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Environmental Management Plan for the Clarion-Clipperton Zone

I. Introduction

A. Legal framework related to the powers of the International Seabed Authority on the protection of the marine environment

1. Under the 1982 United Nations Convention on the Law of the Sea (the Convention), States parties have a general obligation to protect and preserve the marine environment.[1] This overarching obligation encompasses responsibilities to prevent, reduce and control pollution of the marine environment from any source, to monitor the risks or effects of pollution and to assess the potential effects of activities under States parties jurisdiction and control that may cause substantial pollution of or significant and harmful changes to the marine environment.[2] In particular, States parties must take measures to protect and preserve rare or fragile ecosystems, as well as the habitats of depleted, threatened or endangered species and other forms of marine life. They must also prevent, reduce and control pollution resulting from the use of technologies under their jurisdiction or control and the intentional or accidental introduction of alien or new species to a particular part of the marine environment.[3] In the deep seabed beyond national jurisdiction, that is the "Area", those responsibilities are shared between all States parties to the Convention as the Area and its resources are the common heritage of mankind.[4]

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[1] United Nations Convention on the Law of the Sea of 10 December 1982, art. 192.

[2] Ibid., arts. 194, 204 and 206. Of particular relevance to deep seabed mining is art. 194 (3) (d), which provides that States shall take measures to minimize to the fullest possible extent pollution from installations and devices in exploration or exploitation of the natural resources of the seabed and subsoil, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea and regulating the design, construction, equipment, operation and manning of such installations or devices.

[3] Ibid., arts. 194 (5) and 196 (1).

[4] Ibid., art. 136.

2. The International Seabed Authority, on behalf of the States parties to the Convention, is responsible for administering the mineral resources of the Area, including prospecting, exploration and exploitation activities for those resources.[5] As part of its responsibility, the Authority is charged with taking the measures necessary to ensure effective protection of the marine environment from the harmful effects that may arise from such activities. For that purpose, the Authority must adopt appropriate rules, regulations and procedures designed to accomplish the following:

(a) Prevent, reduce and control pollution and other hazards to the marine environment, including the coastline, that have the potential to interfere with the ecological balance of the marine environment. In doing this, its mandate calls for particular attention to be paid to the need for protection from the harmful effects of such activities as drilling, dredging, excavating, disposing of waste, and constructing and operating or maintaining installations, pipelines and other devices related to such activities;

(b) Protect and conserve the natural resources of the Area, preventing damage to the flora and fauna of the marine environment.[6]

3. The 1994 Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982 reaffirms those responsibilities by establishing "the importance of the Convention for the protection and preservation of the marine environment and of the growing concern for the global environment" and goes on to state that between the entry into force of the Convention and the approval of the first workplan for exploitation, the Authority shall concentrate on, inter alia, the "Adoption of rules, regulations and procedures incorporating applicable standards for the protection and preservation of the marine environment".[7]

4. The Legal and Technical Commission of the Authority is responsible for making recommendations to the Council on the protection of the marine environment, taking into account the views of recognized experts in that field. In addition, the Commission must:

(a) Formulate and submit to the Council rules, regulations and procedures on prospecting, exploration and exploitation in the Area, taking into account all relevant factors, including assessments of the environmental implications of activities in the Area;

(b) Keep such rules, regulations and procedures under review;

(c) Make recommendations to the Council regarding the establishment of a monitoring programme to observe, measure, evaluate and analyse, by recognized scientific methods, on a regular basis, the risks or effects of pollution of the marine environment resulting from activities in the Area;

(d) Coordinate the implementation of the monitoring programme approved by the Council.[8]

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[5] Ibid., art. 157 (1).

[6] Ibid., art. 145, annex III, art. 17 (1) (b) (xii).

[7] Implementing Agreement, annex, section 1, para. 5 (f).

[8] Convention, arts. 165 (e)-(h) and 215.

5. The Legal and Technical Commission may also make recommendations to the Council for:

(a) The issue of emergency orders to prevent serious harm to the marine environment arising out of activities in the Area. Such recommendations shall be taken up by the Council on a priority basis;[9]

(b) The disapproval of areas for exploitation by contractors or the Enterprise in cases where substantial evidence indicates the risk of serious harm to the marine environment;[10]

(c) The direction and supervision of a staff of inspectors who shall inspect activities in the Area to determine whether the provisions of the Convention and the regulations and procedures are being met.[11]

6. Under annex III to the Convention, rules, regulations and procedures must be drawn up by the Authority to secure effective protection of the marine environment, from both harmful effects directly resulting from activities in the Area and from shipboard processing of minerals immediately above a mine site. The procedures must take into account the extent to which such harmful effects may directly result from drilling, dredging, coring and excavation, as well as from disposal, dumping and discharge into the marine environment of sediment, wastes or other effluents.[12]

7. States parties to the Convention are required to adopt complementary laws and regulations to prevent, reduce and control pollution of the marine environment from activities in the Area undertaken by vessels, installations, structures and other devices flying their flag or of their registry or operating under their authority. Those laws and regulations must be no less effective than the rules, regulations and procedures of the International Seabed Authority.[13]

8. The United Nations General Assembly, in its resolutions on oceans and the law of the sea, reiterates the importance, pursuant to article 145 of the Convention, of the ongoing development by the Authority of rules, regulations and procedures to ensure the effective protection of the marine environment for the protection and conservation of the natural resources of the Area and for the prevention of damage to its flora and fauna from the harmful effects that may arise from activities there. In those resolutions, the Assembly notes the importance of the responsibilities entrusted to the Authority by articles 143 and 145, which refer to marine scientific research and protection of the marine environment, respectively.[14]

9. The Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area (“Polymetallic Nodules Regulations”) that were adopted by the Authority in 2000 impose comprehensive environmental protection obligations on the States and State-sponsored entities involved in the prospecting and exploration phases of deep seabed mining. At every stage of their activities in relation to the Area, prospectors and contractors have substantial responsibilities to assess and monitor the effects of their operations on the marine environment of the Area. When they ask

[9] Ibid., art. 165 (2) (k).
[10] Ibid., art. 165 (2) (l).
[11] Ibid., art. 165 (2) (m).
[12] Ibid., annex III, art. 17 (2) (f).
[13] Ibid., art. 209 (2).
[14] Resolution 64/71 on oceans and the law of the sea, paras. 33 and 34; and resolution 63/111, paras. 33 and 34; resolution 62/215, paras. 33 and 34; and resolution 61/222, paras. 28-30.

the Authority for approval to search for deposits of polymetallic nodules, prospectors must include in their notification a satisfactory written commitment to comply with the Convention and the relevant rules, regulations and procedures of the Authority concerning the protection and preservation of the marine environment.[15] They must also submit annual reports on the status of their prospecting activities containing information on their compliance with International Seabed Authority regulations on the protection and preservation of the marine environment.[16]

10. States and State-sponsored entities submitting plans of work for exploration in the Area must submit a description of their proposed programmes for oceanographic and environmental baseline studies. Those studies enable the scientific assessment of the potential environmental impact of the proposed exploration activities on the marine environment, and a description of proposed measures for the prevention, reduction and control of pollution and other hazards, as well as possible impacts on the marine environment.[17] Once exploration contracts are signed with the Authority, exploration contractors are required to gather environmental baseline data against which to assess the likely effects of their activities on the marine environment; they must also devise programmes to monitor and report on such effects.[18] The contractors must report annually to the Secretary-General of the Authority on the implementation and results of their monitoring programmes and submit environmental baseline data.[19]

11. The present Environmental Management Plan is consistent with those obligations, responsibilities, rules, regulations and procedures. Terms used in the Convention and Polymetallic Nodules Regulations shall have the same meaning in the present document.

B. Other international organizations and processes related to the protection of the marine environment

12. The Authority recognizes the need to work in consultation with the many other international organizations and processes related to the protection of the marine environment.

C. Guiding principles

13. The following are the guiding principles of this plan:

(a) **Common heritage of mankind**. The Area and its resources are the common heritage of mankind. All rights to the resources of the Area are vested in mankind as a whole on whose behalf the Authority shall act;

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[15] Polymetallic Nodules Regulations, Reg. 3 (4) (d) (i) (b).
[16] Ibid., Reg. 5 (1) (b).
[17] Ibid., Reg. 18 (b)-(d).
[18] Ibid., Reg. 31 (4); see also Part XI Implementing Agreement, annex, section 1, para. 7.
[19] Ibid., Reg. 31 (5).

(b) **Precautionary approach**. Principle 15 of the Rio Declaration on Environment and Development[20] specifies that where there are threats of serious or irreversible damage to the environment, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation;

(c) **Protection and preservation of the marine environment**. All States have a duty to protect and preserve the marine environment;

(d) **Prior environmental impact assessment**. The prior assessment of activities that may have significant adverse impacts on the environment;

(e) **Conservation and sustainable use of biodiversity**. All States have a duty to conserve and sustainably use marine biodiversity;

(f) **Transparency**. The Authority shall enable public participation in environmental decision-making procedures in accordance with the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 1998, and its own rules and procedures.

D. Definition of the Clarion-Clipperton Zone area and other relevant terms

14. The Clarion-Clipperton Zone is located in the eastern central Pacific, to the south and south-east of the Hawaiian Islands. The geographical limits of the management area have been taken to be the area beyond national jurisdiction contained within a box approximately 0°-23°30'N x 115°W-160°W. The Zone is bounded to the north and south by the ENE-WNW trending Clarion and Clipperton Fracture Zones. Its area is approximately 4.5×10^6 square kilometres (km^2).

15. The seafloor in the management area lies mostly between a water depth of 4,000 and 6,000 metres. It is characterized by a number of seamounts, some of which may be fewer than 2,000 metres deep. The widespread seafloor spreading fabric, oriented approximately orthogonal to the trend of the bounding fracture zones, provides a large number of flat-floored valleys, separated by irregular, often discontinuous ridges a few hundred metres high (see annex, figure I).

16. Since the 1960s, there has been interest in the commercial development of seafloor polymetallic nodules. Nodules of economic interest have been found in three areas: the northern central Pacific Ocean; the Peru Basin in the southern Pacific; and the centre of the northern Indian Ocean. It is thought that the most promising deposits in terms of nodule abundance and metal concentration occur in the Clarion-Clipperton Zone, and it is expected that this area will be the first to undergo development.

17. Currently, eight contractors have been granted exploration licences totalling approximately 520,000 km^2. While it is not known when extraction will begin, the International Seabed Authority is being proactive and responsible in developing the

[20] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992* (United Nations publication, Sales No. E.91.I.8 and corrigenda), vol. I: *Resolutions adopted by the Conference*, resolution 1, annex I.

present Environmental Management Plan in anticipation of future extraction activities in the Clarion-Clipperton Zone.

E. Description of mining operations, vulnerability and potential impacts

18. The basic mining operations include: (a) picking up the polymetallic nodules and separating them from the fine-grained seabed muds that host them; (b) lifting them 4,000 to 5,000 metres to the ocean surface; and (c) separating them from the seawater and sediment entrained in the lift operation and transporting them to a metallurgical processing facility.

19. Each of those operations poses environmental risks that must be assessed, minimized and mitigated in any mining venture. Picking up the nodules and removing the associated fine-grained muds fundamentally disturbs the benthic habitat in the mining area and entails the generation of sediment plumes near the seafloor. For most options being considered, nodule-lifting operations will include the entrainment of significant volumes of deep-ocean seawater and associated biota. Subsequent separation of the nodules from the seawater used in the lifting operation will require the discharge of that water and potentially also fine-grained sediments and nodule fragments that have not been removed at the seafloor.

20. Research to assess the magnitudes of those effects has been completed, including the collection of baseline data,[21,22] and the development of mathematical models to predict the size and persistence of discharge plumes.[23] The latter have been coupled with at-sea monitoring of the test mining operations noted above.[24]

II. Environmental management

21. Best-practice management of damaging human activities in the marine environment generally involves the use of spatial management tools, including the protection of areas thought to be representative of the full range of habitats, biodiversity and ecosystem structure and function within the management area. In the Clarion-Clipperton Zone, areas will need to be closed to potential mining activities to protect and preserve the marine environment.

22. The development of a spatial management plan in the Clarion-Clipperton Zone includes the concepts below.

A. Spatial variation

23. Faunal communities vary across the Clarion-Clipperton Zone, with north-to-south and east-to-west gradients in productivity, depth and other environmental variables. In order to protect the full range of habitats and biodiversity across the Zone, destructive seafloor activities must be excluded in particular areas distributed across those gradients. Synthesis of environmental, ecological and biogeographic

[21] Bischoff and Piper (1979).
[22] Legal and Technical Commission (2010).
[23] Rolinski and others (2001); Oebius and others (2001).
[24] Ozturgut, Lavelle and Burns (1981).

data (summarized in several International Seabed Authority reports; see following sections), as well as conservation theory and practice, suggest that such areas should be distributed in a stratified pattern within the Zone.

24. A workshop held in 2007[25] recommended that an ecologically and biogeographically reasonable approach to the design of a spatial management plan would be to divide the Clarion-Clipperton Zone into three east-west and three north-south strata for conservation management because of the strong productivity-driven gradients in ecosystem structure and function. That stratification yields nine distinct subregions within the Zone, each requiring the designation of an area of particular environmental interest.

B. Size of areas of particular environmental interest

25. Systems of protected areas can be designed in several ways to maintain sustainable populations and to capture the full range of habitats and communities. The most appropriate system for areas of particular environmental interest contains large areas with self-sustaining populations and a broad range of habitat variability. Those should not be affected directly by physical activity or indirectly by mining effects such as plumes, although the degree of impacts raised by potential deep sea mining is still unknown. Based on a detailed consideration of environmental data, faunal distribution, faunal dispersal capabilities and distances, and ecological proxy variables, it was determined that a core area of each area of particular environmental interest should be at least 200 km in length and width, that is, large enough to maintain minimum viable population sizes for species potentially restricted to a subregion of the Clarion-Clipperton Zone, and to capture the full range of habitat variability and biodiversity within a subregion. In addition, the core area of each area of particular environmental interest should be surrounded by a buffer zone 100 km in width to ensure that it is not affected by mining plumes from any activities immediately adjacent to an area of particular environmental interest. Thus, the dimensions of each full area of particular environmental interest (including the 200 x 200 km core area surrounded by a 100 km buffer zone) should be 400 x 400 km (see annex, figure II).

C. Scientific design

26. The area of particular environmental interest design developed at the 2007 workshop is based on generally accepted and widely applied principles for the design of marine protected area networks,[26] and includes an element to protect 30 to 50 per cent of the total management area. The design utilizes geological, oceanographic and biological proxy data based on previous International Seabed Authority workshops and reports, as well as the peer-reviewed scientific literature and experience of international experts in deep-sea biology. Data and analyses are described in several reports and workshops (for example, Hannides and Smith, 2003; International Seabed Authority, 2002; International Seabed Authority, 2008;

[25] See ISBA/14/LTC/2.

[26] See for example, Scientific guidance for selecting areas to establish a representative network of marine protected areas, including in open ocean waters and deep-sea habitats (Conference of the Parties to the Convention on Biological Diversity decision IX/20, annex II).

ISBA/14/LTC/2; International Seabed Authority, 2011). After an initial review of the workshop outcomes, the locations of the proposed areas of particular environmental interest were amended by the Legal and Technical Commission in the light of the current distribution of contracts and reserved areas.

27. The Convention on Biological Diversity[27,28] and Food and Agriculture Organization of the United Nations (FAO) criteria for identifying and managing habitats and faunal communities vulnerable to human activities were not fully developed at the time of designing the initial area of particular environmental interest network, but the design covers the key elements currently applicable to the Clarion-Clipperton Zone, including the protection of:

(a) "Vulnerable marine ecosystems" as defined by the FAO criteria for deep-sea bottom fishing in the high seas;[29]

(b) Areas representative of the full range of ecosystems, habitats, communities and species of different biogeographic regions;

(c) Areas of sufficient size to protect and ensure the ecological viability and integrity of the features for which they were selected.

28. The scientific design included consideration of the existing contract and reserved areas. The placement of areas of particular environmental interest avoided overlap with licence areas, as well as reserved areas where possible.

29. Areas of special significance for their uniqueness, biological diversity or productivity, as well as areas of special importance to the life histories of non-fish species referred to in the criteria of the Convention on Biological Diversity have not been incorporated in the scientific design. As more information becomes available, the spatial management of mining activities may have to reflect such factors. Until then, the representative approach described here provides the best way of capturing those values in undisturbed areas in order to preserve and conserve marine biodiversity and ecosystem structure and function in the context of seabed nodule mining activities based on the best available scientific information.

D. Flexibility

30. Any design of areas of particular environmental interest allows for the ability to modify the location and size of such areas, based on improved information about the location of mining activity, measurement of actual impacts from mining operations, and more biological data.

31. Those concepts are described in the reports of the International Seabed Authority.[30] It should be noted that the precautionary principle applies to the exercise of flexibility and adaptive environmental management.

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[27] Scientific criteria for identifying ecologically or biologically significant marine areas in need of protection in open ocean waters and deep-sea habitats (ibid., annex I).

[28] Scientific guidance for selecting areas to establish a representative network of marine protected areas, see footnote 26.

[29] FAO, International Guidelines for the Management of Deep-Sea Fisheries in the High Seas, 2009. Available from http://www.fao.org/docrep/011/i0816t/i0816t00.htm.

[30] ISBA/14/LTC/2 and ISBA/15/LTC/4.

III. Vision

32. The vision of the International Seabed Authority is of a sustainably exploited Clarion-Clipperton Zone that preserves representative and unique marine habitats and species.

33. The Clarion-Clipperton Zone incorporates a series of areas that have been assigned for exploration and prospecting rights for polymetallic nodules. The vision of the Authority is to facilitate mining while minimizing as far as practically possible the impact of seabed mining activities, and preserving and conserving marine biodiversity and ecosystem structure and function in the Clarion-Clipperton Zone.[31]

34. The present Environmental Management Plan adopts a holistic approach to the environmental management of the Clarion-Clipperton Zone in its entirety, including, where appropriate, consideration of cumulative impacts, incorporating environmental risk assessments of new and developing technologies, while giving due consideration to relevant global initiatives and new legislation.

IV. Goals

35. The goals of the present Environmental Management Plan are to:

(a) Facilitate exploitation of seabed mineral resources in an environmentally responsible manner, consistent with the legal framework and environmental guidelines of the International Seabed Authority for managing deep-sea nodule mining and protecting the deep-sea environment;

(b) Contribute to the achievement of the management goals and targets set forth in the Plan of Implementation of the World Summit on Sustainable Development,[32] including: halting the loss of biodiversity; establishing ecosystem approaches to management; and developing marine protected areas, in accordance with international law and based on the best scientific information available, including representative networks by 2012;

(c) Maintain regional biodiversity, ecosystem structure and ecosystem function across the Clarion-Clipperton Zone;

(d) Manage the Clarion-Clipperton Zone consistent with the principles of integrated ecosystem-based management;

(e) Enable the preservation of representative and unique marine ecosystems;

(f) Capitalize upon the available knowledge and environmental data specific to the Clarion-Clipperton Zone, including oceanographic and environmental baseline studies;

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[31] In line with the scope set out in document ISBA/16/LTC/7.

[32] *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

(g) Monitor the environment during and after testing of collecting systems and equipment, in accordance with the rules, regulations and procedures of the Authority;

(h) Facilitate cooperative research and better understanding conditions within the Clarion-Clipperton Zone to inform the adoption of future rules, regulations and procedures, incorporating applicable standards for the protection and preservation of the marine environment;

(i) Include the participation of developing countries and multilateral exchange of views on environmental management issues;

(j) Avoid overlap between the contractor areas, reserved areas and any areas of particular environmental interest.

V. Strategic aims

36. The strategic aims of the present Environmental Management Plan are therefore to:

(a) Ensure environmentally responsible seabed mining within the Clarion-Clipperton Zone, to enable effective protection of the marine environment from activities related to seabed mining;

(b) Apply internationally accepted conservation management tools in order to maintain biodiversity and ecosystem structure and function across the Clarion-Clipperton Zone;

(c) Sustainably manage the Clarion-Clipperton Zone as a whole;

(d) Maintain regional biodiversity and ecosystem structure and function across the Clarion-Clipperton Zone;

(e) Protect and conserve the natural resources of the Area and reduce impact on the biota of the marine environment.

VI. Operational objectives

A. Entire Clarion-Clipperton Zone

37. The operational objectives of the present Environmental Management Plan for the entire Clarion-Clipperton Zone are to:

(a) Establish periodically updated environmental baseline data for the region;

(b) Undertake cumulative environmental impact assessments as necessary based on exploitation proposals;

(c) Consider the environmental risks to the Clarion-Clipperton Zone posed by technological developments in mining technologies.

B. Contract areas

38. The operational objectives for the contract areas are to:

(a) Ensure the application of the best available environmental practices and techniques;

(b) Assemble and disseminate the environmental data collected by contractors for the purposes of impact assessment;

(c) Establish guidelines for impact and preservation reference areas;

(d) Develop plans to ensure responsible environmental management to enhance the recovery of habitats and faunal communities.

C. Areas of particular environmental interest

39. The operational objectives for the areas of particular environmental interest are to:

(a) Protect biodiversity and ecosystem structure and function by a system of representative seafloor areas closed to mining activities. The system must be in place before additional mining claims further compromise the ability to develop a scientifically robust design;

(b) Include a wide range of the habitat types present in the Clarion-Clipperton Zone within the areas of particular environmental interest (for example seamounts and fracture zone structures);

(c) Establish an area of particular environmental interest system to avoid overlap with the current distribution of claimant and reserve areas (as was the basis for the current scientific design);

(d) Provide a degree of certainty to existing and prospective contractors by laying out the location of areas closed to mining activities.

VII. Management objectives

A. Entire Clarion-Clipperton Zone

40. The management objectives of the present Environmental Management Plan for the entire Clarion-Clipperton Zone are to:

(a) Collate information from environmental impact assessments produced by contractors and supplemented where appropriate by other sources;

(b) Consider the cumulative impacts of mining and other human activities;

(c) Exchange information on new and developing technologies and their potential environmental impacts.

B. Contract areas

41. The management objectives for the contract are the following:

(a) Contractors will apply the principles of ISO 14001[33] to the development of their site-specific environmental management plans. Such environmental management plans will be submitted with the contractor's proposed mining plan prior to operations. In creating their environmental management plans, contractors are also encouraged to apply the Code for Environmental Management of Marine Mining adopted by the International Marine Minerals Society in 2001, as subsequently revised;[34]

(b) Contractors will provide their environmental data from the Clarion-Clipperton Zone on an annual basis to the Secretariat, as required by the Mining Code. The Secretariat will use existing database systems and new procedures as required to organize the data into uniform formats and incorporate them with other available data from the Zone, into publicly available and easily accessible databases;

(c) Contractors will provide in their environmental management plans the designation of the required impact and preservation reference zones for the primary purposes of ensuring preservation and facilitating monitoring of biological communities impacted by mining activities. Impact reference zones should be designated to be within the seabed claim area actually mined. Preservation reference zones should be designated to include some occurrence of polymetallic nodules in order to be as ecologically similar as possible to the impact zone, and to be removed from potential mining impacts;

(d) Contractors are required to minimize potential impacts on established preservation zones, and the Authority should consider the potential for impact on established preservation zones in evaluating any application for a mining licence;

(e) Contractors are encouraged to collaborate with each other and independent experts to identify guidelines for uniform application in the designation of reference zones under the guidance of the International Seabed Authority;

(f) Contractors will include in their environmental management plans specific measures that will maximize the potential for the recovery of biota impacted by their activities in the Clarion-Clipperton Zone.

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[33] Available from the website of the International Organization for Standardization at: http://www.iso14000-iso14001-environmental-management.com/.

[34] The Code for Environmental Management of Marine Mining consists of a statement of Environmental Principles for the marine mining industry, followed by a set of Operating Guidelines for application as appropriate at specific mining sites. These Guidelines are designed to serve industry, regulatory agencies and other stakeholders as benchmarks for development, implementation and assessment of environmental management plans and as advice on best practices at sites targeted for marine mineral research, exploration and extraction. The Principles and Guidelines set broad directions in a context of shared values rather than prescribing specific practices (see www.immsoc.org/IMMS_code.htm).

C. Areas of particular environmental interest

42. The Legal and Technical Commission should keep under review the areas of particular environmental interest and determine their suitability or need for amendment. This will involve holding a workshop of scientific/marine reserve/management specialists to peer-review and critique the existing proposal and any new data and information from the contractors. The tasks of the workshop, to be convened as soon as practicable, would be to:

(a) Review the data and assumptions in the original area of particular environmental interest proposal from the 2007 and 2010 workshops;[35]

(b) Determine the scientific validity of the approach;

(c) Assess existing data to define the details of the size, location and number of required areas of particular environmental interest;

(d) Enable the Legal and Technical Commission to make a clear recommendation relating to the area of particular environmental interest to the Council of the International Seabed Authority.

43. In developing a recommendation for the implementation of the area of particular environmental interest proposal, the Legal and Technical Commission should consider:

(a) The process to review, and amend where necessary, the location, size and characteristics of the areas of particular environmental interest at regular intervals, taking into account the views of recognized experts. This may be achieved through workshops or meetings at regular intervals, the first of which should take place two years after implementation of the area of particular environmental interest network;

(b) Encouraging and, where appropriate, supporting and initiating scientific research projects and programmes to enhance knowledge and understanding of the ecosystem structures and functions in the areas of particular environmental interest. Such research should be conducted so as to minimize the damage to habitat and faunal communities. The Authority should be notified of proposed research activities. The Secretariat of the Authority will begin this action in 2011 by making contact with a wide variety of national and international research agencies;

(c) How to encourage the inclusion of the area of particular environmental interest sites as reference areas in scientific research programmes on climate change and the oceans;

(d) Suitable mechanisms for monitoring the achievement of the conservation objectives for the area. This will depend to an extent upon the nature of mining impacts, and hence what may be identified as key indicator species;

(e) The communication of the Authority's management goals for the areas of particular environmental interest to competent agencies responsible for the management of the water column. The Environmental Management Plan should also be posted on the website of the Authority;

(f) Encouraging competent intergovernmental organizations to adopt compatible measures for other activities that may affect biodiversity or the

[35] ISBA/14/LTC/2.

environment in the area of particular environmental interest (for example, fishing, shipping, ocean dumping). The Authority should make contact with competent international organizations and communicate the desire to foster scientific activities in the Clarion-Clipperton Zone;

(g) The process of reviewing contractor and other relevant data (for example, every two years), as well as the advice of relevant experts that may affect the design of the area of particular environmental interest system. Where appropriate, the Legal and Technical Commission should report the results to the Council and advise on measures to be taken. Any proposal to alter the location or nature of an area of particular environmental interest will require information on any suggested alternative to ensure that the strategic and operational objectives are maintained. The Legal and Technical Commission should lead the development of environmental standards that will inform the decision and rules to be made if mining activities are seen to affect areas of particular environmental interest.

VIII. Implementation

44. The present Environmental Management Plan should be implemented progressively by the Secretariat as directed by the Legal and Technical Commission, taking into account external expert views as appropriate.

45. Additional resources may be needed to take these objectives forward and this should be the subject of a separate detailed proposal to be developed by the Secretariat.

IX. Review

46. The Environmental Management Plan will be subject to periodic external review by the Legal and Technical Commission (every two to five years, as required) and updated at least two years in advance of the end of the plan in 2016 (coinciding with the end of currently granted exploration licences for six of the contractors in the Clarion-Clipperton Zone).

X. Recommended priority action

47. The Secretariat will set up a working group or an expert consultant group, including contractor experts to facilitate the establishment of environmental databases using contractors' and selected external data sources. That task should be initiated as soon as possible and before the end of 2011. The group will work with Secretariat staff to develop the required procedures and protocols and publicly available and easily accessible databases.

48. The contractors have carried out significant environmental work in the Clarion-Clipperton Zone. When all of the resultant data has been standardized in a central database, it should be reviewed in order to assess the biogeography of the Zone and the areas of particular environmental interest, and used to assist the environmental management of the region.

49. The Secretariat will retain a set of expert consultants to facilitate data standardization, including taxonomic intercalibration, across contractor datasets and the Clarion-Clipperton Zone. The consultants will:

(a) Collect information from contractors to establish the size of faunal collections, the level of taxonomic identification and the range of taxa available;

(b) Convene a series of workshops focused on specific taxa (for example, polychaetes, nematodes, copepods, echinoderms and isopods) bringing together contractors and taxonomic experts to build taxonomic capacity and initiate species-level intercalibration;

(c) Coordinate a series of investigator visits between laboratories to complete taxonomic intercalibration of targeted taxa;

(d) Provide training in techniques for collection and analysis of molecular material for taxonomic identification.

50. The Secretariat will host a workshop including contractor representatives and expert consultants. The objective of the workshop will be to develop specific guidelines for the contractors to use in the establishment of impact and preservation reference zones. The current exploration licences for six of the contractors in the Clarion-Clipperton Zone will expire in 2016, and the workshop should be held at least one year prior to the first licence expiration date.

51. The Secretariat will complete a cumulative impact assessment for seabed mining in the Clarion-Clipperton Zone. The work will include:

(a) Evaluation of the potential impacts of multiple mining operations in the Clarion-Clipperton Zone on benthic and water column ecosystems;

(b) Evaluation of the potential impacts of multiple mining operations in the Clarion-Clipperton Zone on other mining operations for nickel, copper, cobalt and other metals that could be recovered from the Zone’s polymetallic nodule deposits.

52. The International Seabed Authority will aim to periodically (for example, every 5 to 10 years) issue a publicly available environmental quality status report of the region, based on the data and information compiled from contractors and independent science.

Annex I

Figures

Figure I
Clarion-Clipperton Zone management area

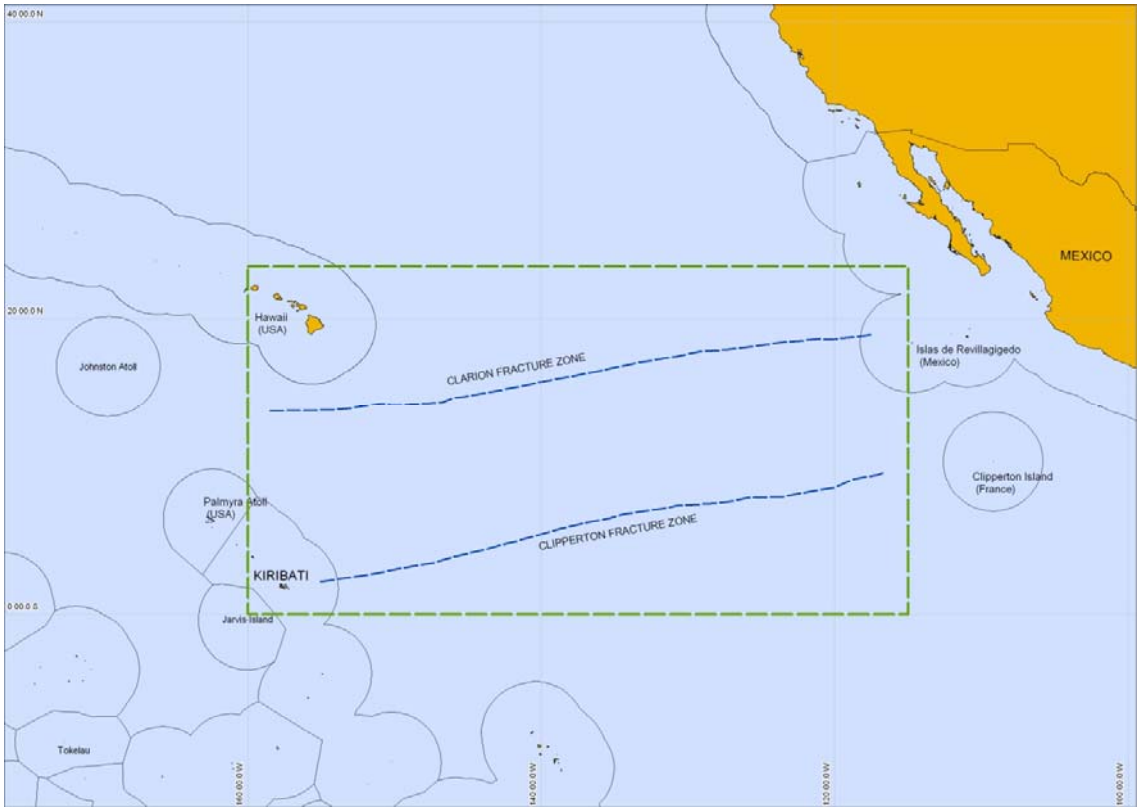
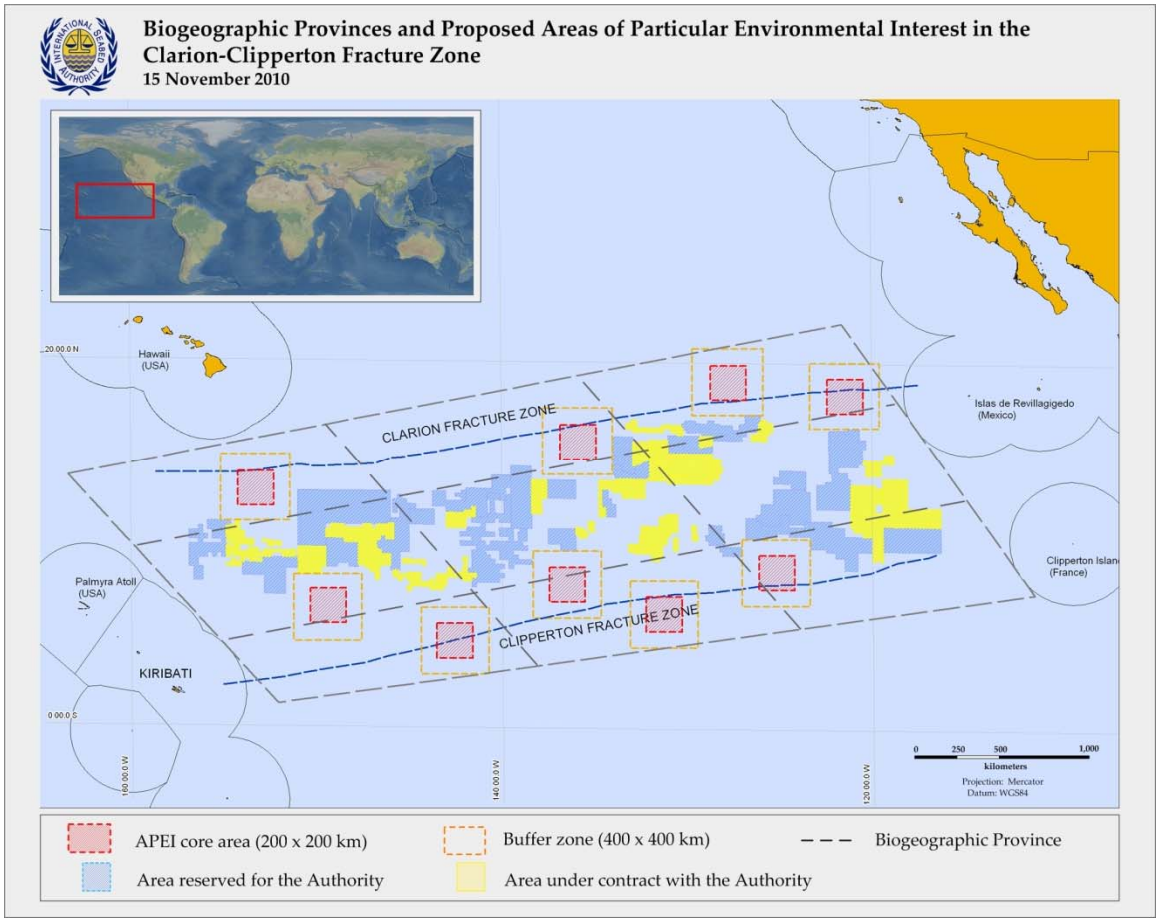


Figure II

Location of the areas of particular environmental interest, indicating the nine biogeographic subregions, the core of each area of particular environmental interest and the buffer zones



Annex II

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