

THE INTERNATIONAL SEABED AUTHORITY AND THE GOVERNANCE OF HIGH SEAS BIODIVERSITY

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Part I

As the subject-matter of this workshop demonstrates, the question of how to manage risks to the environment and biodiversity of the high seas, including the international seabed area,¹ has become a matter of increasing concern to the international community. There is growing international recognition of the need first to undertake a comprehensive review and analysis of the existing legal frameworks and policies to identify gaps in the global system of ocean governance, and second to achieve better harmonization between existing national, regional and global mechanisms for the protection of biodiversity.²

As an organization established to administer a part of the global commons, the International Seabed Authority (ISA) is unique. This paper describes the functions and responsibilities of ISA in relation to the protection and preservation of the deep ocean environment and places these in the context of the overall system for global ocean governance. The practical steps being taken by ISA to promote a better understanding of the deep ocean environment are discussed. It is concluded that, although ISA's role is primarily directed at exploration for and exploitation of mineral resources, ISA also has a broader role with respect to the protection and preservation of the marine environment (including its biodiversity) as well as with respect to marine scientific research in the Area generally.³ ISA also has a well-established institutional mechanism for science-based decision-making on matters related to the deep sea environment.. It is suggested that rules, regulations and procedures adopted through ISA, developed through an effective and finely-balanced institutional structure, could provide a firm basis for management, on a global scale, of the effects on the marine environment of ongoing marine scientific research into the living and non-living resources of the deep ocean.

In considering the international debate on this issue, including at the fourth meeting of the UN informal consultative process on oceans that took place last

¹ The "Area" is defined in article 1 of the 1982 Convention as the "seabed and ocean floor and the subsoil thereof beyond the limit of national jurisdiction."

² See the proceedings of the Isle of Vilm expert workshop on management of risks to biodiversity and other components of the marine environment (2001), and the WWF-IUCN action plan for designating high seas marine protected areas, Malaga, Spain, 2003.

³ Article 143.

week in New York, as well as the papers that are being presented at this workshop, it is apparent that the key questions that arise are:

- (a) **whether additional international measures are necessary for the protection of biodiversity in the deep ocean, and**
- (b) **whether there is scope for better coordination and cooperation between those involved in the management of high seas biodiversity?**⁴

With respect to the latter question, it is undoubtedly the case that there already exist a plethora of international laws and regulations for the management of some of the key threats to high seas biodiversity and resources. These include the 1982 Convention, the Convention on Biological Diversity, the various UNEP regional seas programmes, the instruments and measures adopted by the International Maritime Organization and measures adopted pursuant to other regional agreements.⁵ At the national level, several States have already taken action to establish marine protected areas around hydrothermal vent sites in areas under national jurisdiction. These include Canada, which established pilot offshore marine protected areas in 1998 at the Bowie Seamount and at the Endeavour Segment of the Juan de Fuca Ridge⁶ and Portugal, which in 1998 designated the Dom João de Castro Seamount as a Special Area for Conservation and a Site of European Community Importance in conformity with the 1992 EC Habitat Directive.⁷ In addition, at the regional level a proposal has been made to designate part of the Lucky Strike area, on the Mid-Atlantic Ridge as a Marine Protected Area under the OSPAR Convention. WWF and IUCN have also recently proposed an action plan for the designation of future high seas marine protected areas.

These initiatives are to be welcomed, but it is also vitally important that such initiatives do not lead to the creation of overlapping or conflicting legal regimes. In other words, it is essential that international measures adopted for the protection of biodiversity whether in the high seas or in the Area are fully consistent with the over-arching principles contained in the 1982 Convention.⁸ They must also be consistent with the ISA's responsibility under the Convention and the 1994 Agreement to administer the international seabed area and its resources.

⁴ The need for better integration of measures beyond national jurisdiction was stressed by the World Conservation Congress, which in 2000 called on "national governments, international agencies, and the non-governmental community to better integrate established multilateral agencies and existing legal mechanisms to identify areas of the high seas suitable for collaborative management action, and to reach agreement by consensus for their conservation and management." IUCN, Resolution 2.20, October 2000. <http://iucn.org/amman/content/resolutions/res20.pdf>

⁵ For example, the OSPAR Convention <http://www.ospar.org/eng/html/welcome.html>; the Helcom Convention <http://www.helcom.fi/helcom/convention.html>, <http://www.helcom.fi/recommendations/recs1994.html>; and the Madrid Protocol <http://www.24atcm.mid.ru/24atcm/amadrid.html>

⁶ For information see <http://www.dfo-mpo.gc.ca/CanOceans/INDEX.HTM>.

⁷ For information see <http://www.joel.ist.utl.pt/dsor/Projects/Asimov>.

⁸ As reflected in articles 145 and 209.

Management as special areas of all the world's active hydrothermal vent sites is clearly an unrealistic goal. The multiplicity of initiatives described above therefore indicates the need to somehow identify, at a global level, sites of critical importance and sensitivity. This may be done by the development of internationally-agreed criteria for the identification of sites of critical importance and sensitivity.⁹

To achieve this, the provisions of article 162, paragraph 2(x), of the 1982 Convention should not be overlooked. This potentially far-reaching provision allows the Council of the ISA to disapprove specific areas for exploitation in cases where substantial evidence indicates the risk of serious harm to the marine environment. There is no reason why, pursuant to this provision, the Council should not develop criteria for the identification of particularly sensitive areas to be reserved for detailed scientific study as environmental baselines or as reference areas.

One specific area in which it has been suggested that further regulation is necessary is in relation to scientific research on the genetic resources of the Area (sometimes known as bioprospecting). While it has been generally assumed that activities directed at bioprospecting are, *prima facie*, an exercise of the freedom of the high seas under article 87 of the Convention, it is important to note that the freedoms referred to in article 87 are not absolute. They are to be exercised "under the conditions laid down by this Convention and by other rules of international law" and "with due regard for the interests of other States in their exercise of the freedom of the high seas, and also with due regard for the rights under this Convention with respect to activities in the Area."¹⁰ The uncertainty of the existing legal regime led the Independent World Commission on the Oceans to recommend in 1998 that:

The potentials of the genetic resources of the seabed should become the object of urgent study, focusing on their legal, environmental and economic implications, and negotiation leading to their inclusion within an appropriate international regulatory regime.¹¹

On the other hand, the practicality of the situation is such that it is hard, if not impossible, to distinguish between scientific exploration and commercial research. Deep ocean scientific research is expensive. It also relies on advanced technology both for the recovery of samples and their analysis. Few States are in a position to carry out such work. Any scientific data in the public domain could

⁹ The InterRidge Workshop on Management and Conservation of Hydrothermal Vent Ecosystems in 2000 emphasized the need for the establishment of a global network of sites for integrated study and long-term scientific observation. InterRidge is an international scientific initiative concerned with facilitating international and multi-disciplinary research associated with mid-ocean ridges. Members include Canada, France, Germany, India, Italy, Japan, Norway, Portugal, UK and U.S.). <http://triton.ori.u-tokyo.ac.jp/~intridge/>

¹⁰ See Nandan and Rosenne (eds.), *The United Nations Convention on the Law of the Sea: A Commentary*, Vol III, Center for Oceans Law and Policy, University of Virginia, 72-86; *Ibid.*, Vol IV, 604.

¹¹ Independent World Commission on the Oceans, *The Ocean Our Future*, The Report of the Independent World Commission on the Oceans, Cambridge University Press, 1998.

potentially be used for commercial gain. The essential issue would appear to be to develop a system of effective monitoring and enforcement, including, for example, basic protocols on how samples are initially taken, similar to those used for other biological research. Such procedures and practices, if applied, would ensure that the impact of bioprospecting on the marine environment would be no different from that of general scientific research.

There is a clear sense that threats to deep sea biodiversity need to be better managed in some way, whether those threats arise from marine scientific research, mineral prospecting and exploration or other activities. In relation to the benthic ecosystem, ISA is successfully managing the threats from marine scientific research, prospecting and exploration through its regulations on prospecting and exploration for polymetallic nodules, associated environmental recommendations, and international cooperative scientific projects. Part II of this paper contains a summary of the practical work being done by ISA which in fact addresses many of the problems that have been identified in the discussions this week. What is particularly significant is that the biological resources of the deep seabed are intimately associated with the environment in which the mineral resources are located to the extent that they cannot be considered in isolation from them.

The most immediate current threat to deep sea biodiversity appears to be the work being carried out around active hydrothermal vents, which may include bioprospecting carried out as part of marine scientific research. ISA is currently engaged in developing regulations for prospecting and exploration which will inevitably include a strong environmental component. Researchers and prospectors have already developed a voluntary code for their activities and these could provide a useful starting point for ISA's regulations. Most of the scientists currently engaged in research in this area have also participated in ISA's workshops and have provided a useful scientific basis for the development of the present regulatory framework.

The definition of prospecting under the Convention is broad, and overlaps with marine scientific research. It is practically impossible to distinguish between marine scientific research, including bioprospecting, and prospecting for minerals, since both may encompass the identification of biological diversity and its components. There seems little point, therefore, in trying to develop more precise definitions or in trying to create a new definition for 'bioprospecting' or 'genetic resources'. As far as environmental protection is concerned, it follows that one set of rules, protocols or practices must apply to all types of research activities. In this respect, I should mention that ISA is equipped to and could elaborate a code of conduct for marine scientific research and prospecting in the deep seabed, to include steps to protect the marine environment and its biodiversity. Such a code could well be based on the sort of voluntary code that is presently being applied by researchers. Indeed, it is already doing so in respect of activities in the Area. Since all members of the Authority are also, *ipso facto*, States Parties to the 1982 Convention, and most are States Parties to the

Convention on Biological Diversity, it is anticipated that such a code would necessarily be global in reach and could be made effective by its application by individual States involved in such activities.

ISA will not only benefit from close collaboration with those who are already conducting scientific research on hydrothermal vents, but also has the potential to provide a central clearing-house for exchange of information about research activities on hydrothermal vent sites and at the same time a forum for the discussion and development of principles for the better implementation of the existing legal regime for marine scientific research in the Area and the management of biodiversity in the Area. As we proceed in our efforts, ISA is prepared to cooperate with other organizations and institutions involved in related activities. We are already working with some of the most qualified and knowledgeable scientists and institutions in the field.

Part II

The work of the International Seabed Authority in relation to the marine environment

The basic function of ISA is to manage the mineral resources of the international seabed area, which are the common heritage of mankind, in such a way as to give effect to the principles contained in Part XI of the 1982 UN Convention on the Law of the Sea and the 1994 Agreement for the implementation of Part XI.

In managing the mineral resources, ISA is required to ensure effective protection of the marine environment from harmful effects which may arise both from exploration of the international area and, subsequently, from exploitation of the resources.¹² In addition, ISA has a general responsibility to promote and encourage the conduct of marine scientific research in the international area, and to coordinate and disseminate the results of such research and analysis.¹³

With these parallel objectives in mind, ISA has already developed regulations to govern prospecting and exploration for polymetallic nodules and is in the process of developing a regulatory regime for exploration for new types of resources, including polymetallic sulphides and cobalt-rich crusts. Given the highly speculative nature of seabed exploration, these regulations have a strong environmental focus, aimed primarily at ensuring that contractors develop progressively environmental baselines against which to assess the likely impact of future mining activities.

Clearly, any human activity in the Area, whether prospecting, exploration or exploitation, is likely to have some effect on the marine environment. Yet some such activities need to go ahead if there is to be any utilization of the resources

¹² Article 145.

¹³ Article 143(2).

of the Area in future. Deep seabed miners face particular challenges with respect to environmental issues because of the relatively undefined nature of the deposits to be mined and the systems to be used to mine them as well as the popular mystique with regard to the oceans and marine biodiversity. In these circumstances it is essential to begin the process of environmental regulation at an early stage with a view to ensuring that the critical decisions that will have to be made in the future are made on the basis of adequate scientific information, using consistent methods of analysis and environmental characterization, rather than on the basis of political considerations and public perceptions.

Polymetallic nodules

Regulations on prospecting and exploration for polymetallic nodules in the Area were adopted in 2000.¹⁴ They contain strong provisions relating to the protection and preservation of the marine environment. Among the key principles embodied in the regulations are that (a) the Authority and sponsoring States are required to apply a precautionary approach, as reflected in Principle 15 of the Rio Declaration, to activities in the Area,¹⁵ and (b) there is a duty on each exploration contractor to “take necessary measures to prevent, reduce and control pollution and other hazards to the marine environment arising from its activities in the Area as far as reasonably possible using the best technology available to it.”¹⁶ To give effect to these principles, ISA, through its Legal and Technical Commission, has developed “recommendations for guidance” of contractors in assessing the potential impact upon the environment of their exploration activities. The recommendations describe in great detail the procedures to be followed in the acquisition of baseline data, and the monitoring to be performed during and after any activities in the exploration area with potential to cause serious harm to the environment. Data collected by contractors is to be provided in a standardized format to facilitate monitoring and analysis by the ISA and to enable ISA to develop a central data repository.

Polymetallic sulphides and cobalt crusts

In 2002, ISA began work on the elaboration of regulations to govern prospecting and exploration for polymetallic sulphides and cobalt crusts. Polymetallic sulphides are found primarily in association with hydrothermal vent sites on mid-ocean ridges. Cobalt crusts are found on seamounts, many of which are poorly mapped and understood. These mineral deposits are now of considerable interest to seabed miners because of their relatively high concentrations of metals, including copper, cobalt and zinc, and in particular precious metals including gold and silver. Although comparatively little is known about the ecology of seamounts, it is now well known that the biodiversity of the deep seabed is far greater than had hitherto been thought.¹⁷ This extreme environment supports unique biological communities which exist both in the sediments of the deep seabed and in association with active hydrothermal vents. The latter are of particular interest to scientific researchers exploring the potential for adapting the genetic properties of these organisms for use in a wide range of industrial and chemical applications.

¹⁴ Regulations for prospecting and exploration for polymetallic nodules in the Area, 2000. ISBA/6/A/18.

¹⁵ Principle 15 of the Rio Declaration states as follows: “In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” U.N. Doc. A/CONF.151/26 (Vol.1), located at <http://www.un.org/documents/qa/conf151/aconf15126-1annex1.htm>

¹⁶ Regulation 31(3). This duty is said to exist pursuant to article 145 of the Convention and paragraph 2 of regulation 31, i.e. the application of a precautionary approach.

¹⁷ Craig H. Allen, *Protecting the Oceanic Gardens of Eden: International Law Issues in Deep-Sea Vent Resource Conservation and Management*, Georgetown International Environmental Law Review, Vol XIII, Issue 3 (2001); Lyle Glowka, *The Deepest of Ironies: Genetic Resources, Marine Scientific Research and the Area*, Ocean Yearbook 12 (1996); Cyrill de Klemm, *Fisheries and Marine Biological Diversity*, in Hey (ed.) *Developments in International Fisheries Law*, Kluwer (1999).

It is apparent, therefore, that any regulatory framework for exploration for polymetallic sulphides and cobalt crusts will need to contain provisions relating to the collection of baseline data and information on the biological characteristics of areas under exploration, including information on species composition and community structure and acquisition of information on the basic biology of species found in such areas, as well as procedures for environmental impact assessment.

Marine scientific research

ISA has also begun to implement its responsibilities under the Convention with respect to marine scientific research under article 143. Under article 256, all States and competent international organizations have the right to conduct marine scientific research in the Area. However, unlike the situation in other jurisdictional zones (including the high seas), marine scientific research in the Area is to be carried out “for the benefit of mankind as a whole.”¹⁸

In pursuance of this objective, ISA has, since 1998, established a pattern of workshops and seminars on specific issues related to deep seabed mining, with participation by internationally-recognized scientists, experts, researchers and members of the Legal and Technical Commission as well as representatives of contractors, the offshore mining industry and member States.¹⁹

As a direct result of the discussions in these workshops, ISA is presently collaborating in a major research project coordinated through the University of Hawai'i to study the biodiversity, species range and gene flow in the abyssal Pacific nodule province with a view to predicting and managing the impacts of deep seabed mining. It is expected that the results of ISA's participation in this project would be particularly important in guiding ISA in the establishment of future environmental regulations for mineral exploration and may well be of immense benefit to the international scientific community as a whole.

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¹⁸ Article 143(1) LOSC.

¹⁹ Previous workshops dealt with the assessment of environmental impacts from activities in the Area, the development of technology for deep seabed mining, the status and prospects of deep sea mineral resources other than polymetallic nodules, standardization of techniques for data collection and analysis, and prospects for international collaboration in marine environmental research to enhance understanding of the deep sea environment, including its biodiversity.