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THE CONSERVATION AND SUSTAINABLE USE OF MARINE BIODIVERSITY, INCLUDING GENETIC RESOURCES, IN AREAS BEYOND NATIONAL JURISDICTION: A LEGAL PERSPECTIVE

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1. Introduction

New challenges are facing States as regards the subject of conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction. This report will focus on the legal aspects of the subject. It will elaborate on how the present regime, as embodied in the United Nations Convention on the Law of the Sea (Montego Bay, 1982; UNCLOS), could evolve to address new challenges, in particular a regime for genetic resources and a network of marine protected areas. The considerations made hereunder are based on the assumption that the essence of law is not conservation, but development and change, especially where new needs arise and are to be addressed.

2. The Relevant Aspects of the Present UNCLOS Regime

Two basic components of the present international law of the sea are particularly relevant for the subject of conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction, namely the regime of the high seas and the regime of common heritage of mankind.

2.A. The High Seas

Art. 86 UNCLOS refers to the high seas as to "all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic State".

The basic aspect of the high seas regime is freedom. According to Art. 87 UNCLOS,

> "1. The high seas are open to all States, whether coastal or land-locked. Freedom of the high seas is exercised under the conditions laid down by this Convention and by other rules of international law. It comprises, *inter alia*, both for coastal and land-locked States:
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> (a) freedom of navigation;
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> (b) freedom of overflight;
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> (c) freedom to lay submarine cables and pipelines, subject to Part VI;
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> (d) freedom to construct artificial islands and other installations permitted under international law, subject to Part VI;
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> (e) freedom of fishing, subject to the conditions laid down in section 2;
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> (f) freedom of scientific research, subject to Parts VI and XIII.
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> 2. These freedoms shall be exercised by all States 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".

As it can be clearly inferred from Art. 87, para. 2, the freedom of the high seas is not absolute, but is subject to a number of conditions, as specified by the relevant rules of international law. Also freedom of the sea must today be understood in its appropriate context.

When, in the 17th century, the principle of freedom of the sea was elaborated by Grotius[1] and

[1] Anonymous (the author's name Grotius appeared for the first time in a Dutch translation published in 1614), *Mare*

his followers, nobody had in mind the problems posed by supertankers, nuclear-propelled vessels, off-shore drilling, mining for polymetallic nodules, fishing with driftnets and many other activities which take place in the marine environment today. This obvious consideration leads to an equally obvious consequence. We cannot today evoke the same concepts that Grotius used and give them the same intellectual and legal strength that Grotius gave them.

To rely in an absolute way on the principle of freedom of the sea was perhaps justified in the circumstances existing in the past. But this is no longer true. Today it cannot be sustained that a State has the right to engage in specific marine activities simply because it enjoys freedom of the sea, without giving any further explanations and without being ready to consider the opposite positions, if any, of the other interested States. Also the concept of freedom of the sea is to be understood in the context of the present range of marine activities and in relation to the other potentially conflicting uses and interests.

The needs of navigation and of other activities falling under the regime of freedom of the sea are important elements to be taken into consideration. But they have to be balanced with other interests, in particular those which have a collective character, such as the protection of the marine environment and the sustainable use of marine resources, as they concern the international community as a whole. Far from being an immutable theological dogma, the principle of freedom of the sea is to be understood not in an abstract way, but in the light of the peculiar circumstances under which it should apply.

2.B. The Concept of Common Heritage of Mankind

Under Art. 136 UNCLOS, the "Area", that is the sea-bed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction, and its resources, are the common heritage of mankind. This is the main innovating aspect of the UNCLOS with respect to the previous law of the sea regime. While other important innovations, such as the exclusive economic zone, may be considered as the result of a foreseeable evolution in international law of the sea, the concept of common heritage of mankind has a revolutionary character. It presupposes a third kind of regime which is completely different from both the traditional concepts of sovereignty, which applies in the territorial sea, and of freedom, which applies on the high seas.

The idea of the common heritage of mankind was launched in a memorable speech made at the United Nations General Assembly on 1 November 1967 by the representative of Malta, Mr. Arvid Pardo[2]. The practical opportunity for proposing a new regime came from the technological

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liberum sive de jure, quod Batavis competit ad Indicana commercia, dissertatio, Lugduni Batavorum, 1609.

[2] A notable precedent can be found in a proposal made in 1927 by the Argentine jurist José León Suárez. He was entrusted by the League of Nations Experts Committee for the Progressive Codification of International Law with the drafting of a report on the international rules relating to the exploitation of marine living resources. Mr. Suárez proposed that the living

developments which were expected to lead in a relatively short time to the commercial exploitation of polymetallic nodules lying on the surface of the deep seabed and containing various minerals of appreciable economic value, such as manganese, nickel, cobalt and copper.

The application of the scheme of sovereignty was likely to lead to a series of competitive extensions of the limits of national jurisdiction on the sea bed. The application of the scheme of freedom was likely to lead to a rush towards the exploitation of economically and strategically valuable minerals falling under the regime of freedom of the high seas. According to Mr. Pardo's speech, the consequences of both possible scenarios would have been equally undesirable. They would have encompassed political tension, economic injustice and risks of pollution. In a few words, "the strong would get stronger, the rich richer"[3].

The basic elements of the regime of common heritage of mankind[4], applying to the seabed beyond the limits of national jurisdiction, are the prohibition of national appropriation, the destination of the Area for peaceful purposes, the use of the Area and its resources for the benefit of mankind as a whole with particular consideration for the interests and needs of developing countries, as well as the establishment of an international organization entitled to act on behalf of mankind in the exercise of rights over the resources[5].

The proposal by Malta led to Resolution 2749 (XXV), adopted on 17 December 1970, whereby by the United Nations General Assembly solemnly declared that

> "the sea-bed and the ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction (…), as

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resources of the sea, and whales in particular, should be considered a heritage of mankind: "Les richesses de la mer, en particulier les richesses immenses de la région antarctique, constituent un patrimoine de l'humanité, et notre Commission, constituée par la Société des Nations, est tout indiquée pour proposer au Gouvernement un moyen d'action avant qu'il ne soit trop tard" (Société des Nations, *Comité d'experts pour la codification progressive du droit international, Rapport au Conseil de la Société des Nations*, Genève, 1927, p. 123).

[3] "The known resources of the seabed and of the ocean floor are far greater than the resources known to exist on dry land. The seabed and ocean floor are also of vital and increasing strategic importance. Present and clearly foreseeable technology also permits their effective exploration for military or economic purposes. Some countries may therefore be tempted to use their technical competence to achieve near-unbreakable world dominance through predominant control over the seabed and the ocean floor. This, even more than the search for wealth, will impel countries with the requisite technical competence competitively to extend their jurisdiction over selected areas of the ocean floor. The process has already started and will lead to a competitive scramble for sovereign rights over the land underlying the world's seas and oceans, surpassing in magnitude and in its implications last century's colonial scramble for territory in Asia and Africa. The consequences will be very grave: at the very least a dramatic escalation of the arms race and sharply increasing world tensions, also caused by the intolerable injustice that would reserve the plurality of the world's resources for the exclusive benefit of less than a handful of nations. The strong would get stronger, the rich richer, and among the rich themselves there would arise an increasing and insuperable differentiation between two or three and the remainder. Between the very few dominant powers, suspicions and tensions would reach unprecedented levels. Traditional activities on the high seas would be curtailed and, at the same time, the world would face the growing danger of permanent damage to the marine environment through radioactive and other pollution: this is a virtually inevitable consequence of the present situation" (Pardo, *The Common Heritage - Selected Papers on Oceans and World Order*, Valletta, 1975, p. 31).

[4] The word "heritage" itself, which renders the idea of the sound management of a resource to be transmitted to the heritors, was preferred to the word "property", as the latter could have recalled the *jus utendi et abutendi* (right to use and misuse) that private Roman law gave to the owner (*Introduction* by E. Mann Borgese to Pardo, *op. cit. supra* at note 3,, p. X).

[5] A fifth element is the protection and preservation of the marine environment, which however relates to any kind of marine spaces.

well as the resources of the area, are the common heritage of mankind" (Art. 1).

All the basic elements of the concept of common heritage of mankind can be found in Part XI of the UNCLOS. The Area and its resources are the common heritage of mankind (Art. 136). No State can claim or exercise sovereignty over any part of the Area, nor can any State or natural or juridical person appropriate any part thereof (Art. 137, para. 1). The Area can be used exclusively for peaceful purposes (Art. 141). All rights over the resources of the Area are vested in mankind as a whole, on whose behalf the International Sea-Bed Authority (ISBA), which is the international organization created by the UNCLOS (Art. 137, para. 2), is entitled to act. Activities in the Area are carried out for the benefit of mankind as a whole, irrespective of the geographical location of States, whether coastal or land-locked, and taking into particular consideration the interests and needs of developing States (Art. 140, para. 1). The ISBA provides for the equitable sharing of financial and other economic benefits derived from activities in the Area through an appropriate mechanism (Art. 140, para. 2).

For the first time in the historical development of international law of the sea a world regime based on the management of resources by an international organization was included in a treaty of codification. The common heritage of mankind is a third conceptual option (*tertium genus*) which applies to a particular kind of resources located in a specific marine space. It does not eliminate the traditional notions of freedom or sovereignty applying in the other marine spaces. But it provides for a different and much more equitable approach.

As it is well known, the text of the UNCLOS was not adopted by consensus. It was submitted to vote after all efforts to reach consensus had been exhausted. It received 130 votes in favour, 4 against and 17 abstentions. Many developed States were among those which cast a negative vote or abstained. The main criticisms were addressed to the regime of the Area. According to the developed States, the UNCLOS regime would have discouraged mining activities by individual States and private concerns, would have unduly favoured the monopoly of activities by the ISBA, would have burdened the contractors with excessive financial and other obligations relating also to the field of transfer of technology and would have disregarded the interests of industrialized countries in the decision-making procedures of the Council, the executive organ of the ISBA.

In 1994 it was clear that the UNCLOS was expected to formally enter into force without the participation of many developed countries, that is without the participation of the limited number of States having the command of the technological and financial capability required to engage in deep seabed mining activities. To avoid the practical failure of a regime based on the principle of common heritage of mankind, the United Nations promoted a new negotiation on Part XI of the UNCLOS. It resulted in the Agreement Relating to the Implementation of Part XI of the UNCLOS, which was annexed to Resolution 48/263, adopted by the General Assembly on 17 August 1994. This resolution, while reaffirming that the Area and its resources are the common heritage of mankind, recognizes that

"political and economic changes, including in particular a growing reliance on market principles, have necessitated the re-evaluation of some aspects of the regime for the Area and its resources".

The provisions of the 1994 Implementation Agreement and those of Part XI of the UNCLOS "shall be interpreted and applied together as a single instrument" (Art. 2). However, in the event of any inconsistency between the 1994 Implementation Agreement and Part XI, the provisions of the former shall prevail. In fact, the label of "implementation agreement" is a diplomatic device that covers the evident reality that in 1994 the UNCLOS was amended[6] and several aspects of the original concept of common heritage of mankind were substantively changed[7].

Following the adoption of the 1994 Implementation Agreement, the UNCLOS has achieved an almost universal participation (with some notable exceptions). Although modified under the 1994 Implementation Agreement, the original spirit of the UNCLOS is not betrayed. The principle of common heritage of mankind still applies and remains a major source of inspiration for a treaty that achieves the codification and the progressive development of international law.

Since several years the ISBA has been working on the subject of exploration of the different mineral resources of the Area. In 2000 the ISBA Assembly approved the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area (the so-called mining code)[8]. This has enabled the ISBA to sign contracts for exploration with eight investors. In 2010 the ISBA Assembly approved the Regulations on Prospecting and Exploration for Polymetallic Sulphides in the Area. The approval of a third set of regulations, relating to prospecting and exploration for cobalt-rich ferromanganese

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[6] "The 1994 Implementation Agreement is a curious creature. The 1982 LOSC does not permit reservations (arts. 309, 310) and the procedures for its amendment are both protracted and open only to State parties (arts. 311-17). Neither route was suitable for modifications of the Convention sought by the industrialised States that remained outside the Convention. Instead, the 1994 Implementation Agreement was made, its title disingenuously implying that it was concerned to put into effect the 1982 provisions rather than to change them. In fact, it stipulates that several provisions of Part XI of the LOSC 'shall not apply' and modifies the effect of others" (Churchill & Lowe, *The Law of the Sea*, 3rd ed., Manchester, 1999, p. 20).

[7] For instance, the obligation of State Parties to finance the deep seabed mining operations of the Enterprise, that is the organ of the ISBA which carries out mining activities in the Area directly, is abrogated and the independent activities by the Enterprise are delayed until it is able to conduct mining operations through joint-ventures. A contractor which has contributed a particular area to the ISBA as a reserved area has the right of first refusal to enter into a joint-venture arrangement with the Enterprise for exploration and exploitation of that area. If the Enterprise does not submit an application for a plan of work for activities with respect to a reserved area within fifteen years, the contractor which contributed the area is entitled to apply for a plan of work for that area, provided that it offers in good faith to include the Enterprise as a joint-venture partner. The Enterprise and developing States wishing to obtain technology for deep seabed mining shall seek to obtain it on fair and reasonable commercial terms and conditions on the open market or through joint-venture arrangements. The decision-making procedure by the Council is modified by the introduction of the rule that, if all efforts to reach consensus have been exhausted, decisions on questions of substance are taken by a two-thirds majority, provided that such decisions are not opposed by a majority in any one of the chambers. This means that any of the five chambers of States established under Part XI of the UNCLOS (for example, the chamber composed of four of the major consumer or importer States) can veto the taking of decisions by the Council.

[8] "Polymetallic nodules are lumps of metallic ore, between golf ball and soccer ball in size, scattered loosely in expansive fields on abyssal plains. Their quantity in a given area can be assessed simply by photographing the ocean bottom. They can be scooped up by mechanical harvesters with little physical damage to the seabed" (ISBA, *Press Release*, SB/9/1 of 23 July 2003, p. 2).

crusts is expected in 2011. Unlike polymetallic nodules, which are found partially buried in areas of the deep seabed, sulphides[9] and crusts[10] are localized in their deposits. Concentrations of methane hydrates[11] are also found in the Area and may fall in the future under the regulatory powers of the ISBA.

However, the prospects coming from the mineral resources in the Area remain uncertain. A number of factors have inhibited progress towards commercial exploitation of polymetallic nodule deposits. These factors include the hostile environment in which exploration and mining will take place both as regards the open-ocean surface environment and the great depths at which polymetallic nodule deposits occur, the high costs involved in research and development of mining technology and the fact that, under current economic conditions, deep seabed mining remains uncompetitive compared to land-based mining.

In his report for 2010 the ISBA Secretary-General, Mr. Odunton, remarked, *inter alia* that the pace at which commercial mining in the the Area is progressing continues to be slow. The efforts of the current eight contractors are primarily directed at long-term geological and environmental studies, financed through government funding by sponsoring or participating States, rather than at commercially driven research and development. Investment in mineral exploitation technology remains at a very preliminary stage and it appears unlikely that any of the contractors will move to commercial exploitation of polymetallic nodules in the near future[12].

Yet the concept of common heritage of mankind, that is a third and more equitable scheme departing from both the schemes of freedom or sovereignty, has actually been put in place under an international regime and an international organization has been established to manage marine mineral resources falling under this regime. But what seems now to be missing is the possibility to exploit in the short or medium term the resources to which the regime is intended to apply.

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[9] "Hydrothermal polymetallic massive sulphides occur typically in chimney-like structures, called smokers, surrounding undersea hot-spring vents. Their minerals come mainly from magma, the mass of molten rock deep beneath the earth's crust, where it breaches the ocean bottom in volcanic regions along the margins of ocean basins. Individual deposits are small and scattered. Mining would require the destruction of the smokers, with potentially catastrophic consequences for the exotic animal communities that live in the superheated, oxygen-deprived water and cannot exist in a normal environment dependent on sunlight" (ISBA, *Press Release*, SB/9/1 of 23 July 2003, p. 2).

[10] "Cobalt-rich ferromanganese crusts, derived like the nodules from metals precipitated out of seawater, are fused to the seabed in layers up to tens of centimetres thick, often buried beneath other seabed deposits. They are found on the flanks and ridges of globe-encircling, mid-ocean mountain range. Assessment of their occurrence and metal content and their eventual exploitation will require digging or drilling the ores out of a solid rock bed" (*ibidem*).

[11] They are ice-like materials that occur in abundance in marine sediments and store immense quantities of methane.

[12] However, the ISBA Secretary-General points out that the private sector investment in research on and prospecting for marine mineral deposits continues, both in the seabed under national jurisdiction and in the Area, indicating a strong interest in seabed minerals as a future source of metals. This suggests that the private sector is developing confidence in the legal regime for the orderly development of the resources of the Area that has been put in place within the ISBA framework and that there is a potential for a marine mineral mining industry to emerge as an alternative to land-based mining (see doc. ISBA/16/A/2 of 8 March 2010, paras. 128 and 129).

3. Genetic Resources:

3.A. The Prospects for the Exploitation of Genetic Resources in the Deep Seabed

While the prospects for commercial mining in the deep seabed are uncertain, the exploitation of commercially valuable genetic resources may in the near future become a promising activity taking place beyond the limits of national jurisdiction.

The deep seabed is not a desert, despite extreme conditions of cold, complete darkness and high pressure. It is the habitat of diverse forms of life associated with typical features, such as hydrothermal vents, cold water seeps, seamounts or deep water coral reefs. In particular, it supports biological communities that present unique genetic characteristics. For instance, some animal communities live in the complete absence of sunlight where warm water springs from tectonically active areas (so-called hydrothermal vents)[13]. Several species of microorganisms, fish, crustaceans, polychaetes, echinoderms, coelenterates and molluscs have been found in hydrothermal vent areas. Many of them were new to science. These communities, which do not depend on plant photosynthesis for their survival, rely on specially adapted micro-organisms able to synthesize organic compounds from the hydrothermal fluid of the vents (chemosyntesis)[14]. The ability of some deep seabed organisms to survive extreme temperatures (thermophiles and hyperthermofiles), high pressure (barophiles) and other extreme conditions (extremophiles) makes their genes of great interest to science and industry[15].

But what is the international regime applying to genetic resources in areas beyond national jurisdiction[16]? In fact, neither the UNCLOS nor the 1992 Convention on Biological Diversity (CBD)

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[13] Hydrothermal vents may be found both in the Area and on the seabed falling within the limits of national jurisdiction, according to the definition of continental shelf given by Art. 76 UNCLOS.

[14] The discovery of hydrothermal vent ecosystems has given rise to a new theory as to how life began on earth. It could have originated and evolved in association with hydrothermal vents in the primeval ocean during the early Archaean period (about 4,000 million years ago).

[15] See Arrieta, Arnaud-Haond & Duarte, *What Lies Underneath: Conserving the Oceans' Living Resources*, in *Science*, 25 March 2011.

[16] On this question see Glowka, *The Deepest of Ironies: Genetic Resources, Marine Scientific Research, and the Area* in *Ocean Yearbook*, 1996, p. 156; Scovazzi, *Mining, Protection of the Environment, Scientific Research and Bioprospecting: Some Considerations on the Role of the International Sea-Bed Authority*, in *International Journal of Marine and Coastal Law*, 2004, p. 383; Arico & Salpin, *Bioprospecting of Genetic Resources in the Deep Seabed: Scientific, Legal and Policy Aspects*, Yokohama, 2005; Armas Pfirter, *The Management of Seabed Living Resources in "the Area" under UNCLOS*, in *Revista Electrónica de Estudios Internacionales*, No. 11, 2006; Leary, *International Law and Genetic Resources of the Deep Sea*, Leiden, 2006; Oude Elferink, *The Regime of the Area: Delineating the Scope of Application of the Common Heritage Principle and Freedom of the High Seas*, in *International Journal of Marine and Coastal Law*, 2007, p. 143; Millicay, *A Legal Regime for the Biodiversity in the Area*, in Nordquist, Long, Heider & Moore (eds.), *Law, Science and Ocean Management*, Leiden, 2007, p. 739; De la Fayette, *A New Regime for the Conservation and Sustainable Use of Marine Biodiversity and Genetic Resources beyond the Limits of National Jurisdiction*, in *International Law of Marine and Coastal Law*, 2009, p. 221; Armas-Pfirter, *How Can Life in the Deep Seabed Be Protected?*, *ibidem*, p. 281; Ridgeway, *Marine Genetic Resources: Outcomes of the United Nations Informal Consultative Process*, in *International Law of Marine and Coastal Law*, 2009, p. 309; Barnes, *Entitlement to Marine Living Resources in Areas beyond National Jurisdiction*, in Oude Elferink & Molenaar, *The International Legal Regime of Areas beyond National Jurisdiction: Current and Future Developments*, Leiden, 2010, p. 83; Scovazzi, *The Seabed beyond the Limits of National Jurisdiction: General and Institutional Aspects*, *ibidem*, p. 43. See also the report of the seminar *Towards a New Governance of High Seas Biodiversity*, sponsored by IDDRI (Institut du Développement

provide any specific legal framework in this regard. The factual implications of the question are pointed out in a document issued in 2005 by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) established under the CBD[17].

First, only few States and private entities have access to the financial means and sophisticated technologies needed to reach the deep seabed:

> "Reaching deep seabed extreme environments and maintaining alive the sampled organisms, as well as culturing them, requires sophisticated and expensive technologies. (...) Typically, the technology associated with research on deep seabed genetic resources involves: oceanographic vessels equipped with sonar technology, manned or unmanned submersible vehicles; *in situ* sampling tools; technology related to culture methods; molecular biology technology and techniques; and technology associated with the different steps of the commercialization process of derivates of deep seabed genetic resources. With the exception of basic molecular biology techniques, most of the technology necessary for accessing the deep seabed and studying and isolating its organisms is owned by research institutions, both public and private. To date, only very few countries have access to these technologies"[18].

Second, the prospects for commercial applications of bioprospecting activities seem promising:

> "Deep seabed resources hold enormous potential for many types of commercial applications, including in the health sector, for industrial processes or bioremediation. A brief search of Patent Office Databases revealed that compounds from deep seabed organisms have been used as basis for potent cancer fighting drugs, commercial skin protection products providing higher resistance to ultraviolet and heat exposure, and for preventing skin inflammation, detoxification agents for snake venom, anti-viral compounds, anti-allergy agents and anti-coagulant agents, as well as industrial applications for reducing viscosity"[19].
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> "The commercial importance of marine genetic resources is demonstrated by the fact that all major pharmaceutical firms have marine biology departments. The high cost of marine scientific research, and the slim odds of success (only one to two percent of pre-clinical candidates become commercially produced) is offset by the potential profits. Estimates put worldwide sales of all marine biotechnology-related products at US $ 100 billion for the year 2000"[20].

Last, but not least, another important element to take into consideration is that the patent legislation of several States does not compel the applicant to disclose the origin of the genetic materials used:

> "Assessing the types and levels of current uses of genetic resources from the deep seabed proves relatively difficult for several reasons. First, patents do not necessarily provide detailed information about practical applications, though they do indicate potential uses. Moreover, information regarding the origin of the samples

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Durable et des Relations Internationales) and held in Monaco on 20-21 March 2008.

[17] *Status and Trends of, and Threats to, Deep Seabed Genetic Resources beyond National Jurisdiction, and Identification of Technical Options for their Conservation and Sustainable Use*, doc. UNEP/CBD/SBSTTA/11/11 of 22 July 2005.

[18] *Ibidem*, paras. 12 and 13. "A limited number of institutions worldwide own or operate vehicles that are able to reach areas deeper than 1,000 meters below the oceans' surface, and can therefore be actively involved in deep seabed research" (*ibidem*, para. 16).

[19] *Ibidem*, para. 21.

[20] *Ibidem*, para. 22.

used is not always included in patent descriptions"[21].

More recently, the 2011 report of the United Nations Secretary-General on "Oceans and the law of the sea" provided the following information on the relevant commercial developments:

> "Recent work has focused in discerning the degree to which genetic resources from areas beyond national jurisdiction have contributed to commercial developments, such as patents applied for and granted. To date, it appears that a very small number of patents have originated from the seabed beyond national jurisdiction (generally related to deep-sea bacteria), while a great number have been used on genetic resources from the high seas (primarily micro-organisms, floating sargassum weed, fish and krill). Of concern are applications with potentially large environmental consequences, such as the proposed use of sargassum weed for biofuels"[22].

3.B. Common Heritage of Mankind vs. Freedom of the High Seas

In 2006 the subject of the international regime for the genetic resources in the deep seabed was discussed within the Ad Hoc Open-ended Informal Working Group to Study Issues Relating to the Conservation and Sustainable Use of Marine Biological Diversity beyond Areas of National Jurisdiction[23], established under United Nations General Assembly Resolution 60/30 of 29 November 2005. Opposite views were put forward by the States concerned.

Some States took the position that the UNCLOS principle of common heritage of mankind and the mandate of the ISBA should be extended to cover also genetic resources:

> "Several delegations reiterated their understanding that the marine genetic resources beyond areas of national jurisdiction constituted the common heritage of mankind and recalled article 140 of the Convention, which provides that the activities in the Area shall be carried out for the benefit of mankind and that particular consideration should be given to the interest and needs of developing States, including the need for these resources to be used for the benefit of present generations and to be preserved for future generations. (…) A number of delegations mentioned that the International Seabed Authority constituted an existing mechanism in this area and that consideration should accordingly be given to the possibility of broadening its mandate"[24].

Other States relied on the UNCLOS principle of freedom of the high seas, which would imply a right of freedom of access to, and unrestricted exploitation of, deep seabed genetic resources:

> "Other delegations reiterated that any measures that may be taken in relation to genetic resources in areas beyond national jurisdiction must be consistent with international law, including freedom of navigation. In their view, these resources were covered by the regime of the high seas, which provided the legal framework for all activities relating to them, in particular marine scientific research. These delegations did not agree that there was a need for a new regime to address the exploitation of marine genetic resources in areas beyond national jurisdiction or to expand the mandate of the International Seabed Authority"[25].

The Working Group held a second meeting in 2008[26]. Again, very different views were

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[21] *Ibidem*, para. 22.
[22] Doc. A/66/70 of 22 March 2011, para. 63.
[23] Hereinafter: the Working Group.
[24] *Report of the Ad Hoc Open-ended Working Group to Study Issues Relating to their Conservation and Sustainable Use of Marine Biological Diversity beyond Areas of National Jurisdiction,* doc. A/61/65 of 20 March 2006, para. 71.
[25] *Ibidem*, para. 72.
[26] Also the United Nations Open-Ended Informal Consultative Process on Oceans and the Law of the Sea addressed the

expressed as regards the regime to be applied to marine genetic resources, repeating what had already taken place in 2006:

> "In that regard, divergent views were expressed on the relevant legal regime on marine genetic resources beyond areas of national jurisdiction, in particular whether those marine genetic resources were part of the common heritage of mankind and therefore fell under the regime of the Area, or were part of the regime for the high seas" [27].

The same different positions were manifested during the 2010 meeting of the Working Group[28].

This basic disagreement on the international regime of genetic resources leaves a sentiment of dissatisfaction. In fact, both the divergent positions move from the same starting point:

> "The United Nations Convention on the Law of the Sea was recognized as the legal framework for all activities in the oceans and seas, including in respect of genetic resources beyond areas of national jurisdiction"[29].

Why do two groups of States, moving from the same assumption, namely that the UNCLOS is the legal framework for all activities taking place in the sea, reach two completely opposite conclusions as regards the matter in question? A possible answer to the question is that there is some elaboration to make on the very starting point[30].

3.C. A Banality and its Consequences

There is no doubt that the UNCLOS is a cornerstone in the field of codification of international law. It has been rightly qualified as a "constitution for the oceans", "a monumental achievement in the international community", "the first comprehensive treaty dealing with practically every aspect of the uses and resources of the seas and the oceans", an instrument which "has successfully accommodated the competing interests of all nations"[31].

Nevertheless, the UNCLOS, as any legal text, is linked to the time when it was negotiated and adopted (from 1973 to 1982 in the specific case). Being itself a product of time, the UNCLOS cannot stop the passing of time. While it provides a solid basis for the regulation of many matters, it would be illusory to think that the UNCLOS is the end of legal regulation. International law of the sea is subject to a process of natural evolution and progressive development which is linked to States' practice and involves also the UNCLOS. Due to limits of space, it is not possible to elaborate here on the instances

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subject of marine genetic resources at its 2007 meeting. However, the meeting was unable to reach overall agreement on the elements to be suggested to the U.N. General Assembly as regards the legal regime of such resources. See the co-chairpersons' possible elements to be suggested in the annex to U.N. doc. A/62/169 of 30 July 2007.

[27] *Joint Statement of the Co-Chairpersons of the Working Group*, doc. A/63/79 of 16 May 2008, para. 32.

[28] See *Letter Dated 16 March 2010 from the Co-Chairpersons of the Ad Hoc Open-ended Informal Working Group to the President of the General Assembly*, doc. A/65/68 of 17 March 2010, paras. 70-72.

[29] Doc. quoted *supra* at note 27, para. 36. The statement is repeated in the resolutions on "Oceans and the Law of the Sea" yearly adopted by the U.N. General Assembly. See, lastly, the preamble of Resolution 65/37, adopted on 7 December 2010, which emphasizes that the UNCLOS "sets out the legal framework within which all activities in the oceans and seas must be carried out and is of strategic importance as the basis for national, regional and global action and cooperation in the marine sector, and that its integrity needs to be maintained (…)".

[30] See Scovazzi, *Is the UN Convention on the Law of the Sea the Legal Framework for All Activities in the Sea? The Case of Bioprospecting*, in Vidas (ed.), *Law, Technology and Science for Oceans in Globalisation*, Leiden, 2009, p. 309.

[31] Koh, *A Constitution for the Oceans*, in U.N., *The Law of the Sea - Official Text of the United Nations Convention on the Law of the Sea with Annexes and Index*, New York, 1983, p. xxiii.

where changes with respect to the original UNCLOS regime have been integrated into the UNCLOS itself (evolution by integration); where different interpretations of the relevant UNCLOS provisions are in principle admissible and State practice may be important in making one interpretation prevail (evolution by interpretation); where the UNCLOS does not provide any clearly defined regime and the relevant legal regime is to be inferred only from State practice (evolution in another context); or where, due to the fact that the UNCLOS regime is clearly unsatisfactory – it happens very seldom, but it may happen –, a new instrument of universal scope has been drafted to avoid the risk of undesirable consequences (evolution by further codification)[32].

What follows from the assumption that the UNCLOS is linked to the time when it has been negotiated goes close to a banality, but has the great strength of banalities. It is a matter of fact that the UNCLOS cannot make miracles. In particular, the UNCLOS cannot regulate those activities that its drafters did not intend to regulate for the simple reason that they were not foreseeable in the period when this treaty was being negotiated. At this time, very little was known about the genetic qualities of deep seabed organisms. For evident chronological reasons, the potential economic value of the units of heredity of this kind of organisms was not considered by the UNCLOS negotiators. When dealing with the special regime of the Area and its resources, the UNCLOS drafters had only mineral resources in mind.

This is fully evident form the plain text of the UNCLOS. The term "activities" in the Area is defined as "all activities of exploration for, and exploitation of the resources of the Area" (Art. 1, para. 1). Art. 133, *a*, defines the "resources" of the Area to "all solid, liquid or gaseous mineral resources *in-situ* in the Area at or beneath the sea-bed, including polymetallic nodules"[33]. The UNCLOS regime of common heritage of mankind does not include the non-mineral resources of the Area.

But, for the same chronological reasons, the regime of freedom of the high seas does not apply to genetic resources either. While including provisions to living and mineral resources in areas beyond national jurisdiction, the UNCLOS does not provide any specific regime for the exploitation of marine genetic resources. The words "genetic resources" or "bioprospecting" do not appear anywhere in the UNCLOS. A legal gap exists in this regard. Sooner or later it should be filled (better sooner than later) through a regime which, to be consistent, should encompass under the same legal framework the genetic resources of both the Area and the superjacent waters.

However, not all of the UNCLOS should be left aside when envisaging a future regime for marine genetic resources beyond national jurisdiction. The scope of the regime of the Area is already

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[32] See Scovazzi, *The Evolution of International Law of the Sea: New Issues, New Challenges*, in Hague Academy of International Law, *Recueil des cours*, vol. 286, 2001, p. 39,

[33] In so providing, the UNCLOS narrows the term "resources" that was used in a more abstract and broad sense in Art. 1 of U.N. General Assembly Resolution 2749 (XXV) (see *supra*, para. 2.B).

broader than it may be believed at first sight. Under the UNCLOS, the legal condition of the Area has an influence also on the regulation of activities that, although different from minerals and mining activities, are also located in that space. The regime of the Area already encompasses subjects which are more or less directly related to mining activities, such as marine scientific research[34], the preservation of the marine environment[35] and the protection of underwater cultural heritage[36]. As far as the first two subjects are concerned, it is difficult to draw a clearcut distinction between what takes place on the seabed and what in the superjacent waters.

While a specific regime for exploitation of genetic resources is lacking, the aim of sharing the benefits among all States, which was the main aspect of the seminal proposal made by Arvid Pardo, can still be seen as a basic objective embodied in a treaty designed to "contribute to the realization of a just and equitable international economic order which takes into account the interests and needs of mankind as a whole and, in particular the special interests and needs of developing countries, whether coastal or land-locked" (UNCLOS preamble). Also in the field of genetic resources, the application of the principle of freedom of the sea (that is the "first-come-first-served" approach) leads to inequitable and hardly acceptable consequences[37]. New cooperative schemes, based on provisions on access and sharing of benefits, should be envisaged in a future agreement on genetic resources beyond the limits of national jurisdiction. This is also in full conformity with the principle of fair and equitable sharing of the benefits arising out of the utilization of genetic resources set forth by Art. 1 of the CBD and, more recently, by Art. 10 of the Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (Nagoya, 2010)[38].

Moreover, bioprospecting, that is what is currently understood as the search for commercially valuable genetic resources of the deep seabed, can already be considered as falling under the UNCLOS regime of marine scientific research. The UNCLOS does not provide any definition of "marine scientific research". However, Art. 246, which applies to the exclusive economic zone and the

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[34] Art. 143 UNCLOS.
[35] See Art. 145 UNCLOS.
[36] See Art. 149 UNCLOS.
[37] See *supra*, para. 2.B.
[38] "Parties shall consider the need for and the modalities of a global multilateral benefit-sharing mechanism to address the fair and equitable sharing of benefits derived from the utilization of genetic resources and traditional knowledge associated with genetic resources that occur in transboundary situations or for which it is not possible to grant or obtain prior informed consent. The benefits shared by users of genetic resources and traditional knowledge associated with genetic resources through this mechanism shall be used to support the conservation of biological diversity and the sustainable use of its components globally". While the Nagoya Protocol does not apply to areas beyond national jurisdiction, it could become a source of inspiration. As stated in the 2011 report of the U.N. Secretary General on "Oceans and the law of the Sea", the adoption and implementation of the Nagoya Protocol "may provide further opportunities to inform and advance the discussions on marine genetic resources, including by providing examples of how the sharing of benefits from the utilization of resources from areas within national jurisdiction may be addressed in a multilateral context" (doc. cit. *supra* at note 22, para. 256). Another source of inspiration could be the International Treaty on Plant Genetic Resources for Food and Agriculture, concluded in 2001 under the auspices of the Food and Agriculture Organization (FAO).

continental shelf, makes a distinction between two kinds of marine scientific research projects, namely those carried out "to increase scientific knowledge of the marine environment for the benefit of all mankind" (para. 3) and those "of direct significance for the exploration and exploitation of natural resources, whether living or non-living" (para. 5, *a*). This distinction supports the conclusion that, under the UNCLOS logic, also research activities of direct significance for the purpose of exploration and exploitation of genetic resources fall under the general label of "marine scientific research"[39]. Also bioprospecting is consequently covered by Art. 143, para. 1, of the UNCLOS, which sets forth the principle that "marine scientific research in the Area shall be carried out exclusively for peaceful purposes and for the benefit of the mankind as a whole"[40]. This provision refers to any kind of marine scientific research and is not limited to research on mineral resources. Yet the reading of Art. 143 in combination with Art. 246 contradicts the assumption that there is an absolute freedom to carry out bioprospecting in the Area[41]. States which are active in bioprospecting in this space are already bound to contribute to the benefit of mankind as a whole[42].

4. Marine Protected Areas:

4.A. The Notion of Marine Protected Area

The UNCLOS puts a great emphasis on the issue of preservation and protection of the marine environment, at both the world and the regional level and according to the different sources of pollution, as specified in detail in UNCLOS Part XII. All States are under an obligation, arising from customary international law and restated in Art. 192 UNCLOS, "to protect and preserve the marine

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[39] There is an inextricable factual link between marine scientific research (either pure or applied) and bioprospecting. A research endeavour organized with the intent to increase human knowledge may well result in the discovery of commercially valuable information on genetic resources.

[40] Art. 241 UNCLOS is also relevant in a discussion on the legal condition of the genetic resources of the deep seabed. It provides that "marine scientific research activities shall not constitute the legal basis for any claim to any part of the marine environment or its resources".

[41] Art. 143, para. 3, grants to the States the right to carry out scientific research in the Area, but binds them to co-operate with other States and the ISBA in various fields, including dissemination of results. Also this provision refers to any kind of marine scientific research in the Area. Yet, the mandate of ISBA deserves close scrutiny, especially if it is to be understood not only as an entity involved in marine mining activities in competition with others, but as the international organization which bears the main responsibility to realize a just and equitable economic order of the oceans and seas. Nothing prevents States from expanding the mining focus of the ISBA and granting to it some broader management competences in the field of genetic resources.

[42] "The principle of common heritage in its substantive aspect is, like any norm of international law, capable of being applied in a decentralised manner by states. Even in the absence of *ad hoc* institutions every state is under an obligation to respect and fulfil the principle of the common heritage by ensuring that subjects within its jurisdiction do not act contrary to its object and purpose. This would be the case if a state authorised or negligently failed to prevent biotechnological activities in common spaces that had the effect of causing severe and irreversible damage to the unique biodiversity of that space. Similarly, a state would fail the common heritage if it authorised exclusive appropriation of genetic resources without requiring equitable sharing of pertinent scientific knowledge and without ensuring that a fair portion of economic benefits accruing from their exploitation be devoted to the conservation and sustainable development of such common resources": Francioni, *Genetic Resources, Biotechnology and Human Rights: The International Legal Framework*, in Francioni (ed.), *Biotechnologies and International Human Rights*, Oxford, 2007, p. 14.

environment". This obligation applies everywhere in the sea, including the high seas and the seabed, and can be complied with by resorting to different means.

An important means to comply with the above mentioned general obligation is the use of area-based management tools, including marine protected areas, which is implied in Art. 194, para. 5, UNCLOS. It provides that the measures taken to protect and preserve the marine environment

> "shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life"[43].

A marine protected area can generally be understood as an area of marine waters or seabed that is delimited within precise boundaries (including, if appropriate, buffer zones) and that is granted a special protection regime because of its significance for a number of reasons (ecological, biological, scientific, cultural, educational, recreational, etc.)[44]. This broad notion of marine protected area does not substantially depart from the definition of "protected area" given by the Art. 2 of the Convention on Biological Diversity ("a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives") and from the definition of "marine and coastal protected areas" that has been proposed by the Ad Hoc Technical Group on Marine and Coastal Protected Areas, established within the framework of the same convention:

> "'Marine and coastal protected areas' means any defined area within or adjacent to the marine environment, together with its overlying waters and associated flora, fauna and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine and/or coastal biodiversity enjoys a higher level of protection than its surroundings"[45].

Marine protected areas are a rather flexible instrument that can be limited to those protection measures which are necessary to ensure the prescribed objectives, without unnecessarily burdening activities that can be carried out in an environmentally sustainable way. The establishment of marine protected areas as a key element of marine environmental protection is linked to the most advanced concepts of environmental policy, such as sustainable development, precautionary approach,

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[43] Rare or fragile marine ecosystems present various characteristics and are found in areas which have different legal conditions. While wetlands, lagoons or estuaries are located along the coastal belt, other kinds of ecosystems, such as seamounts, hydrothermal vents or submarine canyons, are also found at a certain distance from the coast, in areas located beyond the limit of the exclusive economic zone.

[44] This definition is recalled in note 11 of Decision VII/5 (2004) on Marine and Coastal Biological Diversity adopted by the Conference of the Parties to the Convention.

[45] The World Conservation Union (IUCN) has defined a protected area as "an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources and managed through legal or other effective means". It has developed a number of protected area management categories, all applicable to the marine environment, namely: Strict Nature Reserve: protected area managed mainly for science; Wilderness Area: protected area managed mainly for wilderness protection; National Park: protected area managed mainly for ecosystem protection and recreation; Natural Monument: protected area managed mainly for conservation of specific natural features; Natural Monument: protected area managed mainly for conservation of specific natural features; Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation; Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems.

integrated coastal zone management, marine spatial planning[46], ecosystem approach and transboundary cooperation. A number of policy instruments call for action towards the establishment of such areas.

For instance, according to Agenda 21, the action programme adopted in Rio de Janeiro by the 1992 United Nations Conference on Environment and Development, States, acting individually, bilaterally, regionally or multilaterally and within the framework of the International Maritime Organization (IMO) and other relevant international organizations, should assess the need for additional measures to address degradation of the marine environment. Agenda 21 stresses the importance of protecting and restoring endangered marine species, as well as preserving habitats and other ecologically sensitive areas, both on the high seas and in the zones under national jurisdiction[47]. In particular:

> "States commit themselves to the conservation and the sustainable use of marine living resources on the high seas. To this end, it is necessary to: (...)
>
> e) Protect and restore marine species;
>
> f) Preserve habitats and other ecologically sensitive areas" (para. 17.46).
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> "States should identify marine ecosystems exhibiting high levels of biodiversity and productivity and other critical habitat areas and provide necessary limitations on use in these areas, through, inter alia, designation of protected areas" (para. 17.86).

The Plan of Implementation of the World Summit on Sustainable Development (Johannesburg, 2002) confirms the need to promote the conservation and management of the ocean and "maintain the productivity and biodiversity of important and vulnerable marine and coastal areas, including in areas within and beyond national jurisdiction" (para. 32, a). To achieve this aim, the Plan puts forward the concept of a representative network of marine protected areas and the deadline of 2012 for its achievement. States are invited to

> "develop and facilitate the use of diverse approaches and tools, including (...) the establishment of marine protected areas consistent with international law and based on scientific information, including representative networks by 2012 and time/area closures for the protection of nursery grounds and periods (...)" (para. 32, c).

In 2008 the Food and Agriculture Organization (FAO) developed the International Guidelines for the Management of Deep-Sea Fisheries in the High Seas in order to assist States and regional fisheries management organizations (RMFOs) and arrangements in managing in a

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[46] Under the Communication by the Commission of the European Union *Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU*, doc. COM(2008) 791 final of 25 November 2008, "MSP [= Maritime Spatial Planning] is a tool for improved decision-making. It provides a framework for arbitrating between competing human activities and managing their impact on the marine environment. Its objective is to balance sectoral interests and achieve sustainable use of marine resources in line with the EU [= European Union] Sustainable Development Strategy. MSP should be based on the specificities of individual marine regions or sub-regions. It is a process that consists of data collection, stakeholder consultation and the participatory development of a plan, the subsequent stages of implementation, enforcement, evaluation and revision" (para. 2.1).

[47] See para. 17.75, *e, f*.

sustainable way fisheries that occur in areas beyond national jurisdiction[48]. The Guidelines also include standards and criteria for identifying vulnerable marine ecosystems in areas beyond national jurisdiction and identify the potential impacts of fishing activities on such ecosystems, in order to facilitate the adoption and the implementation of conservation and management measures by RMFOs and flag States. According to the Guidelines, States and RFMOs should, based on the results of assessments, adopt conservation and management measures to achieve long-term conservation and sustainable use of deep-sea fish stocks, ensure adequate protection and prevent significant adverse impacts on vulnerable marine ecosystems (para. 70)[49]. Such measures include, *inter alia*, temporal and spatial restrictions or closures (para. 71).

The close link between protection of the marine environment and sustainable management of marine living resources is confirmed by decision X/31 (protected areas), adopted in 2010 by the Conference of the Parties to the Convention on Biological Diversity that encourages Parties to establish marine protected areas for conservation and management of biodiversity as the main objective and, when in accordance with management objectives of protected areas, as fisheries management tools.

An in-depth discussion on the issue of "area-based management tools, in particular marine protected areas" took place during the 2010 session of the Working Group. Attention was drawn to the lack of progress in meeting the commitment in the Johannesburg Plan of Implementation with respect to areas beyond national jurisdiction[50]. Several delegations noted the fundamental role of area-based management tools, including marine protected areas, in the conservation and sustainable use of marine biodiversity and in ensuring the resilience of marine ecosystems. They highlighted the importance of these tools, as part of a range of management options, in implementing precautionary and ecosystem approaches to the management of human activities and in integrating scientific advice on cross-sectoral and cumulative impacts[51]. In particular,

> "it was underlined that management arrangements should be based on science, including considerations of threats and ecological values. Several delegations emphasized the need for flexibility in the selection of area-based management tools, and the need to avoid a 'one-size-fits-all' approach, recognizing regional and local characteristics. In this regard, some delegations noted that the designation of marine protected areas did not require

[48] The Guidelines have been developed "for fisheries that occur in areas beyond national jurisdiction and have the following characteristics: i. the total catch (everything brought up by the gear) includes species that can only sustain low exploitation rates; and ii. the fishing gear is likely to contact the seafloor during the normal course of fishing operations" (para. 8).

[49] "When determining the scale and significance of an impact, the following six factors should be considered: i. the intensity or severity of the impact at the specific site being affected; ii. the spatial extent of the impact relative to the availability of the habitat type affected; iii. The sensitivity/vulnerability of the ecosystem to the impact; iv. the ability of an ecosystem to recover from harm, and the rate of such recovery; v. the extent to which ecosystem functions may be altered by the impact; and vi. the timing and duration of the impact relative to the period in which a species needs the habitat during one or more of its life-history stages" (para. 18).

[50] U.N. doc. A/65/8 of 17 March 2010, para. 60.

[51] *Ibidem*, para. 58.

> closing those areas to all activities, or particular activities, but rather managing those areas to ensure that ecological values were maintained. A suggestion was made that fisheries management measures, such as the protection of spawning stocks and the establishment of catch or fishing limits for specific areas could be considered a form of marine protected area.
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> (…) The view was expressed that marine protected areas needed to have: clearly delineated boundaries; a strong causal link between the harm being addressed and management measures, which should be flexible and adaptive; and implementation, compliance and enforcement measures consistent with international law, as reflected in the Convention [= the UNCLOS] (…)[52]".

The Working Group recommended to the United Nations General Assembly to recognize the work of competent international organizations related to the use of area-based management tools and the importance of establishing marine protected areas, as well as to call upon States to work through such organizations towards the development of a common methodology for the identification and selection of marine areas that may benefit from protection[53].

The General Assembly, by Resolution 65/37 on "Oceans and the Law of the Sea", adopted on 7 December 2010, reaffirmed

> "the need for States to continue and intensify their efforts, directly or through competent international organizations, to develop and facilitate the use of diverse approaches and tools for conserving and managing vulnerable marine ecosystems, including the establishment of marine protected areas, consistent with international law, as reflected in the Convention [= the UNCLOS], and based on the best scientific information available, and the development of representative networks of any such marine protected areas by 2012" (para. 177)[54].

4.B. The Legal Basis for Marine Protected Areas

The policy instruments that call for the establishment of marine protected areas beyond the limits of national jurisdiction have not been adopted in a legal vacuum[55]. Such an action is already encouraged by general rules of customary international law on the protection of the marine environment and by treaties that are today in force for many States, at the world and regional level[56].

The importance of marine protected areas, as a means for the protection of the marine

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[52] *Ibidem*, paras. 66 and 67.
[53] *Ibidem*, paras. 17 and 18.
[54] Probably in view of the fact that the target is far from being achieved, the General Assembly also encouraged "States to further progress towards the 2012 target for the establishment of marine protected areas, including representative networks" and called "upon States to further consider options to identify and protect ecologically or biologically significant areas, consistent with international law and on the basis of the best available scientific information" (para. 179).
[55] See Scovazzi, *Marine Protected Areas on the High Seas: Some Legal and Policy Considerations*, in *International Journal of Marine and Coastal Law*, 2004, p. 1; Molenaar, *Managing Biodiversity in Areas beyond National Jurisdiction*, in *International Journal of Marine and Coastal Law*, 2007, p. 89.
[56] According to a general obligation, arising from customary international law and reflected in Art. 197 UNCLOS, "States shall cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features".

environment, is strengthened by the multilateral treaties which, besides the already mentioned UNCLOS[57], encourage the parties to create such zones. These treaties have either a global or a regional sphere of application. Only some examples are hereunder given.

a) Under the Convention for the Regulation of Whaling (Washington, 1946), the International Whaling Commission (IWC) may adopt regulations with respect to the conservation and utilization of whale resources, fixing, *inter alia*, "open and closed waters, including the designation of sanctuary areas" (Art. V, para. 1). Sanctuaries where commercial whaling is prohibited were established by the IWC in the Indian Ocean (1979) and the Southern Ocean (1994). They comprise extremely large extents of high seas waters, where whaling for commercial purposes is prohibited[58].

b) The International Convention for the Prevention of Pollution from Ships, called MARPOL (London, 1973, amended in 1978) provides for the establishment of special areas where particularly strict standards are applied to discharges from ships. Special areas provisions are contained in Annexes I (Regulations for the Prevention of Pollution by Oil), II (Regulations for the Control of Pollution by Noxious Substances in Bulk) and V (Regulations for the Prevention of Pollution by Garbage from Ships) to the MARPOL[59]. Special areas, which are listed in the relevant annexes, may include also the high seas. The whole Mediterranean Sea area is a special area for the purposes of Annexes I and V.

A set of Guidelines for the Identification of Particularly Sensitive Sea Areas (PSSAs) were adopted on 6 November 1991 by the Assembly of the International Maritime Organization (IMO) under Resolution A.720(17), revised by Resolutions A.927(22) of 29 November 2001 and A.982(24) of 1 December 2005. Procedures for the identification of PSSAs and the adoption of associated protective measures were set forth under IMO Assembly Resolution A.885(21) of 25 November 1999[60]. A PSSA is defined "as an area that needs special protection through action by IMO because of its significance for recognized ecological or socio-economic or scientific reasons and which may be vulnerable to damage by international maritime activities". It is intended to function as "(…) a comprehensive management tool at the international level that provides a mechanism for reviewing an area that is vulnerable to damage by international shipping and determining the most appropriate way to address that vulnerability"[61].

To be identified as a PSSA, an area should meet at least one of eleven ecological criteria (uniqueness or rarity; critical habitat; dependency; representativity; diversity; productivity; spawning or breeding grounds; naturalness; integrity; vulnerability; bio-geographic importance),

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[57] *Supra*, para. 4.A.
[58] It is regrettable that the prohibition does not cover whaling for scientific purposes.
[59] For example, under Regulation 1, para. 10, of Annex I, "special area means a sea area where for recognized technical reasons in relation to its oceanographical and ecological condition and to the particular character of its traffic the adoption of special mandatory methods for the prevention of sea pollution by oil is required".
[60] The new procedures supersede those contained in the annex to Resolution A.720(17).
[61] Guidance Document for Submitting PSSA Proposals to IMO (MEPC Cir/398).

three social, cultural and economic criteria (economic benefit; recreation; human dependency) or three scientific and educational criteria (research; baseline and monitoring studies; education). In addition, the area should be at risk from international shipping activities, taking into consideration vessel traffic (operational factors; vessel types; traffic characteristics; harmful substances carried) and natural factors of hydrographical, meteorological and oceanographic character. The 2005 revised PSSAs guidelines specify that at least one of the relevant criteria should be present in the entire proposed PSSA, though this does not have to be the same criterion throughout the area. Cultural heritage has been reinstated as a criterion under the category of "social, cultural and economic criteria".

PSSAs may be located in or beyond the limits of the territorial sea. They are identified by the Marine Environment Protection Committee of IMO on proposal by one or more member States and under a procedure which takes place at the multilateral level. PSSA proposals should be accompanied by proposals for associated protective measures, identifying the legal basis for each measure. Associated protective measures that may be taken in PSSAs include those available under IMO instruments and cannot be extended to fields different from shipping. They encompass the following options: designation of an area as a Special Area under MARPOL Annexes I, II, V and VI; adoption of ships' routeing systems under the 1974 International Convention for the Safety of Life at Sea, including areas to be avoided, that is areas within defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and which should be avoided by all ships, or by certain classes of ships; reporting systems near or in the area; other measures, such as compulsory pilotage schemes or vessel traffic management systems.

c) The United Nations Convention on Biological Diversity (Rio de Janeiro, 1992) sets out a series of measures for *in-situ* conservation. Parties are required, as far as possible and as appropriate, to "establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity" (Art. 8, *a*), to "develop, where necessary, guidelines for the selection, establishment and management of protected areas where special measures need to be taken to conserve biological diversity" (Art. 8, *b*), and to "regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use" (Art. 8, *c*).

As to its territorial scope, the convention applies, in relation to each Party,

> (a) in the case of components of biological diversity, in areas within the limits of its national jurisdiction; and
>
> (b) in the case of processes and activities, regardless of where their effects occur, carried out under its

jurisdiction or control, within the area of its national jurisdiction or beyond the limits of national jurisdiction"[62].

Several decisions adopted by the parties to the convention underline the importance of marine protected areas as one of the essential tools and approaches in the conservation and sustainable use of biodiversity, including marine genetic resources, and provide detailed guidance to the States concerned.

In 1995, the Parties agreed on a programme of action to implement the convention in marine and coastal ecosystems, called Jakarta Mandate on Marine and Coastal Biological Diversity**.** It was reviewed and updated in 2004 (Decision VII/5 on Marine and Coastal Biological Diversity). It provides guidance on integrated marine and coastal area management, the sustainable use of living resources and marine and coastal protected areas. Annex II (Guidance for the Development of a National Marine and Coastal Biodiversity Management Framework) to Decision VII/5 recommends that the legal or customary frameworks of marine and coastal protected areas clearly identify prohibited activities contrary to the objectives of such areas, as well as activities that are allowed, with clear restrictions or conditions to ensure that they will not be contrary to the objectives of the marine protected area and a decision-making process for all other activities (para. 6). Under Appendix 3 (Elements of a Marine and Coastal Biodiversity Management Framework) to the same decision, integrated networks of marine and coastal protected areas should consist of marine and coastal protected areas, where threats are managed for the purpose of biodiversity conservation or sustainable use and where extractive uses may be allowed, as well as of representative marine and coastal protected areas where extractive uses are excluded and other significant human pressures are removed or minimized, to enable the integrity, structure and functioning of ecosystems to be maintained or recovered (para. 5).

In 2006 the Conference of the Parties (Decision VIII/24 on protected areas) recognized that

> "marine protected areas are one of the essential tools to help achieve conservation and sustainable use of biodiversity in marine areas beyond the limits of national jurisdiction, and that they should be considered as part of a wider management framework consisting of a range of appropriate tools, consistent with international law and in the context of best available scientific information, the precautionary approach and ecosystem approach; and that application of tools beyond and within national jurisdiction need to be coherent, compatible and complementary and without prejudice to the rights and obligations of coastal States under international law" (para. 38).

In 2008 the Conference of the Parties (Decision IX/20 on marine and coastal biodiversity) adopted a set of "Scientific criteria for identifying ecologically or biologically significant marine areas in need of protection in open waters and deep-sea habitats" (Annex I; so-called CBD EBSA

[62] Under Art. 22, para. 2, "Contracting Parties shall implement this Convention with respect to the marine environment consistently with the rights and obligations of States under the law of the sea".

criteria), namely "uniqueness or rarity"[63], "special importance for lifehistory stages of species"[64], "importance for threatened, endangered or declining species and/or habitats"[65], "vulnerability, fragility, sensitivity, or slow recovery"[66], "biological productivity"[67], "biological diversity"[68] and "naturalness"[69]. The Conference also adopted the "Scientific guidance for selecting areas to establish a representative network of marine protected areas, including in open-ocean waters and deep-sea habitats" (Annex II) that lists the required network properties and components, namely "ecologically and biologically significant areas", "representativity", "connectivity", "replicated ecological features" and "adequate and viable sites". The Conference proposed "four initial steps to be considered in the development of representative networks of marine protected areas" (Annex III), namely "scientific identification of an initial set of ecologically or biologically significant areas", "develop/chose a biogeographic habitat and/or community classification scheme", "drawing upon steps 1 and 2 above, iteratively use qualitative and/or quantitative techniques to identify sites to include in a network" and "assess the adequacy and viability of the selected sites"[70].

The last Conference of the Parties, held in Nagoya 2010, noted with concern (Decision X/29 on marine and coastal biodiversity)

> "the slow progress towards achieving the 2012 target of establishment of marine protected areas, consistent with international law and based on the best scientific information available, including representative networks, and that despite efforts in the last few years, just over 1 per cent of the ocean surface is designated as protected areas, compared to nearly 15 per cent of protected-area coverage on land" (para. 4).

The Conference invited the Parties to make

> "further efforts on improving the coverage, representativity and other network properties, as identified in annex II to decision IX/20, of the global system of marine and coastal protected areas, in particular identifying ways to accelerate progress in establishing ecologically representative and effectively managed marine and coastal protected areas under national jurisdiction or in areas subject to international regimes competent for the adoption of such measures, and achieving the commonly agreed 2012 target of establishing

[63] "Area contains either (i) unique ('the only one of its kind'), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct habitats or ecosystems, and/or (iii) unique or unusual geomorphological or oceanographic features".
[64] "Areas that are required for a population to survive and thrive".
[65] "Area containing habitat for the survival of and recovery of endangered, threatened, declining species or area with significant assemblages of such species".
[66] "Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery".
[67] "Area containing species, populations or communities with comparatively higher natural biological productivity".
[68] "Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity".
[69] "Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation".
[70] An Expert workshop on scientific and technical guidance on the use of biogeographic classification systems and identification of marine areas beyond national jurisdiction in need of protection was held in 2009 in Ottawa. The report of the workshop (doc. UNEP/CBD/EW-BCS&IMA/1/2 of 22 December 2009) includes, as Annex IV, a "scientific guidance on the identification of marine areas beyond national jurisdiction, which meet the scientific criteria in annex I to decision IX/20)".

> marine and coastal protected areas, in accordance with international law, including the United Nations Convention on the Law of the Sea, and based on the best scientific information available, including representative networks" (para. 13, *a*).

d) One of the instruments adopted in the framework of the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona, 1996; amended in 1995) is the Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (Barcelona, 1995) that has replaced the previous Protocol Concerning Mediterranean Specially Protected Areas (Geneva, 1982).

While the sphere of application of the previous 1982 Protocol did not cover the high seas, the 1995 Protocol applies to all the maritime waters of the Mediterranean, irrespective of their legal condition, to the seabed and its subsoil and to the terrestrial coastal areas designated by each of the Parties. The extension of the application of the Protocol to the high seas areas was seen by the Parties necessary to protect those highly migratory marine species (such as marine mammals) which, because of their natural behaviour, do not respect the artificial boundaries drawn by man on the sea.

To overcome the difficulties arising from the fact that different kinds of national coastal zones have been proclaimed by some Mediterranean States (exclusive economic zones, fishing zones and, later, ecological protection zones)[71] and that several maritime boundaries have yet to be agreed upon by the States concerned, the Protocol includes two very elaborate disclaimer provisions:

> "Nothing in this Protocol nor any act adopted on the basis of this Protocol shall prejudice the rights, the present and future claims or legal views of any State relating to the law of the sea, in particular, the nature and the extent of marine areas, the delimitation of marine areas between States with opposite or adjacent coasts, freedom of navigation on the high seas, the right and the modalities of passage through straits used for international navigation and the right of innocent passage in territorial seas, as well as the nature and extent of the jurisdiction of the coastal State, the flag State and the port State.
>
> No act or activity undertaken on the basis of this Protocol shall constitute grounds for claiming, contending or disputing any claim to national sovereignty or jurisdiction" (Art. 2, paras. 2 and 3)[72].

The idea behind such a display of juridical devices is simple. On the one hand, the establishment of intergovernmental cooperation in the field of the marine environment shall not prejudice all the different questions which have a legal or political nature; but, on the other hand, the very existence of such questions, whose settlement is not likely to be achieved in the short term, should neither prevent nor delay the adoption of measures necessary for the protection of the marine environment in the Mediterranean.

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[71] Other Mediterranean States have not proclaimed any zone beyond the territorial sea. The high seas existing today in the Mediterranean has a particular nature. For geographical reasons it will disappear if and when all the coastal States establish their exclusive economic zones. No point in the Mediterranean is located at a distance of more than 200 n.m. from the nearest land or island.

[72] The model of the disclaimer provision was, *mutatis mutandis*, Art. IV of the Convention on the Conservation of Antarctic Marine Living Resources (Canberra, 1980).

The Protocol provides for the establishment of a List of Specially Protected Areas of Mediterranean Importance (SPAMI List). The SPAMI List may include sites which "are of importance for conserving the components of biological diversity in the Mediterranean; contain ecosystems specific to the Mediterranean area or the habitats of endangered species; are of special interest at the scientific, aesthetic, cultural or educational levels" (Art. 8, para. 2). The existence of the SPAMI List does not exclude the right of each Party to create and manage protected areas which are not intended to be listed as SPAMIs, but deserve to be protected under its domestic legislation.

The procedures for the listing of SPAMIs are specified in detail in the Protocol:

> "Proposals for inclusion in the List may be submitted:
>
> (a) by the Party concerned, if the area is situated in a zone already delimited, over which it exercises sovereignty or jurisdiction;
>
> (b) by two or more neighbouring Parties concerned if the area is situated, partly or wholly, on the high sea;
>
> (c) by the neighbouring Parties concerned in areas where the limits of national sovereignty or jurisdiction have not yet been defined" (Art. 9, para. 2).

Yet the submission of a joint proposal may become a way to promote new forms of co-operation between the States concerned, irrespective of the fact that their maritime boundaries have not yet been defined.

In proposing a SPAMI, the Party or Parties concerned shall indicate the relevant protection and management measures, as well as the means for their implementation (Art. 9, para. 3). As paper areas would not comply with the Protocol, protection, planning and management measures "must be adequate for the achievement of the conservation and management objectives set for the site in the short and long term, and take in particular into account the threats upon it" (Annex 1, para. D, 2).

Once the areas are included in the SPAMI List, all the parties agree "to recognize the particular importance of these areas for the Mediterranean", as well as "to comply with the measures applicable to the SPAMIs and not to authorize nor undertake any activities that might be contrary to the objectives for which the SPAMIs were established" (Art. 8, para. 3). This gives to the SPAMIs and to the measures adopted for their protection an *erga omnes partes* effect, that is an effect with respect to all the Parties to the Protocol.

As to the relationship with third countries, the Parties shall "invite States that are not Parties to the Protocol and international organizations to cooperate in the implementation" of the SPA Protocol (Art. 28, para. 1). They also "undertake to adopt appropriate measures, consistent with international law, to ensure that no one engages in any activity contrary to the principles and purposes" of the Protocol (Art. 28, para. 2)[73]. This provision aims at facing the potential problems arising from the fact

[73] Also this provision is shaped on a precedent taken from the Antarctic Treaty System: "Each of the Contracting Parties

that treaties, including the Protocol itself, can produce rights and obligations only among parties.

The Protocol is completed by three annexes, which were adopted in 1996 in Monaco, namely the Common Criteria for the Choice of Protected Marine and Coastal Areas that Could be Included in the SPAMI List (Annex I)[74], the List of Endangered or Threatened Species (Annex II), the List of Species Whose Exploitation is Regulated (Annex III). Under Annex I, the sites included in the SPAMI List must be "provided with adequate legal status, protection measures and management methods and means" (para. A, *e*) and must fulfil at least one of six general criteria ("uniqueness", "natural representativeness", "diversity", "naturalness", "presence of habitats that are critical to endangered, threatened or endemic species", "cultural representativeness"). The SPAMIs must be awarded a legal status guaranteeing their effective long term, protection (para. C.1) and must have a management body, a management plan and a monitoring programme (paras. from D.6 to D.8). Moreover,

> "in the case of areas situated, partly or wholly, on the high sea or in a zone where the limits of national sovereignty or jurisdiction have not yet been defined, the legal status, the management plan, the applicable measures and the other elements provided for in Article 9, paragraph 3, of the Protocol will be provided by the neighbouring Parties concerned in the proposal for inclusion in the SPAMI List" (para. C.3)[75].

Only one among the SPAMIs so far established, namely the French-Italian-Monegasque sanctuary for marine mammals (so-called Pelagos sanctuary) covers also areas of high seas[76]. The sanctuary, established under an Agreement signed in Rome in 1999 by the three States concerned, extends for about 96,000 km² of waters located between the continental coasts of the three countries and the islands of Corsica (France) and Sardinia (Italy). The parties undertake to adopt measures to ensure a favourable state of conservation for every species of marine mammal and to protect them and their habitat from negative impacts, both direct and indirect (Art. 4). They prohibit in the sanctuary any deliberate "taking" (defined as "hunting, catching, killing or harassing of marine mammals, as well as the attempting of such actions") or disturbance of mammals. Non-lethal catches may be authorized in

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undertake to exert appropriate efforts, consistent with the Charter of the United Nations, to the end that no one engages in any activity in Antarctica contrary to the principles or purposes of the present Treaty" (Art. X of the 1959 Antarctic Treaty).

[74] It has been remarked that "the CBD EBSA criteria provide a helpful supplement to the older SPAMI criteria in that they provide more specific operational guidance" (doc. UNEP/CBD/EW-BCS&IMA/1/2 of 22 December 2009, Annex IV, para. 1, *a*).

[75] Under Art. 9, para. 3, of the SPA Protocol, "Parties making proposals for inclusion in the SPAMI List shall provide the Centre with an introductory report containing information on the area's geographical location, its physical and ecological characteristics, its legal status, its management plans and the means for their implementation, as well as a statement justifying its Mediterranean importance; (a) where a proposal is formulated under subparagraphs 2 (b) and 2 (c) of this Article, the neighbouring Parties concerned shall consult each other with a view to ensuring the consistency of the proposed protection and management measures, as well as the means for their implementation; (b) proposals made under paragraph 2 of this Article shall indicate the protection and management measures applicable to the area as well as the means of their implementation".

[76] The waters of the sanctuary are inhabited by the eight cetacean species regularly found in the Mediterranean, namely the fin whale (*Balaenoptera physalus*), the sperm whale (*Physeter catodon*), Cuvier's beaked whale (*Ziphius cavirostris*), the long-finned pilot whale (*Globicephala melas*), the striped dolphin (*Stenella coeruleoalba*), the common dolphin (*Delphinus delphis*), the bottlenose dolphin (*Tursiops truncatus*) and Risso's dolphin (*Grampus griseus*). In this area, the water currents create conditions favouring phytoplankton growth and abundance of krill (*Meganyctiphanes norvegica*), a small shrimp that is preyed upon by pelagic vertebrates.

urgent situations or for *in-situ* scientific research purposes (Art. 7, *a*)[77].

Also to ensure a more representative network of SPAMIs, the Meeting of the Parties to the Convention reaffirmed in the Declaration adopted on 4 November 2009 in Marrakesh

> "the necessity, at the Mediterranean level, of pursuing efforts to identify varied methods and tools for the conservation and management of ecosystems, including the establishment of marine protected areas and the creation of networks representing such areas in accordance with the relevant objectives for 2012 of the World Summit on Sustainable Development (…)".

The same Meeting of the Parties also adopted Decision IG.19/13, regarding a regional working programme for the coastal and marine protected areas in the Mediterranean. A project on the identification of areas of conservation interest, with a view to promoting the establishment of a representative ecological network of protected areas in the Mediterranean, is being implemented by the UNEP – Mediterranean Action Plan, Regional Activity Centre for Specially Protected Areas (RAC/SPA), with funding by the European Union. A number of "operational criteria for identifying SPAMIs in areas of open seas, including the deep sea", have been envisaged[78]. A list of thirteen "priority conservation areas lying in the open seas, including the deep sea, likely to contain sites that could be candidates for the SPAMI List" has been drafted[79].

e) A recent and very significant achievement towards the establishment of marine protected areas beyond national jurisdiction comes from the action taken under the Convention for the Protection of the Marine Environment of the North East Atlantic (Paris, 1992; so-called OSPAR Convention). The maritime areas falling under the scope of the OSPAR Convention are defined as those parts of the Atlantic Ocean which lie north of the 36° north latitude and between 42° west longitude and 51° east longitude (from the Strait of Gibraltar in the south, to the North Pole in the north, to Greenland in the west) and include also the high seas and its seabed beyond the 200-mile limit.

In 1998 Annex V concerning the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area was added to the OSPAR Convention. The Parties to Annex V commit themselves to take the necessary measures to protect and conserve the ecosystems and the biological diversity of the maritime area and to restore, when practicable, marine areas which have been adversely affected. Art. 3, para. 1, *b*, ii, makes it a duty of the OSPAR Commission "to develop means, consistent with international law, for instituting protective, conservation, restorative or precautionary measures related to specific areas or sites or related to specific species or habitats".

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[77] From the legal point of view, the most interesting aspect of the Agreement is the provision on the enforcement on the high seas of the measures agreed upon by the parties. Art. 14 provides as follows: "1. Dans la partie du sanctuaire située dans les eaux placées sous sa souveraineté ou juridiction, chacun des Etats Parties au présent accord est compétent pour assurer l'application des dispositions y prévues. 2. Dans les autres parties du sanctuaire, chacun des Etats Parties est compétent pour assurer l'application des dispositions du présent accord à l'égard des navires battant son pavillon, ainsi que, dans les limites prévues par les règles de droit international, à l'égard des navires battant le pavillon d'Etats tiers".

[78] See Annex 1 to doc. UNEP(DEPI)/MED WG.348/3 of 28 May 2010.

[79] See Annex 2 to doc. UNEP(DEPI)/MED WG.348/3 of 28 May 2010.

In 2003 the Parties to the OSPAR Convention adopted Recommendation 2003/3 on a network of marine protected areas[80]. Its purpose is

> "to establish the OSPAR Network of marine Protected Areas and to ensure that by 2010 it is an ecologically coherent network of well-managed marine protected areas which will:
>
> a) protect, conserve and restore species, habitats and ecological processes which have been adversely affected by human activities;
>
> b) prevent degradation of, and damage to, species, habitats and ecological processes, following the precautionary principle;
>
> c) protect and conserve areas that best represent the range of species, habitats and ecological processes in the maritime area".

In 2010 Recommendation 2003/3 was amended by Recommendation 2010/2, based on the purpose to make further efforts "to ensure the ecological coherence of the network of marine protected areas in the North-East Atlantic, in particular through inclusion of areas in deeper water". Under the amended recommendation, Parties should

> "(…) *c*) contribute, as practicable, to assessments of areas beyond national jurisdiction in the North-East Atlantic which may justify selection as an OSPAR Marine Protected Area under the criteria set out in the identification and selection guidelines; and
>
> *d*) propose to the OSPAR Commission the areas beyond national jurisdiction that should be selected by the OSPAR Commission as components of the OSPAR Network of Marine Protected Areas" (para. 3.1).

This enabled the Parties to establish in 2010 six marine protected areas that regard waters or seabed located beyond national jurisdiction, namely Milne Seamount Complex Marine Protected Area, that is an area of seamounts of about 21,000 km² situated to the west of the Mid-Atlantic Ridge (Decision 2010/1), Charlie-Gibbs South Marine Protected Area, that is a fracture zone of 145,420 km² that divides the Mid-Atlantic Ridge into two sections (Decision 2010/2), Altair Seamount High Seas Marine Protected Area, that is an area of about 4,409 km² of high seas (Decision 2010/3), Antialtair Seamount High Seas Marine Protected Area, that is an area of about 2,208 km² of high seas (Decision 2010/4), Josephine Seamount High Seas Marine Protected Area, that is an area of about 19,370 km² of high seas (Decision 2010/5) and MAR North of the Azores High Seas Marine Protected Area, that is an area of about 93,568 km² of high seas (Decision 2010/6). The OSPAR Parties have adopted recommendations on the management of each of the six marine protected areas (Recommendations from 2010/12 to 2010/17), providing that the management of human activities in the area should be guided by the general obligations set forth in Art. 2 of the OSPAR Convention, the ecosystem approach and the "Conservation Vision and Objectives" indicated in an annex to each

[80] During the same 2003 meeting, the OSPAR Commission adopted the Guidelines of the Identification and Selection of Marine Protected Areas in the OSPAR Maritime Area and the Guidelines for the Management of Marine Protected Areas in the OSPAR Maritime Area.

recommendation[81]. The programmes and measures envisaged for the marine protected areas relate to the fields of awareness raising, information building, marine science, human activities that may be potentially conflicting with the conservation objectives and likely to cause a significant impact to the ecosystems. These activities are subject to environmental impact assessment or strategic environmental assessment and the relevant stakeholders are involved in the planning of new activities.

The OSPAR decisions and recommendations on marine protected areas are notable for the spirit of co-operation that inspires them. While two of them include both the high seas waters and the seabed, the other four are limited to the high seas waters superjacent to the seabed beyond 200 n.m. claimed by Portugal as being within its continental margin. In this case, the goal of protecting and conserving the biodiversity and ecosystems of the waters is to be achieved in coordination with, and complementary to, protective measures taken by Portugal for the seabed. Furthermore, the OSPAR Parties should engage with third parties and relevant international organizations with a view to promoting the delivery of the conservation objectives that the OSPAR Commission has set for the marine protected areas and to encourage the application of the relevant programmes and measures. The decisions and recommendations on the marine protected areas recognize that a range of human activities occurring, or potentially occurring, in them "are regulated in the respective frameworks of other competent authorities", such as the North-East Atlantic Fisheries Commission (NEAFC), the International Commission for the Conservation of Atlantic Tunas (ICCAT), the North Atlantic Salmon Conservation Organization (NASCO), the North Atlantic Marine Mammal Commission (NAMMCO) and the International Whaling Commission (IWC), in the case of fishing; IMO, in the case of shipping; ISBA, in the case of extraction of mineral resources (the latter organization only for the two marine protected areas that include the seabed). Memoranda of understanding have already been concluded in 2008 between the OSPAR Commission and NEAFC in order to promote mutual cooperation towards the conservation and sustainable use of marine biological diversity, including protection of marine ecosystems, in the North-East Atlantic[82], and in 2010 between the OSPAR Commission and the ISBA , to consult on matters of mutual interest with a view to promoting or enhancing a better understanding and coordination of their respective activities.

A collective arrangement between competent authorities on the management of marine

[81] It includes a "conservation vision" and a number of "general conservation objectives" and "specific conservation objectives". For example, in the case of Milne Seamount the specific conservation objectives related to the water column, the benthopelagic layer, the benthos and habitats and species of specific concern.

[82] In the statement adopted in Bergen at their 2010 meeting, the Parties to the OSPAR Convention "welcome the decision by the North East Atlantic Fisheries Commission to close until 31 December 2015 an area almost identical to Charlie-Gibbs Fracture Zone, as well as areas coinciding with the Mid-Atlantic Ridge North of the Azores, Altair Seamount and Antialtair Seamount and other areas beyond national jurisdiction of the North-East Atlantic, to bottom fisheries in order to protect the vulnerable marine ecosystems in these areas from significant adverse impacts" (para. 30).

protected areas in areas beyond national jurisdiction in the OSPAR maritime area is being developed for consideration by the 2011 Meeting of OSPAR Parties.

4.C. A Future Global Regime

While some important achievements have been made at the regional level, there is no process to establish a network of marine protected areas in areas beyond national jurisdiction that is universally accepted and applies on a world basis. In the development of a future instrument in this regard, consideration could be given to, *inter alia*:

- the establishment of a list of high seas marine protected areas of world importance;

- a procedure for the inclusion of high seas marine protected areas in the list network based on a decision taken by the parties, which are considered as the trustees of the common interest for the preservation of high seas marine protected areas;

- the adoption of a set of protection and conservation measures on a case by case basis;

- the provision of common criteria for the choice of high seas marine protected areas (importance for the conservation of biological diversity, ecosystems or habitats of endangered species; special interest at the scientific, aesthetic, cultural or educational level; etc.).

5. Possible Future Developments

New prospects have emerged at the 2011 meeting of the Working Group[83]. A great number of States, both developed and developing, suggested the commencement of a negotiation process towards a new implementation agreement of the UNCLOS that could fill the gaps in the present regime of conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction[84]. Commonalities are being developed among a number of States that were previously putting forward divergent positions. The States participating to the 2011 meeting of the Working Group recommended that

> "1. A process by initiated by the General Assembly, with a view to ensure that the legal framework for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction effectively addresses those issues by identifying gaps and ways forward, including through the implementation of existing instruments and the possible development of a multilateral agreement under UNCLOS.

[83] Resolution 65/37, adopted by the U.N. General Assembly on 7 December 2010, encouraged the Working Group, in view of its 2011 meeting, "to improve progress on all outstanding issues on its agenda" (para. 164).

[84] A new implementation agreement was already envisaged by certain States during the 2008 meeting of the Working Group: "Several delegations considered that an implementation agreement under the United Nations Convention on the Law of the Sea was the most effective way to establish an integrated regime and address the multiplicity of challenges facing the protection and sustainable use of marine biodiversity in areas beyond national jurisdiction. These delegations suggested that such an instrument was necessary to fill the governance and regulatory gaps that prevented the international community from adequately protecting marine biodiversity in the areas beyond national jurisdiction. It was proposed that such an instrument would address currently unregulated activities, ensure consistent application of modern ocean governance principles in sectoral management regimes and provide for enhanced international cooperation" (doc. quoted *supra* at note 27, para. 47).

> 2. This process would address the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction, in particular, together and as a whole, marine genetic resources, including questions on the sharing of benefits, measures such as area-based management tools, including marine protected areas, and environmental impact assessments, capacity-building and transfer of marine technology".

The possibility of a third UNCLOS implementation agreement is implicitly envisaged as a way to move forward, as far as the existing instruments cannot fill the present governance and regulatory gaps and cannot provide the required specific regime. What is needed for the time being is the consolidation of a general understanding on a number of "commonalities" that could become the key elements in the "package" for a future global regime for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction, namely a network of marine protected areas, environmental impact assessment, marine genetic resources, including access to and sharing of benefits from them, as well as capacity building and technology transfer.