	Capacity building, clear reference for the onus for effective and equitable stakeholder consultation is on the Contractor. This may mean that capacity building efforts are required to ensure all relevant stakeholders are included.
33	1115-1120	Documentation on the entire EIA process will also help external review of the EIS during the ISA’s stakeholder consultation procedure. This documentation should be made publicly available and cross referenced within the EIS so that any stakeholder reviewing the EIS can easily use the document as a resource.
33	1144	Any review on the EIA process should also look at how stakeholder views were taken into consideration, the act of consultation is only valuable if the viewpoints received are taken into account. Suggested wording, “Inclusive stakeholder consultation was conducted, and stakeholder views taken into consideration”.
34	1166-1168	The sharing of non-commercially sensitive data through the ISA’s global data repository is crucial and follows Best Environmental Practices. The applicant or Contractor, as part of the EIA process, should be asked to produce a summary of the data collected and what has/has not been made available through ISA Deep Data repository. For data not included in the repository, justification should be given regarding its commercial sensitivity, or an alternative method for accessing the data made clear. Data accessibility should feature within the review process of EIA/EIS.
34	1171-2	Please consider indirect and cumulative impacts and add “including climate change”, as well as “potential interactions of impacts;”.
34	1173	We welcome the addition of ecosystem services.
35	1209	Stakeholder engagement: Suggest highlighting that meaningful stakeholder engagement is both best practice and particularly important in the context of engaging with the common heritage of humankind. Para 112: Suggest adding that stakeholder consultation also means providing feedback about the extent to which stakeholder comments were implemented and reasons for accepting or rejecting them. This will enable the Commission and Council to

		make an informed decision about an EIA. We cannot expect Council members to read all stakeholder comments and check whether they have been adopted.
35	1227	If issues raised from the stakeholder consultation have not been incorporated into the EIS document, justification should be provided. Suggest adding this detail into line 1227 as follows “How these issues have been incorporated (or otherwise) into the EIS document, with justification provided wherever issues have not been incorporated.”
36	1233	“Environmental Effects are any consequences in the Marine Environment arising from the conduct of Exploitation activities, whether positive, negative, direct, indirect, temporary or permanent, or cumulative effect arising over time or in combination with other mining impacts or in combination with other marine activities and processes.” Suggest amending to ensure cumulative impacts is not limited to several mine sites but includes other industries and processes, such as climate change.
<p>References</p> <p>Bull, J.W., Gordon, A., Watson, J.E. and Maron, M., 2016. Seeking convergence on the key concepts in ‘no net loss’ policy. <i>Journal of Applied Ecology</i>, 53(6), pp.1686-1693.</p> <p>Le, J.T., Levin, L.A., and Carson, R.T. (2017). Incorporating ecosystem services into environmental management of deep-seabed mining. <i>Deep Sea Research Part II: Topical Studies in Oceanography</i> 137, 486-503.</p> <p>Mastrandrea, M.M., Field, C.B., Stocker, T.F., Edenhofer, O., Ebi, K.L., Frame, D.J., Held, H., Kriegler, E., Mach, K.J., Matschoss, P.R., Plattner, G.-K., Yohe, G.W., Zwiers, F.W. 2010. Guidance note for lead authors of the IPCC Fifth Assessment Report on consistent treatment of uncertainties. Intergovernmental Panel on Climate Change (IPCC). Available at: www.ipcc.ch</p> <p>Niner, H.J., Ardron, J.A., Escobar, E.G., Gianni, M., Jaeckel, A., Jones, D.O.B., Levin, L.A., Smith, C.R., Thiele, T., Turner, P.J., Van Dover, C.L., Watling, L., and Gjerde, K.M. (2018). Deep-sea mining with no net loss of biodiversity—An impossible aim. <i>Frontiers in Marine Science</i> 5. doi: 10.3389/fmars.2018.00053.</p>		

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