

## Stakeholder consultation on the draft regional environmental management plan for the Area of the northern Mid-Atlantic Ridge with a focus on polymetallic sulphide deposits

### Template for the review of the draft regional environmental management plan prepared by the Italian delegation

submitted by Mr. Daniele Bosio (head of delegation)

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General Comments	
<p>When preparing the general comments, stakeholders are invited to consider the following:</p> <ol style="list-style-type: none"> <li>1) The structure and layout of the draft REMP.</li> <li>2) The level of detail of the draft REMP, while avoiding being too prescriptive.</li> <li>3) The goals and objectives in the draft REMP in providing for long-term, effective protection of the marine environment in the Area of the northern Mid-Atlantic Ridge.</li> <li>4) The management measures and their ability to achieve the goals and objectives in the draft REMP.</li> </ol>	
<p>The draft of the regional environmental management plan (REMP) for the area of the northern Mid-Atlantic Ridge focuses on the environmental precautions and measures to be taken in conducting exploration and exploitation of polymetallic sulfide deposits in the region. The draft faithfully reports the outcomes of the workshops held by the ISA in 2019 and 2020, especially in the section describing the Sites and Areas in Need of Protection and Precaution. The draft correctly acknowledges that network criteria at the regional level have not been yet applied in the context of the ISA and that future actions by the ISA need to address this gap in collaboration with the scientific community.</p> <p>The guiding principles, the overarching goals, and the purpose of the REMP therefore reflect the mandate of the ISA in the protection of the marine environment and are in this respect commendable.</p> <p>Overall the document is clear and well organized. However, some paragraphs would benefit from a better accuracy in the use of the terminology, which would improve the explanation of scientific concepts and information and help with the reorganization of the concepts in a hierarchical way. For example, a specific section about thresholds that explain their importance in reaching the overarching goals and how they will improve the effectiveness of management measures would help the reader better understand what research is needed to address the current gaps and priorities. Moreover, some paragraphs contradict</p>	

<p>the guiding principles, the overarching goals, and the purpose of the REMP, in this regard see the specific comments line by line. Additional references are provided at the end of the comments.</p> <p>A clear definition of the northern MAR region, as it varies in the scientific literature, in terms of pairs of geographical coordinates would be an advantage.</p> <p>Finally, because of the historical and cultural relevance of some objects which could be found in this region of the Area, a reference to article 149 of the Convention would be appropriate.</p>		
Specific Comments		
Page	Line	Comment
7-8	142-146	para §17 The terminology “sulphide habitat” is uncommon in the current literature, please make a reference to the actual meaning of sulphide habitat. An alternative may be represented by “sulfide/sulphide system” (Van Dover, 2019), which is more relevant to define the difference between sulfide systems that are hydrothermally active and sulfide systems that are hydrothermally inactive or extinct and how these can be both be habitats or ecosystems (e.g. Jamieson and Gartman, 2020; Van Dover, 2019).
8	147-152	para §18 The large-scale ocean circulation of the North Atlantic regulates climate at the global scale. It remains unclear how this paragraph relates with deep seabed mining activities in the Area and human-induced climate change. If any relation with changes in bottom current regimes and hydrodynamic transport is envisaged, this must be better explained. Climate change is mentioned again at line 237 without proper contextualization.
8	158	para §19 Consider reformulation of this paragraph. The work by Priede et al. (2013) showed that the presence of the MAR does not affect the productivity of the water column. However the paper highlights that the MAR has a role in the benthic environment in offering habitat to bathyal benthic species. Citing Priede et al.: <i>“There is no doubt that presence of the MAR greatly alters the water circulation and biology of the Atlantic Ocean providing habitat for bathyal organisms that would not otherwise survive in mid ocean. However the overall effect on oceanic productivity appears to be neutral which cautions against excessive ambitions for exploitation of biological resources. From the point of view of biodiversity, the MAR roughly doubles the available area of lower bathyal habitat in the ocean basin. Applying species-area theory (Storch et al., 2012 )this suggests that the MAR is more important for sustaining bathyal benthic diversity in the Atlantic basin as a whole rather than supporting a rich endemic fauna of its own”</i>
8	160-161	para §20 From which source the spatial reference of “50 meters above the seafloor” is derived? The benthopelagic environment may vary depending on the type of ecosystem functions and species distribution. If not supported by any scientific evidence the use of spatial reference may lead to arbitrary management measures, which would jeopardize the concept of ecosystem-based management.

8	172	para §21 Ibidem, the spatial reference of “50 meters above the seafloor” should be revised according to sound scientific evidence. In case there is no consensus on such a defined threshold, it is advisable not to impose a measurable height from the seafloor at this stage.
8	177-181	para §22 The wording “site” is not accurate, considering changing it with “fields” since the known twenty-two hydrothermal vents are referred to as fields in the Interridge Dataset that was used as a reference during the workshops, and not as PMS deposits. The paragraph can be rephrased to accommodate a more accurate use of the terminology as follows: “In the northern MAR, distribution of the known twenty-two hydrothermal fields characterized by PMS deposits [...] Further advancement in mineral resource exploration may lead to new scientific discoveries, including new vent sites.
9	198-204	para §25 Consider removing this paragraph which draws parallelism between PMN and PMS deposits in terms of their dimensions. The scope and placement of this paragraph are unclear, furthermore the introduction of broad statements on the environmental impact from exploitation should be avoided.  The surface area of the deposits is not a good term of comparison among the different deep-sea mineral resources, and overall, comparing them do not give useful information to the management since the ecosystem is very different as well as the predicted impact of the exploitation of the resources since it will depend from the technological advancement and from the site-specific characteristics. PMS may be smaller in terms of surface areas however the deposits develop deep into the sub-soil, reaching several hundreds of meters of thickness depending on the geodynamic setting and hydrothermal activity (Hannington et al., 2011). Therefore extracting minerals from the seafloor will leave scars of thousands of cubic meters.
9	215	para §26 (g) Clarity should be ensured in how to determine cumulative impact thresholds and how cumulative assessments should undergo.
10	241-243	para §27 (k) Do not link this action to a strategic plan which is limited in time by definition.
10	251	para §28 (a) This sentence should be changed to accommodate the current uncertainty of the concept of “harmful environmental impacts”. Furthermore, the terminology used is not accurate or implies currently unavailable information.  It is still unclear what “significant” means in terms of thresholds for maintaining ecological functions and good environmental status.  “Megafauna communities” is not an accurate terminology to describe the diversity that characterizes the fauna on hydrothermally active vents. Therefore it would be better use the term “metacommunities”, which is explained by Mullinex et al.: “ <i>The patches of vent habitat host a network of communities (a metacommunity) connected by</i>

		<i>dispersal of planktonic larvae. The dynamics of the metacommunity are influenced not only by birth rates, death rates and interactions of populations at the local site, but also by regional influences on dispersal from different sites.</i> ” (Mullineaux et al., 2018).
10	253	para §28 (b) The word “sustainability” is not clear in this context. Consider changing the sentence into “Avoid that sustainability is not compromised due to”.
10	256-258	para §28 (c), (d) This section is about the management and mitigation of impacts in contract areas. Therefore, it should consider the use of the mitigation hierarchy used in extractive industries, which includes four approaches: Avoidance, Minimize, Remediate and Off-set, which was referred to the loss of biodiversity due to seabed mining in the article by Van Dover et al. (2017). Therefore, consider the use of avoiding instead of minimizing in (c) and remediate/offset instead of manage in (d).
10	261	As a general remark, while security of tenure is granted under the UNCLOS, it would be appropriate to identify ways in which certain management measures could also be determined, with the consent of contractors, for some specific exploration activities. Indeed, the measures referred to in the REMP only apply in the exploitation phase. It should nonetheless be taken into account that some very sensitive environments are currently located in licensed areas which could also suffer impacts from exploration activities.
11	325	para §40 (b) The collaboration with the scientific community is envisaged only in the collection and sharing of data at the regional level. Define avenues for tighter collaboration between contractors and scientists in areas at the limit between contractors’ areas/rights and sites/areas in need of protection. As SINPs are identified as single pairs of coordinates and they all fall within contractors’ license blocks for exploration, there is urgent need to redefine the boundaries of the SINPs and this requires data and information exchange between the two communities. A form of collaboration with the scientific community must be created in order to enhance informed participation in the decision-making process.
11	331	para §40 (c) Change Buffer zones into: “Zonation, including core and buffer zones”
11	333	para §40 (d) Identify a new mechanism to allow scientific community to participate and help contractors in the description and definition of the different zones (core and buffer) inside their contract areas.
11	342	para §41 (a) Environmental data have to be available to stakeholders, the public, and to the scientific community collaborating in the process for the development and monitoring of the REMP. Would be worth restating, at this point, the commitment of the ISA to make those data public through the DeepData infrastructure as soon as reasonably possible.
11	348	para §41 (d) To change in: “Newly discovered vulnerable or sensitive ecosystems should be described and assessed against the criteria for

		SINPs, <u>before any exploitation activities take place</u> and recommendations can be made regarding their conservation status or management measures”.
12	359	para §42 Consider reiterating that until an assessment is completed, no exploitation activities are allowed in the area.
13	361	para §43 Change into: This REMP identifies twelve inferred active hydrothermal vent systems as Sites in Need of Precaution, based on detection of hydrothermal plumes in the water column <u>but not linked to in situ observation associated</u> to active vents sites and areas of potential cold-water octocoral habitat, drawn from habitat suitability models as Areas in Need of Precaution, as listed in Annex 3..
13	391-392	para §48 (c) referring to “acceptable levels of potentially toxic contaminants and particulates impacting on biota in the SINPs and AINPs listed in Annex I and II”.  There should be NO release of potentially toxic contaminants and particulates impacting biota in the SINPs and AINPs. If a nested zonation approach that includes core and buffer area is applied, the core area should be fully protected, as stated in the description in §36(c) and §40(c). Full protection implies no impact. Buffer areas could experience minimal indirect impact.
13	397	para §48 (c) referring to “acceptable deviation from baseline information on habitats before an action is taken; and”. The meaning of the sentence is unclear. Please rephrase, what is acceptable deviation.
14	402	para §49 (a) Please refer to the comment about the megafauna communities provided on Page 10, Line 251.
14	405, 408, 410, 415	para §49 (b, c, d ,e) Actions that contractors will take in identifying important habitats, species, communities, thresholds etc. should be undertaken in collaboration and consultation with a broader scientific community. It is up to the ISA to identify avenues for collaboration e.g. workshops, stakeholder consultation etc.
14	424-425	para §49 (g) There should be NO release of potentially toxic contaminants and particulates impacting on biota in the SINPs and AINPs. If a nested zonation approach that includes core and buffer area is applied, the core area should be fully protected as stated in the description in §36(c) and §40(c). Full protection imply no impact. Buffer areas could experience minimal indirect impact.
14	426	para §49 (h) Avoidance (meaning NO impact) should be applied to SINP at all costs. Management measures need to be based on a mitigation hierarchy to all major impacts from exploitation activities (Van Dover et al., 2017).
16	510-511	para §50 III (b) Suggest to include, in addition to understanding the behaviour of plumes, “to understand how to locate buffer areas to avoid the direct impact of a plume from exploitation activities”.

16	522-524	para §50 III (d) Consider the introduction of a section entirely dedicated to thresholds with a brief explanation to which management actions the thresholds apply. This section could be conveniently placed after B- Operational objectives for contract areas and before the description of the Management measures listed at page 10.
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#### References cited in the comments

- Hannington, M., Jamieson, J., Monecke, T., Petersen, S., Beaulieu, S., 2011. The abundance of seafloor massive sulfide deposits. *Geology* 39, 1155–1158. <https://doi.org/10.1130/G32468.1>
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- Mullineaux, L.S., Metaxas, A., Beaulieu, S.E., Bright, M., Gollner, S., Grupe, B.M., Herrera, S., Kellner, J.B., Levin, L.A., Mitarai, S., Neubert, M.G., Thurnherr, A.M., Tunnicliffe, V., Watanabe, H.K., Won, Y.J., 2018. Exploring the ecology of deep-sea hydrothermal vents in a metacommunity framework. *Front. Mar. Sci.* 4. <https://doi.org/10.3389/fmars.2018.00049>
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