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Legal and Technical Commission

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Review of the implementation of the Environmental Management Plan for the Clarion-Clipperton Fracture Zone and development of other regional environmental management plans in the Area

Outcomes of the International Seabed Authority workshops on regional environmental management plans held in 2019

Note by the secretariat

I. Context

1. The International Seabed Authority is the organization through which, in accordance with the United Nations Convention on the Law of the Sea and the 1994 Agreement relating to the implementation of Part XI of the Convention, the States parties to the Convention administer the mineral resources of the Area and control and organize current exploration, as well as future mining activities, in the Area for the benefit of humankind as a whole.

2. According to article 145 of the Convention, the Authority is also mandated to take necessary measures with respect to activities in the Area to ensure effective protection for the marine environment from harmful effects which may arise from such activities and to adopt appropriate rules, regulations and procedures for, inter alia, the prevention, reduction and control of pollution and other hazards to the marine environment, and the protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment.

3. Pursuant to the mandate, the Council of the Authority, during its eighteenth session in 2012, approved, in its decision ISBA/18/C/22, an environmental management plan for the Clarion-Clipperton Fracture Zone on the basis of the recommendation of the Legal and Technical Commission (see ISBA/17/LTC/7, ISBA/17/C/19 and ISBA/18/C/22). Included as an integral part of the plan was the designation of a network of nine areas of particular environmental interest.

4. Likewise, in the above-mentioned decision, the Council requested the Legal and Technical Commission to report to it on the implementation of the environmental

management plan and decided that the plan would be applied in a flexible manner so that it could be improved as more scientific, technical and environmental baseline and resource assessment data were supplied by contractors and other interested bodies. Furthermore, it requested the Commission to make recommendations, where appropriate, to the Council relating to the network of areas of particular environmental interest, on the basis of the results of workshops with a view to redefining, where necessary, the details of the size, location and number of required areas of particular environmental interest.

5. Subsequently, in July 2016, the Commission considered a report prepared by the secretariat (ISBA/22/LTC/12), in which the progress made in the implementation of the plan and the steps to be taken until 2021 were recalled. In its deliberations, the Commission also noted the suggestion to create two additional areas of particular environmental interest, based on new work by contractors. The Commission decided to consider holding a scientific workshop to determine the suitability or need for amendment of the areas, indicating that such a scientific workshop should define the size, location and number of additional areas in order to enable the Commission to make a recommendation to the Council (see ISBA/22/C/17).

6. Building on the experience of the environmental management plan for the Clarion-Clipperton Fracture Zone and initiatives taken for other regions, the development of regional environmental management plans became an essential element of the strategic plan for the period 2019–2023 adopted by the Assembly in 2018 (ISBA/24/A/10) and, subsequently, a central part of the high-level action plan adopted by the Assembly in 2019 (ISBA/25/A/15, annex II). Strategic direction 3.2 of the high-level action plan provides that the Authority is to "develop, implement and keep under review regional environmental assessments and management plans for all mineral provinces in the Area where exploration or exploitation is taking place to ensure sufficient protection of the marine environment as required by, inter alia, article 145 and part XII of the Convention".

7. At its twenty-fourth session, in March 2018, the Council took note of a preliminary strategy proposed by the Secretary-General for the development of regional environmental management plans for key parts of the Area where there were contracts for exploration (see ISBA/24/C/3). The Council agreed with the priority areas that had been identified on a preliminary basis as the Mid-Atlantic Ridge, the Indian Ocean triple junction ridge and nodule-bearing province, as well as the north-west Pacific and south Atlantic for seamounts. The implementation of this strategy has started with the organization of two workshops, held in Qingdao, China, in May 2018 (relating to the design of regional environmental management plans for the cobalt crust region of the north-west Pacific) and in Szczecin, Poland, in June 2018 (relating to the design of regional environmental management plans for polymetallic sulphide deposits on mid-ocean ridges).[1]

8. The Council also considered it essential that the plans be developed in a transparent manner, using a coordinated approach, under the auspices of the Authority, in the light of its jurisdiction under the Convention and the 1994 Agreement (see ISBA/24/C/8).

9. In paragraphs 18 and 19 of its decision ISBA/25/C/37, adopted during the twenty-fifth session, the Council encouraged the secretariat and the Commission to make progress in the development of environmental management plans in other international seabed area zones, in particular where there were exploration contracts, and noted that an informal workshop had been held on 6 July 2019 to discuss scientific

[1] The report of this workshop is available at https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/ts22.pdf.

tools and approaches for developing regional environmental management plans, with a focus on mid-ocean ridges. The Council also took note of a report of the Secretary-General on the implementation of the strategy (ISBA/25/C/13), including a programme of work to develop those plans through a series of workshops planned during 2019 and 2020 to undertake scientific synthesis and prepare draft elements for inclusion in the regional environmental management plans.

10. In accordance with the tentative schedule contained in document ISBA/25/C/13, several workshops have been planned and organized to facilitate the review and development of regional environmental management plans (see table 1). In order to support the organization of these workshops, the secretariat prepared a guidance document [2] to facilitate the development of regional environmental management plans, which clarified the existing roles and responsibilities of organs of the International Seabed Authority, as set out in the Convention, the Agreement and the rules, regulations and procedures of the Authority. The document clarified, inter alia, that regional environmental management plans may be established by a decision of the Council, on the recommendation of the Legal and Technical Commission. Both contractors and sponsoring States "undertake […] to comply with […] the decisions of relevant organs of the Authority" and are thus required to observe the requirements established by regional environmental management plans. [3]

Table 1
Status of a series of workshops on regional environmental management plans scheduled for 2019 and 2020

	2019	*2020*			
Priority areas identified in ISBA/25/C/13	*Fourth quarter*	*First quarter*	*Second quarter*	*Third quarter*	*Fourth quarter*
Environmental management plan for the Clarion-Clipperton Fracture Zone	Friday Harbor, United States of America, 1–4 October (completed)				
Mid-Atlantic Ridge	Évora, Portugal, 25–29 November (completed)		Saint Petersburg, Russian Federation, 15–19 June (confirmed)		
Indian Ocean triple junction ridge and nodule-bearing province					India (to be confirmed)
North-west Pacific			Jeju, Republic of Korea, 18–22 May (confirmed)		

[2] Available at: https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/remp_guidance_.pdf.

[3] Annex IV, Section 13.2 (b) in each set of the Authority's regulations on prospecting and exploration.

	2019	2020			
Priority areas identified in ISBA/25/C/13	*Fourth quarter*	*First quarter*	*Second quarter*	*Third quarter*	*Fourth quarter*
South Atlantic for seamounts					To be confirmed (*focusing on capacity-building*)

II. Deep Clarion-Clipperton Zone biodiversity synthesis workshop

Summary of the workshop outcomes

11. In line with the context for the environmental management plan for the Clarion-Clipperton Fracture Zone noted above (see paras. 3–5), consideration by the Commission is under way regarding potential additional areas of particular environmental interest that could be established in order to close some gaps in the existing network. Hence, compilation of new data from existing areas of particular environmental interest and evaluation of biodiversity patterns relative to contractor areas became highly critical to considering the effectiveness of the current network of areas and to the siting of new areas if additional protection is warranted. In the light of the scientific need, the Authority, together with the Deep Clarion-Clipperton Zone Project, led by the University of Hawaii, convened an international workshop on the deep Clarion-Clipperton Zone biodiversity synthesis. The workshop was held in Friday Harbor, United States of America, from 1 to 4 October 2019. It was attended by 48 international experts and was financially supported by the Gordon and Betty Moore Foundation, the Pew Charitable Trusts and the International Seabed Authority. It was co-chaired by Craig Smith and Malcolm Clark.

12. In support of the workshop objectives, a data report was prepared by the Deep Clarion-Clipperton Zone Project team prior to the workshop as an input to the workshop deliberations. The data report contained environmental and biodiversity data available from various contractors of the Authority, independent researchers, scientific publications, and scientific data archives, which had been compiled, summarized and mapped by the team.

13. The workshop participants were informed of the background, scope and expected outputs of the workshop; the goals, rationale and design of the original network of areas of particular environmental interest in the Clarion-Clipperton Zone region; and the relevance of the workshop to the Commission's review of the environmental management plan for the Clarion-Clipperton Fracture Zone. The workshop participants then reviewed data sources, data compilations and preliminary analyses of the different data themes and conducted, in breakout sessions, a comprehensive scientific synthesis of biodiversity and ecosystem patterns along and across the Clarion-Clipperton Zone region.

14. Specifically, for each major biotic component of the Clarion-Clipperton Zone ecosystems (microbes, metazoan meiofauna, foraminifera, macrofauna, invertebrate megafauna, fishes and mobile scavengers), the participants reviewed and synthesized biodiversity indices, community structure, species ranges and genetic connectivity data; ecosystem functions and drivers; and habitat heterogeneity along and across the Zone, including results of a recent study on climate change predictions for the region. In addition, environmental DNA data and preliminary observations of fossilized fauna in the Zone were also analysed. Workshop participants then considered the

representativity of the existing network of areas of particular environmental interest and discussed the need for additional ones. Identification of key data gaps, which included taxonomic and geographic limitations, sampling efficiency and methodological adequacy, were also considered.

15. The secretariat provided an update of the ongoing work of uploading environmental data to the International Seabed Authority database (DeepData), noting that additional data from contract areas would become publicly available through DeepData for future analyses. The use of data contained in DeepData for the workshop deliberations was rather constrained by issues relating to data quality, data validation and the completeness of information submitted in digital templates to the Authority.

16. Some of the major workshop conclusions included the following:

(a) Total species richness of all faunal groups (meiofauna through megafauna) within the Clarion-Clipperton Zone is high (more than 500 species observed in each group), but it is poorly sampled (25–75 per cent of total species richness remains to be sampled) and poorly described taxonomically across all groups and sites studied. Most biodiversity data available for the synthesis were collected in contract areas on the eastern side of the Zone, with limited sampling of most biotic groups in the rest of the Zone, including within areas of particular environmental interest;

(b) Available data show that biodiversity and community structure for most biotic size classes vary substantially along and across the Zone, with key environmental drivers, including particulate organic carbon flux, nodule abundance, depth, and topography. In particular, there appears to be a diverse nodule-dependent biota. Ecosystem functions also vary with these environmental drivers;

(c) A very small proportion of the more than 2,000 faunal (metazoan) species recognized within the Zone shows relatively wide species ranges spanning the Clarion-Clipperton Zone region or, in some cases, occurring in multiple ocean basins. Most species of meiofauna, foraminifera and sediment macrofauna have been found only at single sites and at low abundances (often as singletons, i.e. only one individual). However, as many species across all taxa are locally rare, it is not possible to determine whether species have been collected only at single sites because they have limited distributions or because they are simply undersampled;

(d) Many faunal species may have small geographic ranges (less than 200 km), which suggests that areas of particular environmental interest should be broadly distributed across the Zone to protect species with limited distributions. The size of the core regions (200 km by 200 km) of areas of particular environmental interest remains appropriate given a recent review of mean dispersal distances of deep-sea benthos that supports the 100-km scale used in the original design of the areas;

(e) Habitat mapping suggests that the current network of areas of particular environmental interest captures a good representation of many of the 24 habitat types found within the Zone, covering a range of particulate organic carbon fluxes, depths and topographic variability, with areas 4 and 6 having the highest representation of Clarion-Clipperton Zone habitats. However, the six habitat types characterized by high nodule abundance are poorly represented within the network and could be better protected by placing additional areas in the easternmost, central, and western areas of the Zone;

(f) Climate change sensitivity should also be considered in evaluating the network. Under current climate-change predictions, areas 4 and 6 may provide for climate-change refugia, undergoing relatively little change, while areas 1 and 9 may experience the largest climate impacts;

(g) The presence of high densities of fossils in the eastern part of the Clarion-Clipperton Zone suggests that consideration of fossil protection be warranted in the environmental management plan.

17. The report of the workshop will be available online (www.isa.org.jm/workshop/deep-ccz-biodiversity-synthesis-workshop) and will be submitted to the Commission at part I of its twenty-sixth session to assist its ongoing review of the environmental management plan for the Clarion-Clipperton Fracture Zone, in particular its consideration of whether additional areas of particular environmental interest might be required.

Recommendations

18. The Commission is invited to take note of the outcomes of the above-mentioned workshop and to provide such advice and direction as may be deemed appropriate, in particular regarding whether additional areas of particular environmental interest might be required in the Clarion-Clipperton Zone region.

III. Workshop on the regional environmental management plan for the Area of the northern Mid-Atlantic

Summary of the workshop outcomes

19. In the context of the above-mentioned background (paragraphs 5 to 9), the International Seabed Authority, in collaboration with the Atlantic Regional Environmental Management Plan project (funded by the European Union) and the Government of Portugal, convened a workshop on the regional environmental management plan for the Area of the northern Mid-Atlantic Ridge at the University of Évora in Évora, Portugal, from 25 to 29 November 2019. Forty-six international experts took part in the workshop.

20. Building on the discussion at the workshop held in Szczecin in 2018, participants at the workshop held in Évora further reviewed and synthesized available data and information to address the key scientific considerations in the development of regional environmental management plans in the Area of the northern Mid-Atlantic Ridge. Specifically, the workshop was aimed at: (a) reviewing, analysing and synthesizing scientific data and information on biogeography; physical, geological and environmental settings; and biodiversity, ecosystem features and habitats, along and across the northern Mid-Atlantic Ridge; (b) reviewing current exploration activity within contract areas and the distribution of resources (polymetallic sulphides) along the northern Mid-Atlantic Ridge; (c) describing potential areas that could be affected by the exploitation of mineral resources in the Area and would require enhanced management measures and precautions; and (d) discussing a framework to address cumulative impacts from exploitation in order to achieve effective protection of the marine environment.

21. Scientific data and information were exchanged through background documents prepared before the workshop including, in particular, a draft report on the regional environmental assessment[4] and a draft data report.[5] The documents summarized the current state of available knowledge and data relating to the objectives of the workshop, as follows:

[4] Available at: https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/readraft.pdf.

[5] Available at: https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/files/documents/datareport-19nov-lowres.pdf.

(a) Draft report on the regional environmental assessment describing geological, biological and environmental characteristics and patterns along and across the northern Mid-Atlantic Ridge;

(b) Draft data report compiling environmental and biological information, biogeographic classification, and human uses and management areas in more than 75 geographic information system layers.

22. Workshop discussions focused on providing the scientific basis for a regional environmental management plan, and the goals, objectives and knowledge gaps, as well as on identifying key sites and areas that would require enhanced management to achieve effective protection of the marine environment. Sessions included presentations that provided participants with information on the scientific and technical aspects of management tools and approaches, the ecological and geological settings, and contractors exploration activities.

23. Most of the discussions were held in discrete expert groups, bringing together a range of disciplines, mainly focused on biology, geology and oceanography. These breakout groups were organized along ecological themes: active vents; inactive vents and hard surfaces; and pelagic sediments. The groups then discussed key questions posed by three different but complementary approaches: adaptive management, area-based management tools and qualitative modelling for assessing cumulative impacts. Areas in need of enhanced protection and management, such as active vents and fracture zones, were categorized, as were areas identified by modelling approaches that might require enhanced precautions. The cumulative impact modelling exercises highlighted the potential impacts of mining activities on different components of the ecosystem, underlining the need for a regional environmental management plan. Finally, adaptive management approaches based on various mining scenarios suggested ways in which management measures could be applied to achieve effective protection and management of the marine environment in areas where mining would take place.

24. The results of the workshop will provide scientific inputs to the forthcoming workshop on the regional environmental management plan for the Area of the northern Mid-Atlantic Ridge, to be held in St. Petersburg, Russian Federation, from 15 to 19 June 2020, which will focus on identifying, inter alia, specific management approaches and measures to support the development of draft elements for inclusion in the regional environmental management plan.

25. The report of the workshop will be available on the relevant webpage of the Authority (http://www.isa.org.jm/workshop/workshop-regional-environmental-management-plan-area-northern-mid-atlantic-ridge) and will be submitted to the Commission at part I of its twenty-sixth session for its consideration.

Recommendations

26. The Commission is invited to take note of the background documents (draft regional environmental assessment report and data report) and the outcomes of the workshop held in Évora, which will provide inputs to the forthcoming workshop to be held in Saint Petersburg, Russian Federation, in June 2020, in particular, the scientific approaches underpinning the application of area-based and adaptive management, as well as the analysis of cumulative impacts.