frontiers in
MARINE SCIENCE

REVIEW ARTICLE
published: 20 May 2014
doi: 10.3389/fmars.2014.00006

Conserving marine biodiversity in areas beyond national jurisdiction: co-evolution and interaction with the law of the sea

Robin M. Warner*

Australian National Centre for Ocean Resources and Security, University of Wollongong, Wollongong, NSW, Australia

Edited by:
Julian Clifton, University of Western Australia, Australia

Reviewed by:
Mary Ann Palma-Robles, University of Wollongong, Australia
Julia Ann Jabour, University of Tasmania, Australia

****Correspondence:***
Robin M. Warner, Australian National Centre for Ocean Resources and Security, University of Wollongong, ITAMS Building 233, Innovation Campus Squires Way, Wollongong, NSW 2522, Australia
e-mail: rwarner@uow.edu.au

As global shipping intensifies and technological advances provide more opportunities to access the resources of the high seas and the deep seabed beyond national jurisdiction (ABNJ), the catalog of threats to the marine environment and its biodiversity increase commensurately. Beyond these threats, new and emerging uses of ABNJ including more intrusive marine scientific research, bio-prospecting, deep seabed mining and environmental modification activities to mitigate the effects of climate change have the potential to harm the highly interconnected and sensitive ecosystems of the open ocean and the deep seabed if not sustainably managed now and into the future. Modern conservation norms such as environmental impact assessment (EIA), marine protected areas, marine spatial planning and development mechanisms such as technology transfer and capacity building are under developed in the legal and institutional framework for ABNJ. This article examines key normative features of the legal and institutional framework for ABNJ and their applicability to conservation of marine biodiversity, gaps and disconnects in that framework and on-going global initiatives to develop more effective governance structures. It discusses some of the options being considered in the UN Ad Hoc Informal Open-ended Working Group to study issues related to the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction (BBNJ Working Group) to evolve the legal and institutional framework for conservation and sustainable use of marine biodiversity in ABNJ and their current and future relevance for the law of the sea. It concludes that the discussions in the BBNJ Working Group and related initiatives in the Convention on Biological Diversity (CBD) and at regional level have demonstrated that a more integrated legal and institutional structure is needed to address growing threats to marine biodiversity in ABNJ.

Keywords: biodiversity conservation, marine areas beyond national jurisdiction, law of the sea, international environmental law, conservation norms

INTRODUCTION

As global shipping intensifies and technological advances provide more opportunities to access the resources of the high seas and the deep seabed beyond national jurisdiction (ABNJ), the catalog of threats to the marine environment and its biodiversity increase commensurately (Scheiber, 2011, pp. 65–66). Seaborne trade and passenger traffic is rapidly expanding and is expected to double over the next two decades (Scheiber, 2011, pp. 87–90). The risks to the marine environment and its biodiversity from intentional and accidental vessel source discharges including oil and other hazardous substances, noise and ship strikes on marine mammals are likely to be compounded with more prevalent high seas traffic (Scheiber, 2011, pp. 91–92). The deep sea fishing industry is now supported by a battery of technological innovations including global positioning systems, multi-beam sonar and stronger and more powerful cables and winches. Fishing nets and lines are composed of virtually indestructible synthetic material and may be laid over vast areas of ocean. Heavy bottom trawling gear has already caused substantial damage to vulnerable marine ecosystems (VMEs) (Scheiber, 2011, p. 86). Beyond these threats, new and emerging uses of ABNJ such as more intrusive marine scientific research, bio-prospecting, deep seabed mining and environmental modification activities to mitigate the effects of climate change have the potential to harm the highly interconnected and sensitive ecosystems of the open ocean and the deep seabed if not sustainably managed now and into the future (Reeve et al., 2012, p. 268).

The United Nations Convention on the Law of the Sea (LOSC) (UN, 1982/1994) established an expansive framework for protection and preservation of the marine environment in Part XII which purported to cover all areas of ocean space including ABNJ. Article 192 of LOSC obliges States to protect and preserve the marine environment and is unlimited in geographical scope. The aspirational provisions of Part XII reflect the need for an integrated system of ocean governance in which global and regional organizations of States would cooperate to craft the international rules, standards and recommended practices and procedures needed to protect and preserve the marine environment both

within and beyond national jurisdiction. The LOSC also recognized that developments in international marine environmental law were already taking place in other international law fora and that this complementary development of international law principles would continue to evolve. Article 237 highlights this complementary relationship between the LOSC and other conventions on protection and preservation of the marine environment, anticipating and encouraging an ongoing reconciliation between the LOSC and other relevant conventions. In practice, implementing governance structures to support an integrated system of environmental protection for ABNJ, including conservation of marine biodiversity, poses considerable challenges in terms of scale and consistency between the two separate trajectories of law of the sea and international marine environmental law. Modern conservation norms such as EIA, marine protected areas, marine spatial planning and development mechanisms such as technology transfer and capacity building are under developed in the legal and institutional framework for ABNJ (Freestone, 2009, pp. 44–49). This article explores key normative features of the legal and institutional framework for ABNJ and their applicability to conservation of marine biodiversity, gaps and disconnects in that framework and ongoing global initiatives to develop more effective governance structures. It discusses some of the options being considered in the UN Ad Hoc Informal Open-ended Working Group to study issues related to the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction (BBNJ Working Group) to evolve the legal and institutional framework for conservation and sustainable use of marine biodiversity in ABNJ and their current and future relevance for the law of the sea.

NORMATIVE FEATURES OF THE ABNJ LEGAL AND INSTITUTIONAL FRAMEWORK

The LOSC confirms the customary international law principle that the water column beyond national jurisdiction or the high seas is a global commons and specifies that freedom of the high seas may be exercised by all States whether coastal or landlocked (UN, 1982/1994, Articles 89, 87). The freedom of the high seas encompasses freedoms of navigation and overflight, freedom to lay submarine cables and pipelines, freedom to construct artificial islands and installations, freedom of fishing and freedom of scientific research [UN, 1982/1994, Article 87(1)]. Importantly, the LOSC specifies that the freedoms of the high seas are exercised under the conditions laid in the LOSC and by other rules of international law [UN, 1982/1994, Article 87(2)]. With this qualification, the LOSC recognizes the need to balance the unfettered exercise of high seas freedoms with the discharge of certain international responsibilities. For example freedom of the high seas is exercised subject to the general obligation to protect and preserve the marine environment in Article 192 of the LOSC. Equally, the freedom of fishing is subject to the duty to cooperate in conserving and managing the living resources of the high seas codified in Article 118 of the LOSC. This obligation has been implemented through the Fish Stocks Agreement (FSA, 1995/2001, 1995/2001) and the many conservation and management measures adopted by regional fisheries management organizations (RFMOs) that are binding on their member States. These include measures directed at conserving ecosystems that are associated or dependent on fisheries resources (FSA, 1995/2001, Article 6).

In the absence of any supranational organization governing the high seas, the flag state model of jurisdiction has become the predominant method of regulating high seas activities. Linking ships with the nationality of their flag State automatically imports a system of rights and obligations under national and international law into the high seas domain. Part VII of the LOSC specifies certain obligations which States must comply with in relation to their flag vessels. Among the flag State's duties is the requirement to ensure that the master, officers and crews of its flag vessels are fully conversant with and observe the applicable international regulations concerning the prevention, reduction and control of marine pollution [UN, 1982/1994, Article 94 (4)(c)]. These regulations are contained in an array of conventions developed by the International Maritime Organization such as the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) with its detailed technical annexes (International Convention for the Prevention of Pollution from Ships and 1978 Protocol, 1978). Economic and organizational factors in the shipping and maritime transport industry have had a profound impact on the standard of flag state compliance with and enforcement of these obligations particularly as they relate to the protection of the high seas marine environment (Scheiber, 2011, p. 90). In practice, the genuine link between the flag state and the operations of its flag vessels in administrative, technical and social terms, required under Article 91 of the LOSC, has often been missing. This has led to the continued operation of unsafe and delinquent flag vessels which represent a potent threat to the marine environment both within and beyond national jurisdiction.

Juxtaposed with the high seas regime applicable to the water column in ABNJ, is Part XI of the LOSC which designates the non-living resources of the deep seabed beyond national jurisdiction as the common heritage of mankind and subjects them to a supranational management regime administered by the International Seabed Authority (ISA) [UN, 1982/1994, Articles 136 and 137(2)]. The ISA has a circumscribed responsibility under Article 145 of the LOSC to ensure the effective protection of the marine environment from the harmful effects which may arise from activities in the deep seabed beyond national jurisdiction, known as the Area rather than a comprehensive responsibility to protect the deep sea environment from all threats. For this purpose, it is required to adopt appropriate rules regulations and procedures for the prevention, reduction and control of pollution from activities such as drilling, excavation, disposal of waste, construction and operation or maintenance of installations pipelines and other devices associated with activities in the Area and for the protection and conservation of the natural resources of the Area and flora and fauna of the marine environment (UN, 1982/1994, Article 145). States have a complementary obligation to adopt laws and regulations no less effective than those adopted by the ISA, to prevent, reduce and control pollution of the marine environment from activities in the Area undertaken by their flag vessels, installations, structures and other devices under their control [UN, 1982/1994, article 209(2)]. The ISA has so far adopted binding codes for the prospecting and exploration

phases of deep seabed mining for three mineral resources, polymetallic nodules, polymetallic sulphides and cobalt rich crusts which include detailed environmental safeguards. At every stage of their activities prospectors and exploration contractors have substantial responsibilities to assess and monitor the effects of their operations on the marine environment. As deep seabed mining activities enter the exploitation phase, further development of the ISA's regulatory framework will be necessary to address the more intrusive impacts of commercial scale mining on the marine environment beyond national jurisdiction.

A substantial body of international law instruments have been developed since the adoption of the LOSC which complement and extend the LOSC framework for protection of the marine environment. Of most import for the conservation of marine biodiversity, is the Convention on Biological Diversity (CBD) adopted in 1992. The CBD introduced the concept of biodiversity defined in Article 2 of the Convention as "the variability among living organisms from all sources, including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part" and including "diversity within species, between species and of ecosystems." This comprehensive approach added new dimensions to marine environmental protection which had previously focused on prevention reduction and control of marine pollution and the protection of single species (Joyner, 1995, p. 644). The three broad objectives of the CBD are the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources (CBD, 1992, Article 1). For the purpose of allocating substantive rights and obligations under the CBD, however, the components of biodiversity were divided between those within and beyond national jurisdiction. The jurisdictional scope provision in Article 4 of the CBD limits its application to components of biodiversity in areas within the limits of national jurisdiction and to processes and activities related to biodiversity carried out under the jurisdiction or control of Contracting Parties both within and beyond national jurisdiction. Article 5 of the CBD limits the obligations of Contracting Parties in relation to conservation and sustainable use of biodiversity in ABNJ to a duty to cooperate directly or through competent international organizations. There is therefore no direct obligation on Contracting Parties to conserve or sustainably use the components of marine biodiversity in ABNJ.

When viewed together, these normative features of the ABNJ legal and institutional framework represent a fundamentally disjunctive and fragmentary system for the conservation and sustainable use of marine biodiversity in ABNJ. The different legal status of the high seas water column and the deep seabed beyond national jurisdiction complicates the development of a coherent approach to the conservation and sustainable use of biodiversity in ABNJ. Variable compliance standards among flag States with marine pollution obligations and the lack of monitoring and enforcement mechanisms in ABNJ compound the obstacles to achieving an integrated system for conservation and sustainable use of marine biodiversity in these vast areas of the ocean. The separate trajectory of international environmental law instruments such as the CBD has introduced a range of modern conservation norms which have yet to be properly incorporated in the law of the sea framework for protection and preservation of the marine environment.

GAPS IN IMPLEMENTATION OF THE ABNJ LEGAL AND INSTITUTIONAL FRAMEWORK FOR CONSERVATION AND SUSTAINBALE USE OF MARINE BIODIVERSITY

Responsibility for implementing international law obligations to conserve the marine biodiversity of ABNJ is dispersed among a variety of global and regional regimes with no overarching global instrument or institutional focal point to develop best practice standards or to adopt conservation measures for unregulated activities in ABNJ. There are multiple gaps in the geographic coverage of the relevant regulatory instruments and institutions, their incorporation of biodiversity conservation objectives, the effectiveness of their decision making structures and the systems in place to monitor and enforce compliance biodiversity conservation measures in ABNJ. These deficiencies are compounded by a lack of coordination and cooperation between the global, regional and sectoral organizations which regulate human uses of ABNJ. This section will discuss selected examples from key sectors with responsibility for regulating activities in ABNJ.

FISHERIES

There are 20 existing and prospective RFMOs with mandates to establish fisheries conservation and management measures (Food and Agricultural Organization, Available online at: http://www.fao.org/fishery/rfb/search/en). Although tuna and tuna like species are managed by RFMOs in virtually all the relevant areas of ocean beyond national jurisdiction, there are still significant gaps in the coverage of non-tuna fisheries even though regional collaboration is an essential component in conserving and managing the full range of highly migratory and straddling fish stocks as well as discrete high seas fish stocks. The North East Atlantic Fisheries Commission (NEAFC) and the North-west Atlantic Fisheries Organization (NAFO) cover the North East and North West Atlantic but there is no multilateral body regulating fisheries in the Arctic. The Atlantic south of the NEAFC/NAFO areas of responsibility is only partially covered by the South East Atlantic Fisheries Organization and the Commission for Conservation of Antarctic Marine Living Resources area south of the Antarctic convergence. Until the end of 2009, there were no general fisheries commissions in the Pacific at all to manage non-highly migratory species. The treaty establishing the South Pacific Regional Fisheries Management Organization (SPRFMO) was concluded in November 2009 and entered into force in 2012. Negotiations are still ongoing for a North Pacific RFMO. In the Indian Ocean, the Regional Commission for Fisheries (RECOFI) covers the Gulf area and the Southern Indian Ocean Fisheries Agreement (SIOFA), concluded in July 2006, entered into force in June 2012 (Freestone, 2008).

Fisheries governance arrangements exhibit considerable diversity and varying rates of progress in their approaches to incorporating environmental protection principles and biodiversity conservation objectives into their management regimes. Recent reviews of RFMO practice at the global level reveal several factors that have limited the effectiveness of RFMOs in implementing fisheries conservation and management measures in an

ecologically sustainable manner (High Seas Task Force, 2006; Lodge et al., 2007, p. 10). These include:

- **Absence of environmental protection principles in the RFMO Conventions.** The absence of modern environmental protection principles or guidelines such as the precautionary approach and ecosystem based management in some RFMO conventions concluded prior to the Fish Stocks Agreement means that unless all RFMO members agree, they are not obliged to consider principles of sustainability when adopting conservation and management measures.
- **Ineffective Decision-making Frameworks.** It is the established practice of RFMOs to take decisions on their conservation and management measures by consensus, even when their instruments may not require it and to allow for individual objections to conservation and management measures agreed by the majority of member States (McDorman, 2005, pp. 428–429). This allows objecting RFMO members to take advantage of uncertainties in scientific advice and can lead to a dilution of conservation and management measures even where the precautionary approach and ecosystem based management requirements exist. Many of the RFMOs that were established prior to the conclusion of the Fish Stocks Agreement allow for States to opt out or object to implementing conservation and management measures that have been agreed within the RFMO.
- **Lack of a formal global coordination mechanism.** There is no overarching global coordination mechanism to oversee the conservation and management activities of RFMOs in ABNJ and monitor their performance against best practice standards and ensure cross sectoral exchange of information. This makes it difficult to address global problems such as the conservation of highly migratory marine species or Illegal, Unregulated and Unreported (IUU) fishing as fishing vessels may move between regions concentrating their fishing effort in areas where conservation and management measures are lax or non-existent. At the regional level there has been very little consultation and collaboration between RFMOs. The first meeting between the tuna RFMOs, the "Kobe Process" occurred in 2007 (Tuna-org, http://www.tuna-org.org/meetingspast.htm).
- **Participation Levels.** In many regions developing States lack the resources and capacity to participate fully in RFMOs and implement their obligations effectively.
- **Failure to deal effectively with non-Parties.** Few RFMOs include all the participants in a regional fishery among their members. An RFMO may have agreed on environmentally sound conservation and management measures for fisheries in high seas areas but only those States which have agreed to be bound by its agreement are obliged to apply its measures. The failure to deal effectively with non-Parties or "free riders" undermines the incentives for fishing vessels of RFMO members to adopt restrictive conservation and management measures.
- **Lack of binding conservation and management measures that address non-target species.** Many RFMOs focus primarily on conservation and management measures that address the target species regulated by their agreements. Those conservation and management measures that do address non-target species and associated and dependent species are often non-binding.

REGIONAL SEAS ARRANGEMENTS ON MARINE ENVIRONMENTAL PROTECTION

Since the early 1970s, a diverse array of binding and non-binding regional arrangements has been negotiated around the globe to engage States in the collaborative protection of their offshore marine environments. Many of the binding regional seas arrangements were initiated through the United Nations Environment Programme (UNEP) Regional Seas Programme while others are the result of independent agreements between regional partners (Vallega, 2002, p. 926). They now cover 18 maritime regions which differ markedly in their character and extent (UNEP, http://www.unep.org/regionalseas/About/default.asp/; Freestone, 2009, p. 196). The UNEP regional seas arrangements, together with the non-UNEP regional marine environmental protection arrangements, involve 149 States, approximately 95.5% of the world's States (Vallega, 2002, p. 926). Currently the areas of responsibility of many of these arrangements are limited to waters within national jurisdiction and very few of them make provision for consensual environmental protection measures in high seas enclaves and high seas areas adjacent to waters within national jurisdiction (Freestone, 2012, pp. 196–197). The geographic scope of these arrangements has been determined by political opportunity rather than any systematic scheme to encompass all the oceanic regions of the world (Sand, 1999, p. 178, 183; Boyle, 2000, p. 27). No legally binding conventions have yet been developed for the regional arrangements in the East Asian Seas, South Asian Seas, North-West Pacific, North-East Pacific, or for the Arctic. Moreover, these conventions are primarily groupings of coastal states, and their jurisdiction is generally restricted to their coastal zones or out to 200 nautical miles. The exceptions are the following: the OSPAR Convention area, which has high-seas areas within its remit; the Mediterranean, where most coastal states have for various reasons not yet claimed EEZs; the South Pacific, which includes within its mandate the "donut" holes between the EEZs of its members (Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, 1987); and the Antarctic Treaty System, consisting of both the Antarctic Treaty and its Protocol on Environmental Protection as well as the CCAMLR Convention (Antarctic Treaty, 1959).

The spread of regional arrangements for marine environmental protection has paralleled the negotiation and entry into force of the LOSC and has both reflected and advanced the development of modern environmental protection principles (Treves, 2003, pp. 137–138). The early focus of most regional arrangements such as the OSPAR Convention (Convention for the Protection of the Marine Environment of the North East Atlantic, 1992) and the Barcelona Convention (Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, http://www.unepmap.org/index.php?module=content2&catid=001001004) in the Mediterranean was the control of marine pollution but many have since adopted a more integrated approach to the protection of the marine environment including conservation of its biodiversity and the

development of systems of marine protected areas (Sand, 1999, p. 181).

The broadening of their scope in relation to approaches to conservation and targets for conservation intervention has enabled many regional arrangements to assimilate new developments in international environmental law and policy through mechanisms such as protocols and non-binding documents such as programmes for action and strategic plans (Sand, 1999, pp. 181–182). The majority of regional agreements are based on framework conventions which depend on implementation by States Parties in waters within national jurisdiction. These conventions have been supplemented by Protocols, ministerial level agreements and strategy documents which regulate different sources of marine pollution, provide for the protection of threatened and endangered species and the establishment of marine protected areas to preserve, inter alia, rare or fragile ecosystems (Sand, 1999, pp. 178–182). In most regions these binding legal instruments and soft law accords are accompanied by planning documents which define regional priorities for marine environmental protection (Sand, 1999, p. 181).

Key factors that have limited the effectiveness of RSAs in implementing biodiversity conservation in ABNJ include:

- The limiting of their areas of responsibility to waters under national jurisdiction;
- The lack of reference to sustainable development and use of marine biodiversity in their mandates; and
- The absence of specific collaboration provisions or arrangements and mechanisms between RSAs and RFMOs.

SHIPPING

Maritime transport particularly seaborne trade and passenger cruises constitutes one of the most intensive uses of ABNJ and poses ongoing threats to marine biodiversity through the intentional and accidental discharge of pollutants into the sea. The IMO as the focal point for technical expertise and stakeholder interests in international shipping has developed a variety of instruments to reduce and mitigate vessel source pollution across all areas of the ocean including ABNJ. The principal vessel source pollution conventions, including MARPOL 73/78, the London Convention and Protocol (Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972; 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1996) and the Anti Fouling Convention (International Convention on the Control of Harmful Anti Fouling Systems, 2001), apply to the flag vessels of member States both within and beyond national jurisdiction. With such a detailed regulatory framework in place, the key gap which arises in connection with conservation of biodiversity in ABNJ is the need to monitor and enforce compliance with the wide array of instruments which have entered into force. This function is still largely the responsibility of individual flag states particularly in ABNJ with very little reporting of vessel source pollution and negligible follow up action by flag or port states of high seas pollution incidents.

DEEP SEABED MINING

The ISA has established a strong framework of environmental safeguards for exploration contractors in the Area. A contractor must submit an assessment of the potential environmental impacts of proposed activities with an application for approval of a plan of work together with a description of proposed measures for the prevention, reduction and control of possible impacts on the marine environment (Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea, 1994; Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea, Annex paragraph 7; Polymetallic Nodule Regulations). The ISA has also issued and revised in 2010 Recommendations for the Guidance of Contractors for the Assessment of the Possible Environmental Impacts Arising from Exploration for Polymetallic Nodules in the Area which specify the particular activities of exploration contractors that are subject to EIA (Recommendations for the Guidance of Contractors for the Assessment of the Possible Environmental Impacts Arising from Exploration for Polymetallic Nodules in the Area, http://www.isa.org.jm/files/documents/EN/16Sess/LTC/ISBA-16LTC-7.pdf). The sponsoring state of an exploration contractor is under a due diligence obligation to ensure that an exploration contractors fulfill all their responsibilities under the ISA's Mining Code (International Tribunal for the Law of the Sea, http://www.itlos.org/fileadmin/itlos/documents/cases/case_no_17/adv_op_010211.pdf, pp. 43–44, paragraphs 141–143; Polymetallic Sulphides Regulations). An important element missing from the deep seabed mining environmental protection framework, however, is a collaborative mechanism for monitoring and enforcing compliance involving exploration contractors and ISA representatives. In addition, a code for the exploitation phase of deep seabed mining in the Area has not yet been developed and it may prove more challenging to maintain best practice environmental safeguards once commercial scale activities begin.

GLOBAL AND REGIONAL INITIATIVES TO DEVELOP THE LEGAL AND INSTITUTIONAL FRAMEWORK FOR CONSERVATION AND SUSTAINABLE USE OF MARINE BIODIVERSITY IN ABNJ

A number of global and regional initiatives have been taken over the last decade to address some of the gaps and disconnects in the legal and institutional framework for conservation and sustainable use of marine biodiversity in ABNJ. The political center of gravity for these efforts has been the BBNJ Working Group established by the UNGA in 2004. The CBD has supported these discussions in the BBNJ Working Group with some technical and scientific initiatives related to environmental impact assessment (EIA) and the designation of ecologically and biologically significant areas (EBSAs) in the world's oceans including in ABNJ. At the regional level, steps have been taken to designate marine protected areas and fisheries closure areas with biodiversity conservation components in ABNJ by regional seas organizations (RSAs) and RFMOs. Governments and non-government organizations with interests in the unique ecosystem of the Sargasso Sea have also launched a special initiative to conserve biodiversity in this ocean area which is largely composed of high seas.

BBNJ WORKING GROUP

The main impetus for considering new approaches to strengthen the legal and institutional framework for conservation and sustainable use of biodiversity in ABNJ originated from the United Nations Informal Consultative Process on Oceans and the Law of the Sea (UNICPOLOS) which has discussed a wide range of oceans issues since its inception in 1999. The fifth meeting of UNICPOLOS in 2004 canvassed new and emerging uses of the oceans highlighting the risks these uses posed to conservation and sustainable use of biodiversity in ABNJ in the absence of environmental protection measures agreed and implemented by the international community (UNICPOLOS, 2004). Recommendations from that meeting to the UNGA resulted in the establishment of the BBNJ working group which has now met six times. Some consistent themes have characterized the discussions of the BBNJ Working Group. It has endorsed the fundamental importance of basing decisions on activities in ABNJ on precautionary and ecosystem based approaches and using the best available science and prior EIA to inform such decisions (Ad Hoc Open-ended Informal Working Group, 2006, paragraph 5). Participating States have agreed on the need for improved implementation of global and regional agreements relevant to conservation and sustainable use of biodiversity in ABNJ including the LOSC and the CBD (Ad Hoc Open-ended Informal Working Group, 2006, paragraph 50, Annex I paragraph 4). The integral role of sectoral and regional organizations in implementing such agreements has been recognized as has the need to improve the management of these bodies and to develop and strengthen mechanisms for their accountability (Ad Hoc Open-ended Informal Working Group, 2006, Annex I paragraph 6). Destructive fishing practices have been singled out as one of the major threats to marine biodiversity in ABNJ and it was agreed that these practices should be addressed on an urgent basis by the UNGA, FAO and RFMOs (Ad Hoc Open-ended Informal Working Group, 2006, Annex I paragraph 7). IUU fishing was also considered to be a major obstacle to the conservation and sustainable use of marine biodiversity in ABNJ requiring and integrated and accelerated approach across all relevant fora to address this issue through measures such as enhanced flag State responsibility, port State measures, and more collaborative monitoring and enforcement of compliance with fisheries conservation and management measures (Ad Hoc Open-ended Informal Working Group, 2006, Annex I paragraph 8). A lack of consensus among participating States on the legal status of marine genetic resources in ABNJ has been a contentious issue throughout the BBNJ meetings. In particular there has been no consensus on rights of access to and the sharing of benefits derived from these resources (Ad Hoc Open-ended Informal Working Group, 2006, paragraphs 71 and 72).

Although successive reports and recommendations from the BBNJ Working Group have reflected consensus among participating States on the need to promote international cooperation and coordination to achieve better long term conservation and sustainable use of marine biodiversity in ABNJ, there has been no agreement on the legal and institutional mechanisms required to meet this objective and whether this will involve changes to the law of the sea. Suggestions have ranged from maintaining the status quo to the adoption of an implementing or multilateral agreement under the LOSC or even an agreement independent of the LOSC covering conservation and sustainable use of biodiversity in ABNJ including the issues of access to and distribution of benefits derived from marine genetic resources. What has emerged from the 2011 and 2013 meetings of the BBNJ Working Group, the UNGA annual sessions endorsing their recommendations and the 2012 United Nations Conference on Sustainable Development (Rio + 20) is consensus around discussing a process to negotiate a multilateral agreement on the conservation and sustainable use of marine biodiversity in ABNJ and the key elements of any potential agreement. In 2011, the BBNJ Working Group recommended to the UNGA that "a process be initiated [. . .] with a view to ensuring 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" (Co-Chairs of the Ad Hoc Open-ended Informal Working Group, 2011, Annex Section 1). This process would address "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 EIAs, capacity-building and the transfer of marine technology" (Co-Chairs of the Ad Hoc Open-ended Informal Working Group, 2011, Annex Section 1). At Rio+20, States committed themselves "to address, on an urgent basis, building on the work of the Ad Hoc Open-ended Informal Working Group and before the end of the 69th session of the General Assembly, the issue of the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, including by taking a decision on the development of an international instrument under the United Nations Convention on the Law of the Sea" (UNGA Resolution 66/288, 2012, paragraph 162). This commitment was recalled by the UNGA in its 67th session (UNGA Resolution 67/78, 2012, paragraph 181), and reaffirmed in the recommendations to the UNGA developed at the sixth meeting of the BBNJ Working Group in 2013 (Ad Hoc Open-ended Informal Working Group, 2013, Annex). At the same meeting, the Working Group also proposed to establish a process to make recommendations to the UNGA "on the scope, parameters and feasibility of an international instrument under the Convention" in order to prepare for the decision to be taken at the 69th session of the UNGA in 2015, whether to start the negotiation of an international instrument on the conservation and sustainable use of biodiversity in ABNJ (Ad Hoc Open-ended Informal Working Group, 2013, Annex). Some potential ramifications of such an instrument for the law of the sea will be discussed in the next section.

CBD INITIATIVES

The CBD has laid some of the groundwork for area based management in ABNJ at the regional level through the provision of expert advice on describing marine areas of ecological or biological significance (EBSAs) and in addressing biodiversity concerns in sustainable fisheries. In 2008, the Ninth Meeting of the Conference of Parties (COP 9) of the CBD adopted the following

scientific criteria for identifying "ecologically or biologically significant areas in need of protection in open ocean waters and deep sea habitats":

- Uniqueness/rarity;
- Special importance for life history stages of species;
- Importance for threatened, endangered or declining species and/or habitats;
- Vulnerability, fragility, sensitivity or slow recovery;
- Biological productivity;
- Biological diversity; and
- Naturalness (CBD and COP Decision IX/20, 2008, Annex I)

This decision also provided scientific guidance for selecting areas to establish a representative network of marine protected areas including in open ocean waters and deep sea habitats (CBD and COP Decision IX/20, 2008, Annex II). The 10th CBD COP in 2010 agreed on a process of regional workshops for the description of EBSAs (CBD and COP Decision X/29, 2010, paragraph 36). The workshop outcomes were designed to inform relevant regional and global organizations. The work was premised on recognition that the application of the EBSA criteria is a scientific and technical exercise, that areas found to meet the criteria may require enhanced conservation and management measures, and that this can be achieved through a variety of means, including marine protected areas and impact assessments. The CBD also recognized that the identification of EBSAs and the selection of conservation and management measures is a matter for States and competent intergovernmental organizations, in accordance with international law, including the LOSC (CBD and COP Decision X/29, 2010, paragraph 26). Regional workshops on describing EBSAs have been organized covering the North-East Atlantic, the Western South Pacific, the Wider Caribbean and Western Mid-Atlantic, the Western Indian Ocean and the Eastern Tropical and Temperate Pacific. In addition, areas meeting EBSA compatible criteria have been described in the Mediterranean. Preparations are underway for workshops for the North Pacific Region and the South-East Atlantic region, among others (CBD Secretariat, 2012). At the CBD COP 11 in Hyderabad in October 2012, it was agreed that the areas described as EBSAs by these workshops and processes, after review by CBD SBSTTA, should be sent to the UN and relevant international organizations.

The Conference of the Parties of the CBD (COP CBD) has also been proactive in investigating the scientific and technical aspects of EIA for activities in ABNJ. It convened an Expert Workshop on Scientific and Technical Elements of the CBD EIA Guidelines which focused on ABNJ in November 2009 (Expert Workshop on Scientific and Technical Aspects Relevant to Environmental Impact Assessment in Marine Areas beyond National Jurisdiction, 2009). This highlighted some of the governance and practical challenges related to the implementation of EIA for activities in ABNJ. Some of the practical difficulties associated with conducting EIAs in ABNJ included:

- The industry proposing the activity and the national flag state jurisdiction are often far from the marine area affected;
- The conduct of EIA and management, control, monitoring, surveillance and follow-up activity were likely to be more costly and may be less effective for a given budget; and
- Capacity building needs for EIA in ABNJ would be greater as customs of practice are less established, methodologies less mature, and multiple assessment cultures may converge in the same area (Expert Workshop on Scientific and Technical Aspects Relevant to Environmental Impact Assessment in Marine Areas beyond National Jurisdiction, 2009, Annex II paragraphs 10–14).

The complex and fragmentary nature of the law and institutions governing ABNJ were accentuated including:

- The split legal framework for ABNJ—high seas (LOSC Part VII) and deep seabed beyond national jurisdiction—the Area (LOSC Part XI and Part XI Implementation Agreement);
- The diverse institutional framework for ABNJ including States, non-State actors and global and regional organizations and the need for cooperation between all these actors to conserve biodiversity;
- The fact that stakeholders are harder to define for ABNJ because communities do not have immediate proximity to these areas; and
- The variable standards of compliance among states with environmental assessment obligations in international conventions (Expert Workshop on Scientific and Technical Aspects Relevant to Environmental Impact Assessment in Marine Areas beyond National Jurisdiction, 2009, Annex II, paragraphs 7–9).

The Workshop's Report was considered by the tenth meeting of the COP CBD in 2010 which endorsed the development of voluntary guidelines for the consideration of biodiversity in EIAs for marine and coastal areas drawing on the guidance from the Workshop (Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity, 2011, paragraph 50). The Guidelines were developed for all marine and coastal areas rather than simply for ABNJ emphasizing the interconnections between ocean ecosystems across jurisdictional boundaries and endorsed by the eleventh COP CBD in 2012 (Eleventh Meeting of the Conference of the Parties to the Convention on Biological Diversity, 2012, p. 7).

REGIONAL INITIATIVES

The OSPAR Convention, the non-UNEP regional seas agreement for the North-East Atlantic includes in its area of responsibility waters within and beyond national jurisdiction [OSPAR Convention, Article 1(a)(i–ii)]. At the OSPAR Ministerial meeting in 2010, six MPAs were established in ABNJ (OSPAR, 2010). They cover a total area of 287,065 square km, protecting a series of seamounts and sections of the Mid-Atlantic Ridge and host a range of vulnerable deep-sea habitats and species (OSPAR, 2010). A seventh pelagic high Seas MPA, Charlie-Gibbs North (178,094 square km), was designated in 2012 in waters superjacent to an area of the deep seabed included within an Icelandic submission to the Commission on the Limits of the Continental Shelf (OSPAR). Some management provisions are contained

in OSPAR Recommendations for each of these areas; however, to date no cross-sectoral management plans have been put in place.

The North East Atlantic Fisheries Commission (NEAFC) has regulatory competence over three large maritime areas beyond national jurisdiction in the North East Atlantic Ocean and may recommend conservation and management measures for all fisheries resources within its Convention Area with the exception of sea mammals and sedentary species and tuna or tuna-like species [Convention on Future Multilateral Cooperation in North East Atlantic Fisheries, 1980, Articles 1(1) and 1(2)]. These measures include regulation of fishing gear and size limits for fish, the establishment of closed seasons and closed areas, the establishment of total allowable catches and their allocation to Contracting Parties and the regulation of the amount of fishing effort and its allocation to Contracting Parties [Convention on Future Multilateral Cooperation in North East Atlantic Fisheries, 1980, Article 7(a–c) (e–f)]. NEAFC recognized the vulnerability of some of the deep water habitats within its Regulatory Area by closing 5 seamount areas and a section of the Reykjanes Ridge on the high seas for 3 years to bottom trawling and static fishing gear from 2005 to 2007 (NEAFC, 2004). It also agreed to reduce fishing pressures on a large range of vulnerable species in deep water habitats within the Regulatory Area by 30% for 2005 onwards following International Council for the Exploration of the Sea (ICES) advice (NEAFC, 2004). The initial ban on fishing on the Reykjanes Ridge was extended beyond the 3 year period until new closure measures were adopted based on scientific advice from ICES taking into account FAO's VME criteria and consideration by NEAFC's Permanent Committee on Management and Science. NEAFC's incorporation of biodiversity considerations into its fisheries conservation and management measures has also been facilitated by its close working relationship with OSPAR. OSPAR and NEAFC signed a memorandum of understanding in 2008 and both organizations use ICES as their scientific advisory body (NEAFC, 2004). ICES has recommended that a coordinated approach be taken between the two organizations to the protection of VMEs and there has been considerable overlap between areas proposed for protection by OSPAR and those considered for closure to bottom fishing by NEAFC (2004).

A further initiative under the current legal and institutional framework for conserving marine biodiversity in ABNJ is an environmental protection programme being proposed by the Government of Bermuda together with intergovernmental and non-governmental organizations, to introduce conservation and management measures for the Sargasso Sea. The Sargasso Sea, named for the accumulations of holopelagic algae contained within the North Atlantic Subtropical Gyre, is a 2 million square nautical mile ecosystem that is primarily high seas. The OSPAR Secretariat and the Sargasso Sea Alliance have established informal research and information exchange systems and have concluded a Collaboration Arrangement (Sargasso Sea Alliance, http://www.sargassoalliance.org/storage/documents/Collaboration_Arrangement__OSPAR__Sargasso_Sea.pdf). The Alliance is seeking to use existing sectoral organizations with responsibilities for ABNJ areas—such as ICCAT, IMO and ISA—to put protection measures in place and to convene an inter-governmental meeting to establish a collaborative but non-legally binding protection regime for the Sargasso Sea (Freestone and Morrison, 2012, pp. 647–655; Sargasso Sea Alliance, http://www.sargassoalliance.org/storage/documents/Collaboration_Arrangement_-_OSPAR__Sargasso_Sea.pdf).

EVOLVING THE LEGAL AND INSTITUTIONAL FRAMEWORK FOR CONSERVATION OF MARINE BIODIVERSITY IN ABNJ

Efforts by global and regional organizations to evolve and implement the legal and institutional framework for conservation of biodiversity in ABNJ have so far been piecemeal and geographically limited. As well, the validity under international law of some initiatives such as the OSPAR designation of high seas MPAs has been questioned. A binding agreement under the LOSC on the conservation of biodiversity in ABNJ could provide the basis for a more integrated legal and institutional framework to further implement key provisions of Part XII of the LOSC on the protection and preservation of the marine environment.

RATIONALE AND OBJECTIVES FOR INCLUDING KEY BIODIVERSITY CONSERVATION ELEMENTS IN AGREEMENT UNDER LOSC

The BBNJ Working Group discussions have highlighted multiple reasons and objectives for including area based management tools in an agreement on conservation of biodiversity in ABNJ under the LOSC. These include "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. . .." as well as "the importance of those tools as part of a range of management options in implementing precautionary and ecosystem approaches to the management of human activities" in ABNJ (Co-Chairs of the Ad Hoc Open-ended Informal Working Group, 2011, Annex, Section II, paragraph 23). The discussions have also emphasized the need to determine a legal basis for designating such MPAs which is consistent with the LOSC (Co-Chairs of the Ad Hoc Open-ended Informal Working Group, 2011, Annex, Section II, paragraph 24). The gap between the scientific process involved in describing EBSAs in ABNJ under the CBD process and the actual designation and endorsement of such areas by a competent global organization was also raised as a reason for including areas based management tools in any agreement under the LOSC (Co-Chairs of the Ad Hoc Open-ended Informal Working Group, 2011, Annex, Section II, paragraph 28).

The BBNJ Working Group has also discussed reasons for including EIA as one of the key components in any future Implementing Agreement on the Conservation and Sustainable Use of Marine Biodiversity in Areas beyond National Jurisdiction [Co-Chairs of the Ad Hoc Open-ended Informal Working Group, 2011, Section I, paragraphs (a), (b)]. A key plank of the rationale for including EIA elements is to capture activities occurring in ABNJ that are not already subject to sectoral EIA processes, in effect, to provide a default EIA system for activities such as bio-prospecting and marine geo-engineering. Another reason for including EIA elements is to provide best practice standards for EIA in ABNJ where scientific knowledge of marine biodiversity is still nascent. Developing best practice standards for EIA in

ABNJ may entail the incorporation of new elements into the generally accepted components of the EIA process. Rather than perpetuating a situation where EIA is simply a procedural hurdle for the proponents of a particular activity, a best practice standard could require a process that is biodiversity inclusive, transparent and subject to international scrutiny with associated powers to impose conditions in the interest of mitigating adverse impacts on the marine environment or to disallow the activity where there is the potential for substantial harm to the marine environment.

OPTIONS FOR INCORPORATING KEY BIODIVERSITY CONSERVATION ELEMENTS IN IMPLEMENTING AGREEMENT

There are a range of options for incorporating a legal and institutional framework for the two key biodiversity conservation elements, area based management tools and EIA, into a multilateral agreement under the LOSC. This section discusses some of the potential options available to States to achieve this objective.

Area based management elements

The multilateral agreement could include as one of its objectives the development of an effectively managed, ecologically representative and well-connected system of MPAs in ABNJ. Specific provisions in the agreement could require States, through regional organizations, to propose areas for designation. The agreement could also define the criteria, conservation objectives and processes for submitting proposals, agreeing management measures and procedures for scientific review and endorsement. It could also oblige States Parties to comply with agreed MPA management measures and not to authorise or undertake activities that might be contrary to the objectives for which a MPA was established. An agreement could designate a global scientific body to develop proposals for MPAs which could be approved, kept under review and assisted at the global level and managed through regional processes. A further element of the agreement could be a process for spatial planning designed to foster integrated ecosystem based planning and management which includes the establishment of the system of MPAs in ABNJ. This element of the agreement could require State Parties and competent regional and sectoral organisations to coordinate sectoral area-based measures and to integrate their plans to achieve healthy oceans and marine ecosystems with minimal loss of and adverse impacts on marine biodiversity in ABNJ.

EIA elements

The EIA elements of a multilateral agreement could include the typical components of an EIA process as they apply to activities in ABNJ including screening, scoping of the terms of reference for an EIA, public notification and consultation, reporting and post-report decisions on whether to impose conditions on the activity or to disallow it (Craik, 2008, p. 132). The threshold of significant effects on the environment as the trigger for subjecting activities to EIA has gained wide acceptance in global and regional instruments including the LOSC (Craik, 2008, p. 133). This would appear to be the minimum screening threshold for activities in ABNJ. For activities intended to occur in sensitive areas of the ABNJ environment such as identified VMEs and ecologically and biologically significant areas (EBSAs), screening thresholds for EIA could be set at an even lower level such as minor or transitory impacts on the marine environment.

In addition to threshold criteria, many EIA regimes list activities which will automatically be subject to EIAs and criteria to assist in determining which other activities should be subject to EIAs (Craik, 2008, pp. 134–135). An indicative list of such activities for ABNJ would include deep sea fishing, aquaculture, dumping of waste, marine geo-engineering, offshore hydrocarbon production, bio-prospecting, marine scientific research, laying of submarine cables and pipelines, ballast water exchange, deep sea tourism expeditions and ocean energy operations. Criteria to assist States in determining which other activities should be subject to EIAs could be modeled on the CBD Voluntary Guidelines for Biodiversity-Inclusive EIA (Biodiversity in Impact Assessment, http://www.cbd.int/doc/publications/pubcbd-ts-26-en.pdf) particularly as the proposed international agreement will relate to conservation and sustainable use of biodiversity in ABNJ. These might include whether:

- The proposed activity is located in or close to an area of special environmental sensitivity or representative international importance;
- The intended activity would affect the biophysical environment directly or indirectly in such a manner that it will increase risks of extinction of genotypes, cultivars, varieties, populations of species or increase the chance of loss of habitat or ecosystems;
- The intended activity would surpass the maximum sustainable yield, i.e., the carrying capacity of a habitat/ecosystem or the maximum allowable disturbance level of a resource, population or ecosystem;
- The proposed activity would have particularly complex and potentially adverse effects including those giving rise to serious effects on valued species or organisms or those which threaten the existing or potential use of an affected area.

The scoping stage of EIAs for activities in ABNJ could incorporate examination of impacts and alternatives which take into account the shared interests of the international community such as the long term sustainability of marine resources, continuing marine scientific research and the stability of global climate. The general obligation to notify and consult affected parties derived from the international law duty to cooperate and found in a variety of hard and soft law instruments could be adapted to activities in ABNJ and reflected in a potential agreement under the LOSC. When information provided as part of an EIA indicates that the environment of ABNJ is likely to be significantly affected by a proposed activity, the proponent of the activity being planned could be required to notify and consult with potentially affected stakeholders and provide them with relevant information. In the ABNJ context, potential stakeholders could include States, members of the public, international and regional organizations, inter-governmental and non-governmental organizations, industry representatives and corporate entities. Before a decision is made on whether the activity proceeds and on what conditions these stakeholders should be provided with an opportunity to comment. To assist in this process, States could be encouraged to notify other States and

competent international organizations of planned activities under their jurisdiction or control which may have a significant effect on marine biodiversity in ABNJ. There is also the potential for a more enhanced role for the RSAs as dissemination points and consultation hubs on EIAs and as technical advisers on mitigation measures. Under most EIA regimes, the obligation on the final decision-maker is one of due diligence encompassing a full examination of the potential environmental impacts of a particular project and due consideration for the interests of affected parties (Biodiversity in Impact Assessment, http://www.cbd.int/doc/publications/pubcbd-ts-26-en.pdf, pp. 150–151). The global commons status of biodiversity in ABNJ calls for a more stringent and inclusive standard of decision making on whether an activity should be allowed to proceed and on what conditions. This could involve developing a further set of criteria related to the permissible levels of impact on marine biodiversity in ABNJ and a decision making structure which involves a level of international scrutiny over EIAs prepared by proponents of particular activities.

CONCLUSION

The biodiversity conservation elements of any multilateral agreement under the LOSC to conserve and sustainably use biodiversity in ABNJ could be designed to implement the spirit and intent of Part XII provisions of the LOSC rather than radically changing the basic principles and inherent balance of the law of the sea. Part XII of the LOSC on Protection and Preservation of the marine environment has many open-ended provisions ripe for further evolution and implementation. Given the growing threats and pressures on the marine environment of ABNJ and its biodiversity, it is timely to specifically incorporate and reconcile the modern conservation norms and objectives of international marine environmental law with the law of the sea. The discussions in the BBNJ process and related initiatives in the CBD and at regional level have demonstrated that a more integrated legal and institutional structure rather than the current patchwork of hard and soft law provisions and disparate institutions is needed to achieve this end. The rationale and objectives for incorporating the biodiversity conservation elements of area based management tools and EIA in such a legal and institutional structure have been extensively canvassed in the BBNJ Working Group over almost a decade. The time has now arrived to determine the objectives and content of a potential agreement under the LOSC for conservation of biodiversity in ABNJ. The political process taking place in the BBNJ Working Group and the UNGA will ultimately determine the shape of any new instrument under the law of the sea and its long term contribution to conserving the biodiversity of the oceans beyond national jurisdiction.

REFERENCES

1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter. (1996). (adopted 7 November 1996, entered into force 24 March 2006), 36 ILM 1.

Ad Hoc Open-ended Informal Working Group. (2006). *Report of 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.* UN Doc a/61/65, Annex I paragraph 5.

Ad Hoc Open-ended Informal Working Group. (2013). *Report of 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 and Co-Chairs, Summary of Discussions*. UN Document, A/68/399, Annex.

Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea. (1994). (adopted on 28 July 1994, entered into force 28 July 1996), 33, ILM 1309, Annex paragraph 7.

Antarctic Treaty. (1959). Adopted on 1 December 1959, entered into force 23 June 1961, 402 UNTS 71.

Biodiversity in Impact Assessment. *Background Document to Decision VIII/28 of the Convention on Biological Diversity. Voluntary Guidelines on Biodiversity-Inclusive Impact Assessment*. Available online at: http://www.cbd.int/doc/publications/pubcbd-ts-26-en.pdf

Boyle, A. (2000). "Globalism and regionalism," in *Protecting the Polar Marine Environment*, ed by D. Vidas (Cambridge: Cambridge University Press), 27.

CBD and COP Decision IX/20. (2008). *UNEP/CBD/COP/DEC/IX/20*, Annex I. Available online at: http://www.cbd.int/doc/decisions/cop-09/cop-09-dec-20-en.pdf

CBD and COP Decision X/29. (2010). *UNEP/CBD/COP?DEC/X/29*, paragraph 36, Available online at: http://www.cbd.int/doc/decisions/cop-10/cop-10-dec-29-en.pdf

CBD Secretariat. (2012). *Briefing on Organizing a Series of Regional Workshops on Describing Ecologically or Biologically Significant Marine Areas (EBSAs)*, Montreal, QC.

Co-Chairs of the Ad Hoc Open-ended Informal Working Group. (2011). *Letter from the Co-Chairs of the Ad Hoc Open-ended Informal Working Group to the President of the General Assembly 30 June 2011*, Annex Section 1.

Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (adopted on 10 June 1995, entered into force 9 July 2004). Available online at: http://www.unepmap.org/index.php?module=content2&catid=001001004

Convention for the Protection of the Marine Environment of the North East Atlantic. (1992). (adopted on 22 September 1992, entered into force 25 March 1998), 32 ILM 1069.

Convention for the Protection of the Natural Resources and Environment of the South Pacific Region. (1987). (adopted on 24 November 1986, entered into force 22 August 1990), 26 ILM 41.

Convention on Biological Diversity. (1992). (adopted on 22 May 1992, entered into force 29 December 1993) 31, ILM 822.

Convention on Future Multilateral Cooperation in North East Atlantic Fisheries (1980). (adopted on 18 November 1980, entered into force 18 November 1980) 1285 UNTS 129, Articles 1(1) and 1(2).

Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (adopted 29 December 1972, entered into force 30 August 1975), 11 ILM 1294.

Craik, N. (2008). *The International Law of Environmental Impact Assessment*. Cambridge: Cambridge University Press.

Eleventh Meeting of the Conference of the Parties to the Convention on Biological Diversity. (2012). *Report of the Eleventh Meeting of the Conference of the Parties to the Convention on Biological Diversity. UNEP/CBD/COP/11/27*. Annex Decision XI/18, 7. Available online at: http://www.cbd.int/cop/?11=cop-11

Expert Workshop on Scientific and Technical Aspects Relevant to Environmental Impact Assessment in Marine Areas beyond National Jurisdiction. (2009). *Report of the Expert Workshop on Scientific and Technical Aspects Relevant to Environmental Impact Assessment in Marine Areas beyond National Jurisdiction. UNEP/CBD/EW-EIAMA/2*. Available online at: http://www.cbd.int/doc/?metting=EWEIAMA-01 [Accessed 20 November 2009].

Fish Stocks Agreement (FSA). (1995/2001). *Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks* (*Adopted on 4 August 1995, Entered into Force 11 December 2001*), 2167 UNTS 3.

Food and Agricultural Organization (FAO). *Regional Fishery Bodies–Fishery Governance Fact Sheets*. Available online at: http://www.fao.org/fishery/rfb/search/en

Freestone, D. (2008). "Fisheries Commissions and Organizations," in *The Max Planck Encyclopedia of Public International Law*, ed R. Wolfrum (Oxford: Oxford University Press).

Freestone, D. (2009). Modern principles of high seas governance: the legal underpinnings. *Int. Environ. Policy Law* 39, 44–49

Freestone, D. (2012). International governance, responsibility and management of areas beyond national jurisdiction. *Int. J. Mar. Coast. Law* 27, 191–204. doi: 10.1163/157180812X633609

Freestone, D., and Morrison, K. K. (2012). The sargasso sea alliance. *Int. J. Mar. Coast. Law* 27, 647–655.

High Seas Task Force. (2006). *Closing the Net: Stopping Illegal Fishing on the High Seas.* Governments of Australia, Canada, Chile, Namibia, New Zealand and the United Kingdom: WWF, IUCN and the Earth Institute at Columbia University.

International Convention for the Prevention of Pollution from Ships and 1978 Protocol. (1978). (adopted on 1 June 1978, Annex I entered into force 2 October 1983, Annex II entered into force 6 April 1987, Annex III entered into force 1 July 1992, Annex IV entered into force 27 September 2003, Annex V entered into force 31 December 1988, Annex VI entered into force 19 May 2005), 17 ILM 546.

International Convention on the Control of Harmful Anti Fouling Systems. (2001). (adopted on 5 October 2001, entered into force 17 September 2008) ATS 15/AFS/CONF/26.

International Tribunal for the Law of the Sea. "*Advisory Opinion on Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area 1*." Available online at: http://www.itlos.org/fileadmin/itlos/documents/cases/case_no_17/adv_op_010211.pdf (Accessed February 2011)

Joyner, C. (1995). Biodiversity in the marine environment: resource implications for the law of the sea. *Vand. J. Transnatl. Law* 28, 644.

Lodge, M. W., Anderson, D., Lobach, T., Munro, G., Sainsbury, K., and Willcock, A. (2007). *Recommended Best Practices for Regional Fisheries Management Organization*. London: Chatham House.

McDorman, T. (2005). Implementing existing tools: turning words into action—decision-making processes of regional fisheries management organizations. *Int. J. Mar. Coast. Law* 20, 428–429. doi: 10.1163/157180805775098595

North East Atlantic Fisheries Commission. (2004). *Media Release on 2004 NEAFC Annual Meeting.* Available online at: http://www.neafc.org/news/docs/2004press_release_final.pdf

Oslo/Paris Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR). *Charlie Gibbs Marine Protected Area*. Available online at: http://www.charlie-gibbs.org/

Oslo/Paris Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR). (2010). *OSPAR Ministerial Meeting.* Available online at: http://www.ospar.org/content/content.asp?menu=01441000000000_000000_000000

Polymetallic Nodule Regulations Reg 18 (c) and (d).

Polymetallic Sulphides Regulations Reg 33(6).

Recommendations for the Guidance of Contractors for the Assessment of the Possible Environmental Impacts Arising from Exploration for Polymetallic Nodules in the Area. Available online at: http://www.isa.org.jm/files/documents/EN/16Sess/LTC/ISBA-16LTC-7.pdf

Reeve, L., Rulska-Domino, A., and Gjerde, K. (2012). The future of high seas marine protected areas. *Ocean Yearb.* 26, 265–289. doi: 10.1163/22116001-90000089

Sand, P. (1999). "The rise of regional agreements for marine environment protection," in *Transnational Environmental Law: Lessons in Global Change*, ed P. Sand (The Hague: Kluwer Law International).

Sargasso Sea Alliance. *Collaboration Agreement Between Sargasso Sea Alliance and OSPAR*. Available online at: http://www.sargassoalliance.org/storage/documents/Collaboration_Arrangement_-_OSPAR__Sargasso_Sea.pdf

Scheiber, H. (2011). "Economic uses of the oceans and the impacts on marine environments: past trends and challenges ahead," in *The World Ocean in Globalisation*, eds D. Vidas and P. J. Schei (Leiden: Martinus Nijhoff Publishers), 65–97.

Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity. (2011). *Report of the Tenth Meeting of the Conference of the Parties to the Convention on Biological Diversity. UNEP/CBD/COP/10/27*. Annex Decision X/29, paragraph 50. Available online at: http://www.cbd.int/cop10/doc/

Treves, T. (2003). "Regional approaches to the protection of the marine environment," in T*he Stockholm Declaration and the Law of the Marine Environment*, eds M. H. Nordquist, J. N. Moore, and S. Mahmoudi (The Hague: Kluwer Law International).

Tuna-org Meetings Past. Available online at: http://www.tuna-org.org/meetingspast.htm

UNEP. *About Regional Seas*. Available online at: http://www.unep.org/regionalseas/About/default.asp/

UNGA Resolution 66/288. (2012). *The future we want.* UN Document, A/RES/66/288. Paragraph 162.

UNGA Resolution 67/78. (2012). *Oceans and the law of the sea.* UN Document, A/RES/67/78. Paragraph 181.

United Nations Informal Consultative Process on Ocean Affairs and the Law of the Sea (UNICPOLOS). (2004). *Report on the Work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its Fifth Meeting.* UN Document, A/59/122.

Vallega, A. (2002). The regional seas in the 21st century: an overview. *Ocean Coast. Manage.* 45, 926. doi: 10.1016/S0964-5691(02)00114-X

Conflict of Interest Statement: The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Received: 21 March 2014; paper pending published: 04 April 2014; accepted: 12 April 2014; published online: 20 May 2014.

Citation: Warner RM (2014) Conserving marine biodiversity in areas beyond national jurisdiction: co-evolution and interaction with the law of the sea. Front. Mar. Sci. ***1****:6. doi: 10.3389/fmars.2014.00006*

This article was submitted to Marine Affairs and Policy, a section of the journal Frontiers in Marine Science.