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Delivering the Aichi target 11: challenges and opportunities for marine areas beyond national jurisdiction

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ABSTRACT

1. In 2010, Contracting Parties to the Convention on Biological Diversity adopted the so-called 'Aichi targets' in order to achieve global biodiversity conservation. Target 11 specifically provides that 'by 2020 (…) at least 10 per cent of coastal and marine areas (…) are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures'. This objective is currently far from being reached since less than 3% of the ocean has been designated as marine protected areas (MPAs).

2. In areas beyond national jurisdiction (ABNJ) in particular, with less than 0.5% protected, there is no mechanism aimed at creating internationally-recognized MPAs and the initiatives launched by regional organizations, although promising, have limitations.

3. ABNJ are nevertheless facing increasing human pressures and it is therefore appropriate and pressing to designate a comprehensive and representative network of MPAs in these areas. This paper analyses the current efforts conducted to better conserve marine biodiversity in ABNJ and identifies enabling conditions for meeting the Aichi Target 11.

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KEY WORDS: marine protected areas; Aichi target 11; areas beyond national jurisdiction; high seas; marine biodiversity; UNCLOS implementing agreement; regional seas

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INTRODUCTION

Marine areas beyond national jurisdiction (ABNJ) encompass nearly half of the planet's surface and a significant amount of its biodiversity. Through the adoption of the United Nations Convention on the Law of the Sea (UNCLOS) in 1982,[1] States agreed to apply two different legal regimes to these areas. The first one, a traditional regime of freedom, applies to the high seas – the water column found beyond the territorial sea and Exclusive Economic Zones (EEZs) of coastal States.[2] The second one applies to the Area or 'the seabed and ocean floor and subsoil thereof beyond the limits of national jurisdiction'.[3] The Area and its mineral resources (liquid, solid or gaseous) are designated as the 'common heritage of mankind' and mining activities are to be conducted for the benefit of mankind as a whole under the administration and control of an international organization, the International Seabed Authority[4] (ISA).

In addition to the rules governing maritime delimitations and the legal regime applicable to the different maritime zones, UNCLOS also provides general obligations related to the protection and preservation of the marine environment, especially in its Part XII. They include the obligation to adopt measures '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'.[5] This obligation is echoed in Article 5 of the Convention on Biological Diversity (CBD), establishing a duty of cooperation 'in respect of areas beyond national jurisdiction' and Article 8(a) according to which 'each Contracting Party shall, as far as possible and as appropriate, establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity'.[6]

In 2010, Contracting Parties to the CBD adopted a set of targets ('the Aichi targets') designed to reach the objectives of the Convention to conserve and sustainably use biodiversity.[7] Among these objectives, Target 11 is dedicated to the establishment of protected areas: it states that 'by 2020, at least (…) 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures'.

Yet, in 2014, the objective of conserving at least 10% of the marine environment is far from being reached, as only a small percentage of the ocean is currently under protection (Gjerde and Rulska-Domino, 2012). Numbers vary, but most recent estimates indicate that less than 3% of the ocean has been designated as marine protected areas (MPAs)—where nature conservation is the primary objective (IUCN and UNEP-WCMC, 2013). In ABNJ, the percentage is even lower. It has been pointed out that only around 0.14% of the high seas are protected (United Nations, 2013).

ABNJ are nevertheless facing a growing number of threats linked to human activities (Ramirez-Llodra *et al.*, 2011). Establishing and managing more MPAs beyond national jurisdiction would therefore provide benefits for both the conservation and sustainable use of marine biodiversity. Through regional and sectoral organizations, some initiatives have been launched to establish protected areas or other types of area-based conservation measures to help reach the Aichi Target 11 and the 2002 Johannesburg Earth Summit target that preceded it. However, as discussed below, these initiatives, although worthy undertakings, are alone unlikely to meet the target.

Against this background, this article aims at reviewing these current efforts as well as providing some thoughts on ways forward. It first summarizes the threats facing marine biodiversity in ABNJ and highlights the benefits of establishing MPAs in these areas, especially from an economic point of view.

[1]UNCLOS subsequently entered into force in 1994.
[2]UNCLOS, Articles 86 and 87.
[3]UNCLOS, Article 1.
[4]UNCLOS, Articles 136 and 140.
[5]UNCLOS, Article 194.5.
[6]According to Article 2 of the CBD, a protected area is 'a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives'.

[7]COP 10 Decision X/2, Strategic Plan for Biodiversity 2011–2020.

The article then reviews the recent efforts, both scientific and political, to better conserve marine biodiversity in ABNJ through the designation of MPAs and identifies enabling conditions for meeting the Aichi Target 11. Finally, it concludes by summarizing the issues at stake and highlighting the importance of the next months for the elaboration of a new regime in ABNJ.

THREATS FACING MARINE BIODIVERSITY IN ABNJ

The high seas and seabed area beyond national jurisdiction are suffering from multiple threats, the sum of which is greater than the respective parts.

Covering 64% of the ocean's surface and >90% by volume, the high seas shield us from the worst effects of climate change, by absorbing excess CO_2 and heat from the atmosphere. As a consequence, the ocean is acidifying and warming, and this, combined with increasing de-oxygenation, is producing a 'deadly trio' of interactive threats to ocean ecosystems (Fischlin *et al*., 2007; Fabry *et al*., 2008; Tittensor *et al*., 2010; Stramma *et al*., 2011; Hönisch *et al*., 2012; Bijma *et al*., 2013).

Large-scale geo-engineering techniques to combat climate change have been proposed in the high seas. Examples include iron or lime (calcium oxide/calcium hydroxide) fertilization to encourage phytoplankton growth, and the pumping of deep cold nutrient-rich waters to the surface. However, their ecological effects could be significant and their efficacy is in doubt. As noted in a recent study of geo-engineering techniques, large-scale human engineering of the Earth's climate to prevent warming would have severe side effects and could not be safely stopped (Keller *et al*., 2014). Ocean upwelling would cool surface water temperatures and reduce sea ice melting, but would adversely alter the planet's heat-budget, while adding iron filings or lime to the ocean would decrease oxygen levels (Oschlies *et al*., 2010, in Keller *et al*., 2014). Iron fertilization also causes more carbon to be sequestered into the deep ocean, accelerating the acidification of this environment where deep-sea animals are sensitive to even minor changes in pH (Cao and Caldeira, 2010). Thus there is no quick fix but rather a mounting need to both reduce CO_2 emissions and take action to bolster the health, productivity, and resilience of the ocean both within and beyond national jurisdictions to buy precious time to adapt.

Meanwhile, a 'patchwork quilt' of governance, of varying degrees of effectiveness, in ABNJ has left them open to threats caused by resource exploitation, especially industrial-scale fishing. Species such as tuna, billfish, and sharks that migrate throughout the high seas are overexploited as a result of fishing in both national and international waters, with commercially valuable species returning far less than their economic potential (White and Costello, 2014). More than half of highly migratory oceanic shark species, one-third of highly migratory tuna and tuna-like species and nearly two-thirds of straddling fish stocks are overexploited or depleted (Maguire *et al*., 2006). High seas deep-water fisheries have also been increasingly exploited as a result of technological developments and growing market demand (Shotton, 2003). Destructive fishing methods such as deep-sea bottom trawling threaten high seas biodiversity. The presence of lost or discarded nets, responsible for ghost fishing, cause impacts in the high seas for years after they are lost (Ramirez-Llodra *et al*., 2011). The polar high seas also face threats from encroaching industry. Industrial scale fishing vessels are probing ever further north, while at the other end of the world vessels have for decades been exploiting the remaining stocks of the Antarctic toothfish (*Dissostichus mawsoni*), often sold as 'Chilean seabass'.

Lack of surveillance, regulation and enforcement in the high seas enables illegal, unregulated and unreported fishing (IUU) to occur. Illegal and unreported fishing causes annual losses worldwide of between $US10 billion and $US23.5 billion (Agnew *et al*., 2009), and up to half of all illegal fish, by value, is caught in the high seas (Marine Resources Assessment Group, 2005). It is not known exactly how many vessels are operating on the high seas, or who is profiting. Thus there is an urgent need for all vessels to be identified and monitored. Out of sight of authorities, IUU vessels commonly use the practice of transhipping on the

high seas, enabling illegally caught fish to enter the market without detection (Boures and Knowles, 2013; Chow *et al.*, 2013). This laundering of illegal fish has serious consequences; for example, the yellowfin tuna population in the Indian Ocean shrunk by about 45% in the 10 years between 1999 and 2008.[8]

Shipping is another major activity on the high seas. Around 90% of world trade is now carried by the international shipping industry. Pollution from ships including accidental spills and intentional discharges, as well as noise pollution, which affects the sonar navigation of certain species, all present threats to the high seas environment (UNEP, 2006).

Deep seabed mining is a new and imminent threat to the ocean (Allsopp *et al.*, 2013). There are now 26 exploration contracts for the seabed area beyond national jurisdiction. While the International Seabed Authority (ISA) regulates seabed mining, there is no global mechanism to ensure the cooperation and coordination of the ISA with other organizations to monitor the cumulative impact of activities, or to manage those activities in a balanced and equitable way. Marine habitats that are being explored for mining include hydrothermal vents, which host unique chemosynthetic communities; seamounts, which support an abundant and rich biodiversity; and manganese nodules, which take millions of years to form. The development of deep seabed mining will cause inevitable environmental damage (International Seabed Authority, 2013). Mining operations will destroy habitat and kill marine life at site as well as have a number of wider impacts on ecosystems, such as the spread of sediment plumes, which will smother marine life some distance away from the site and, in some cases, could expose benthic communities to heavy metals and acidic wastes (Van Dover, 2010, 2011).

Last, it is worth mentioning that in spite of being far away from continents, ABNJ are affected by land-based human activities (effluent discharges, plastic pollution, atmospheric deposition, etc.) (UNEP, 2006).

[8]IOTC, 2009. Report of the Eleventh Session on the IOTC Working Party on Tropical Tunas. IOTC, Mombasa, Kenya 15-23 October 2009.

BENEFITS OF ESTABLISHING MPAs IN ABNJ

High seas and deep ocean ecosystems generate a variety of goods and services that benefit people. These goods and services, often referred to as ecosystem services, provide outputs that are commercially important (e.g. commercial fish stocks, tourism that depends on wildlife viewing), some that are both commercially important and provide important recreational opportunities (e.g. recreational fishing), and many ecological functions that are essential in the support of human life (e.g. oxygen production and carbon capture and storage). High seas ecosystems also have proved to be places that abound in genetic diversity and biological compounds that may yield new chemical and medicinal products.

High seas ecosystems provide three key types of services that create benefits that can be valued in monetary terms. These include: (i) provisioning services such as commercial fishing, sport fishing, recreational fishing, genetic resources and medicines; (ii) cultural services such as tourism, research, education and protection activities, turtle, bird and whale watching; and (iii) regulating services such as carbon sequestration, habitat provisioning, nutrient recycling and heat storage. Some of these activities or benefits may occur in zones of national jurisdiction. In addition, the high seas are home to rare and even as yet undiscovered species as well as charismatic species such as whales that may be valued for their mere existence.

Some of the activities that turn these ecosystem services into economic benefits occur directly on the high seas. For instance, commercial fishing and even some wildlife tourism take place on the high seas. Many other activities occur closer to shore, but depend on the health of high seas ecosystems. For example, tunas, billfish, salmon, and eels spend critical life stages in the high seas, but are caught closer to shore by commercial and recreational fishermen. Similarly, whales, turtles, and sharks travel through and depend on high seas ecosystems, but are most commonly seen by tourists in coastal waters.

A recent study (Pendleton *et al.*, 2014) examined the economic value of selected commercially important activities that depend directly on

ecosystem health in the Sargasso Sea – an area of the open ocean situated within the North Atlantic Subtropical Gyre that is largely high seas. The study found that the economic values directly or potentially linked to the Sargasso Sea are in the order of several tens to hundreds of millions of dollars per year. For instance, commercial fishing (landed value of around $US100 million per year[9]) takes place within the Sargasso Sea and eel fishing in North America and Europe ($US66 million per year, Sumaila *et al.*, 2013) depends on spawning grounds in the Sargasso Sea. Many other ecosystem services are supported by the Sargasso Sea ecosystem, but are enjoyed outside the area. For example, the Sargasso Sea ecosystem plays a critical role in the lives of whales that in turn support an Atlantic whale watching industry that generates more than $US500 million per year in revenues and an additional $US100 million in consumer surplus benefits to whale watchers – a measure of what they would be willing to pay for their whale watching excursions, beyond what is charged. The value of the turtle watching industry supported by the Sargasso Sea has yet to be estimated, but the Sargasso Sea is known to provide essential habitat for all five species of sea turtles. In Central America, where the benefits have been quantified (Troëng and Drews, 2004), it is estimated that turtle watching at just nine sites generates more than $US15 million in gross revenues, annually. Sumaila *et al.* (2013) also found that commercial fishing outside the Sargasso Sea may depend on the health of the Sargasso Sea ecosystem. They estimate that the gross revenues associated with selected Atlantic tuna and billfish species groups known to depend on the Sargasso Sea, exceeds $US1 billion (in 2009 US dollars). While the science does not yet exist to reveal how much the Sargasso Sea contributes to these activities, there is no mistaking the important ecological role that this high seas ecosystem plays in supporting these values.

While the bounty of the high seas belongs, in principle, to all of society, the benefits of the high seas often accrue to a selected few. For instance, the harvest of eels that breed only in the Sargasso Sea generates benefits that mainly accrue to Europe (around 90% of the total gross revenues estimated), and less so to Northern America (around 10% of the total gross revenues estimated).[10] Commercial fishing taking place in the Sargasso Sea benefits in particular large fishing fleets from North America and Japan, and the benefits of tourism based on viewing whales accrues mainly to northern America (around 95% of the total value estimated) even though these whales may spend a large part of their life in the high seas.

High seas ecosystems are poorly understood, as are the ecosystem services they provide. There is tremendous interdependency among the many components of the ecosystem and indeed various ecosystem services. For instance, fishes that depend upon *Sargassum* habitats also fertilize *Sargassum*. The more that is learned about high seas ecosystems, the more apparent it is how integral they are to the provision of ecosystem services throughout the ocean – including those enjoyed near shore.

For these and many other reasons, the conservation of marine biodiversity in ABNJ, especially through the designation of MPAs, is an essential form of insurance to secure these ecosystems functions and services for all society, including future generations. Thus accelerated progress towards meeting Aichi target 11 is both an ecological and a socio-economic imperative.

PROGRESS TO DATE

Description of ecologically or biologically significant areas in need of protection

In 2010, the Convention of Parties to the CBD adopted the Strategic Plan for Biodiversity 2011–2020, including the Aichi Biodiversity Targets, target 11 of which renewed the call for at least 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, to be conserved through effective, ecologically representative and well-connected systems of

[9]Note this is a gross revenue whereas the one for shoreline protection entails its economic value.

[10]As indicated above, however, values for other continents (Central and South America, Asia and Africa) could not be estimated. Evidence suggests that these values are positive and might be far from marginal.

protected areas and other area-based conservation measures. Decision X/29 (para 36) invited Parties, other Governments and relevant organizations to use the scientific guidance 'to organize (…) a series of regional workshops (…) prior to the eleventh meeting of the Conference of the Parties to the Convention, with a primary objective to facilitate the description of ecologically or biologically significant marine areas through application of scientific criteria in annex I of decision IX/20 as well as other relevant compatible and complementary nationally and intergovernmentally agreed scientific criteria' (CBD, 2010, COP 10 X/29 para 36). In accordance with this directive, the CBD Secretariat with regional partner organizations has held expert workshops to enable the description of areas meeting the agreed criteria for ecologically or biologically significant areas (EBSAs).

According to Decision IX /20, Annex 1, the EBSA criteria include:

1. Uniqueness or rarity
2. Special importance for life history of species
3. Importance for threatened, endangered or declining species and/or habitats
4. Vulnerability, fragility, sensitivity, slow recovery
5. Biological productivity
6. Biological diversity
7. Naturalness

The CBD Secretariat convened nine regional workshops between November 2011 and April 2014. The CBD Secretariat also collaborated with ongoing EBSA processes convened by regional organizations in the North-east Atlantic. So far, experts from 122 countries and 113 organizations have contributed to the nine CBD workshops, some of whom have attended more than one workshop. The workshops have covered nine regions, the Western South Pacific (November 2011[11]), the Wider Caribbean and Western Mid-Atlantic (February 2012[12]), the Southern Indian Ocean (August 2012[13]) the Eastern Tropical and Temperate Pacific (August 2012[14]), the North Pacific (February 2013[15]), the South-eastern Atlantic (April 2013[16]), the Arctic (February 2014[17]), the North-west Atlantic (March 2014[18]) and the Mediterranean (April 2014[19]). The areas considered by these workshops cover around 68% of the world's ocean or 48% of the planet.

The results of the first two workshops, in the Western-South Pacific and the Wider Caribbean and Western Mid-Atlantic regions, were considered by CBD COP 11 and, pursuant to its request in CBD decision XI/17, the summary reports on the description of areas that meet the criteria for EBSAs, prepared by the 16th meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), were submitted to the United Nations General Assembly and relevant Working Groups.[20]

The results of the seven additional regional workshops were submitted for review by the 18th meeting of SBSTTA in June 2014, and will be further considered at the 12th meeting of the COP, scheduled for October 2014. The Secretariat is currently collaborating with various Parties and relevant organizations to organize additional EBSA workshops in the remaining regions, as requested by COP 11 in its decision XI/17.

Setting the geographical scope of a regional workshop was usually the first issue addressed. Participating State Parties chose individually whether to include, or not, their Exclusive Economic Zone (EEZ) in the scope of each workshop, in some cases choosing not to do so because of ongoing national processes. Some regional workshop boundaries intentionally overlapped areas considered in earlier workshops when new, complementary information was being considered by the later workshop.

The workshops identified a range of types of area satisfying the EBSA criteria that can be categorized into four general types of features (derived from Arctic EBSA workshop report[21]):

[11]http://www.cbd.int/doc/?meeting=RWEBSA-WSPAC-01
[12]http://www.cbd.int/doc/?meeting=RWEBSA-WCAR-01
[13]http://www.cbd.int/doc/?meeting=EBSA-SIO-01
[14]http://www.cbd.int/doc/?meeting=EBSA-ETTP-01
[15]http://www.cbd.int/doc/?meeting=EBSA-NP-01
[16]http://www.cbd.int/doc/?meeting=EBSA-NP-01
[17]http://www.cbd.int/doc/?meeting=EBSAWS-2014-01
[18]http://www.cbd.int/doc/?meeting=EBSAWS-2014-02
[19]http://www.cbd.int/doc/?meeting=EBSAWS-2014-03
[20]This document is now available as document A/67/838 on the Official Document System of the United Nations (ODS): http://www.un.org/ga/search/view_doc.asp?symbol=A/67/838.
[21]http://www.cbd.int/doc/?meeting=EBSAWS-2014-01

1. Spatially stable features, whose positions are known and individually resolved on the maps. Examples include individual seamounts and feeding areas for sharks and seabirds.
2. Spatially stable features, whose individual positions are known but a number of individual cases are being grouped. Examples include a group of coastal areas, seamounts or seabird breeding sites where the location of each is known but a single polygon on the map and corresponding description encompasses all the members of the group.
3. Spatially stable features, whose individual positions are not known. Examples include areas where coral or sponge concentrations are likely, based on, for example, modelling of suitable habitats, but information is insufficient to specify the locations of each individual concentration
4. Features that are inherently not spatially fixed. The position of these features moves seasonally and among years. The map polygon for such a feature should include the full range occupied by the front (or other feature) during a typical year.

The regional EBSA workshops conducted up to April 2014 have described 207 sites, including both spatially stable and dynamic features. Once ecological or biological features are identified as significant, an EBSA site is described. While a site only needs to meet a single criterion, many described sites meet several criteria. In addition, some areas described to meet the EBSA criteria may represent a collection of different features (e.g. benthic seamount features also associated with surface seabird feeding areas). In some cases, specific areas were described as unique EBSA sites fully contained within broader EBSA areas (e.g. seabird foraging region identified within the North Pacific Chlorophyll Front).

The areas described by the regional workshops as meeting the EBSA criteria are now being taken forward through the SBSTTA and COP processes with the expectation that these sites will be aggregated into a repository maintained by the CBD Secretariat. Remaining areas in the East Asian, Northern Indian Ocean, SW Atlantic, and Southern Ocean regions will be addressed by future regional processes.

How the EBSAs will be used to inform future conservation decision-making remains unclear (Dunn *et al.*, 2014). To date, maritime institutions mandated with the management of human activities (e.g. shipping, fishing, or mining), have been reluctant to accept scientific information that has not arisen from their own internal processes. For example, in the case of the Sargasso Sea EBSA submitted by the Sargasso Sea Alliance for consideration, regional fisheries organizations have been unsure how to deal with it, and so it has remained under their internal committee review for nearly 2 years (Freestone *et al.*, 2014). Furthermore, the kind of cooperative behaviour that will be necessary to manage multiple threats within an EBSA is not in evidence, with each management body instead working largely in isolation (Ardron *et al.*, 2014). Therefore, while the description of EBSAs is an essential first scientific step towards the better protection of marine areas, subsequent steps, both policy and legal, will also very likely be required.

Emerging regional initiatives for the creation of MPAs in ABNJ

In parallel with the global process to describe marine areas in need of protection, some regional initiatives and organizations have progressively extended their traditionally coastal focus into ABNJ, particularly through the establishment of MPAs. In this regard, the most advanced efforts are taking place in the Mediterranean Sea, the Southern Ocean and the North-east Atlantic where MPAs in ABNJ have already been created.

The Pelagos Sanctuary for Mediterranean Marine Mammals was arguably the first MPA created in ABNJ, even though it covers a semi-enclosed sea with no point located more than 200 nautical miles from the closest land or island (Scovazzi, 2011). Covering 84 000 km^2, the Pelagos Sanctuary was first established by France, Monaco and Italy in 1999.[22] In a second step, the Sanctuary was recognized by the Contracting Parties to the Barcelona Convention and officially listed as a Specially Protected Area of Mediterranean Interest (SPAMI) in 2001.[23] In the Southern Ocean, a

[22]Agreement concerning the creation of a marine mammal sanctuary in the Mediterranean, adopted in Rome, Italy, on 25 November 1999.
[23]UNEP/MAP, Report of the twelfth ordinary meeting of the Contracting Parties to the Convention for the protection of the Mediterranean Sea against pollution and its protocols, Monaco, 14-17 November 2001, UNEP(DEC)/MED IG.13/8, 30 December 2001, Annex IV.

region governed by the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR), the South Orkney Islands southern shelf was designated as an MPA in 2009[24] (Druel *et al.*, 2012) and negotiations to establish additional MPAs are ongoing. Finally, in the North-east Atlantic, a network of MPAs has been established in the ABNJ (Gjerde and Rulska-Domino, 2012; O'Leary *et al.*, 2012). Contracting Parties to the OSPAR Convention designated in 2010 a network of six sites collectively covering about 286 200 km^2 and an additional area was added in 2012,[25] expanding the protected area to 465 165 km^2 (Rochette *et al.*, 2014). A cross-sectoral management plan for the OSPAR MPAs in ABNJ, however, is still some distance from completion (Freestone *et al.*, 2014).

Beyond these three regions where MPAs have already been designated in ABNJ, other regional initiatives dedicated to the conservation of marine biodiversity in ABNJ are ongoing. In the Sargasso Sea, where no regional seas programme or regional fisheries management organization (RFMO) for non-tuna species exists, an alliance led by the government of Bermuda aims to secure legal protection measures for the Sargasso Sea through existing regional, sectoral and international organizations and by enhancing coordination and cooperation (Freestone *et al.*, 2014). In March 2014, a significant step was made through the Hamilton Declaration on Collaboration for the Conservation of the Sargasso Sea, a non-binding agreement signed by some governments in the presence of intergovernmental organizations. Nevertheless, though awareness and cooperation have increased, progress has been slow in securing on the water protection.

In the South-east Pacific, Member States of the Permanent Commission for the South Pacific (CPPS) committed themselves in 2012 to promote coordinated action 'regarding their interests in living and non-living resources in marine areas beyond national jurisdiction'.[26] Most recently, Contracting Parties to the Abidjan Convention, the regional sea programme governing Africa's Atlantic coast from Mauritania to South Africa, agreed to set up 'a working group to study all aspects of conservation and sustainable use of marine biodiversity in ABNJ'[27] within the framework of the Convention.

These regional initiatives are interesting pathways for the future development of high seas governance that should be further explored. In particular, developing regional approaches makes it possible to advance the conservation and sustainable use of ABNJ while the global discussions on a potential new legal agreement under UNCLOS are still ongoing (Ardron *et al.*, 2013). Since these discussions could take many years before leading to concrete results, regional initiatives appear to be very important, in particular because they support the development of scientific knowledge, regulatory practice and the elaboration of management tools in ABNJ. However, these initiatives also face challenges, especially with regard to the management, geographical coverage and regulatory gaps (Rochette *et al.*, 2014).

MOVING FORWARD: KEY CONDITIONS TO MEET AICHI TARGET 11

Filling the gaps through an UNCLOS Implementing Agreement

Actions undertaken through regional systems to establish MPAs in ABNJ have also shown their own legal and practical limitations: (i) MPAs established through regional seas conventions can only bind their own Contracting Parties; (ii) regional seas conventions do not directly regulate a large number of human activities such as fishing, shipping or mining: their Contracting Parties are therefore obliged to engage in long and uncertain cooperation processes with other competent organizations to adopt additional protection measures; (iii) only a few regional seas conventions currently have a mandate over ABNJ, leaving the vast majority of the ocean unprotected;

[24]CCAMLR, Conservation measure 91-03 on the Protection of the South Orkney Islands southern shelf.
[25]OSPAR Decision 2012/1 on the Establishment of the Charlie-Gibbs North High Seas Marine Protected Area and OSPAR Recommendation 2012/1 on the Management of the Charlie-Gibbs North High Seas Marine Protected Area.
[26]Permanent Commission for the South Pacific, VIII Meeting of Ministers of Foreign Affairs, Puerto Ayora, Galápagos, Ecuador, 17 August 2012.
[27]Decision CP. 11/10: Conservation and sustainable use of the marine biodiversity of the areas located beyond national jurisdictions, March 2014.

and (iv) there is currently no global mechanism to ensure the cooperation and coordination between regional seas and sectoral organizations, or to assess and manage the cumulative impacts of human activities in ABNJ. As noted above, some sectoral organizations have made some positive steps towards adopting measures to protect marine biodiversity in ABNJ. However, sectoral organizations can only regulate activities falling under their mandate. Moreover, sectoral approaches:

- do not aim to protect all the features of conservation importance within their boundaries, including the overall health and diversity of the ecosystem;
- may be non-systematic and hence unlikely to result in a coherent network of ecologically representative and well-connected systems of protected areas;
- lack a mechanism to ensure the coordination of the measures adopted by these organizations, presenting the potential for gaps and duplication of efforts; and
- lack a common set of selection criteria or scientific advice, which may lead to conflicting results.

The need to promote cooperation and coordination for the conservation and sustainable use of marine biodiversity in ABNJ was the main reason for the establishment, in 2004, of the 'Ad-Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond national jurisdiction' or BBNJ Working Group.[28] This Working Group, established under the auspices of the United Nations General Assembly (UNGA), has met seven times since 2006. Its work is now entering a crucial phase, as it will be considering in 2014 and 2015, the scope, parameters, and feasibility of an international instrument under UNCLOS on the conservation and sustainable use of marine biodiversity in ABNJ,[29] with a view to deciding on whether to proceed with such a new instrument by the end of the 69th General Assembly in September 2015, as agreed in June 2012 during the United Nations Conference on Sustainable Development[30] (Rio + 20 Conference). Many states, including the European Union, the G77 + China, Australia, Mexico and New Zealand are already calling for a new UNCLOS Implementing Agreement to address the issue of area-based management tools, including MPAs, together with the related issues of marine genetic resources, environmental impact assessments, capacity-building and transfer of marine technology.[31] It is expected that States will adopt a decision on the future development of an UNCLOS Implementing Agreement by mid-2015.

As noted by many States, an UNCLOS Implementing Agreement would be a critical framework through which to establish the designation and management of MPAs in ABNJ (Druel *et al.*, 2013). Building upon and complementing the general provisions contained in UNCLOS on the protection and preservation of the marine environment, this new agreement may, for example:

(i) establish a global and legally-binding framework for the designation and management of ecologically coherent networks of MPAs in ABNJ;
(ii) give an explicit mandate to its Contracting Parties to submit MPAs proposals for international endorsement, including for areas where there is currently no competent regional organization. This would make MPAs and their management plans legally-binding for all the Contracting Parties to the UNCLOS Implementing Agreement;
(iii) give an explicit mandate to States and competent international organizations to cooperate for the establishment and management of MPAs in ABNJ;
(iv) require States and competent international organizations to adopt measures to prevent significant adverse impacts on marine biodiversity in ABNJ with an obligation to pay special attention to MPAs endorsed at the global level as well as other areas of ecological or biological significance (Druel and Gjerde, 2014 a,b); and
(v) establish a global reporting and monitoring mechanism.

Such an agreement could also take stock of existing initiatives by providing a mechanism for the global recognition of MPAs already designated through regional seas conventions, hence making them legally-binding for all its Contracting Parties.

[28]UNGA resolution 59/24, §73.
[29]UNGA resolution 68/70, §198.
[30]UNGA resolution 66/288, §162.
[31]UNGA resolution 66/231, Annex.

In that sense, an UNCLOS Implementing Agreement on the conservation and sustainable use of marine biodiversity in ABNJ must not be seen as an instrument that would be built from scratch, but rather as a tool which would be of great help to implement the existing array of commitments under UNCLOS and other instruments and to reinforce the capacities and mandates of existing organizations. It may, for example, stimulate progress at the regional level by giving a role to regional seas conventions and by encouraging the extension of their mandates to ABNJ. There is, therefore, no need to make a distinction between better implementation of existing instruments and the negotiation and adoption of an UNCLOS Implementing Agreement, as has been done in the past during the BBNJ Working Group meetings (Druel *et al*., 2013). In order to reach, by 2020, the ambitious objective set out by Contracting Parties to the CBD in Aichi Target 11, pursuing existing efforts to integrate and improve biodiversity conservation at the regional level as well as preparing the establishment of a global framework to manage networks of MPAs in ABNJ will be needed.

Improving existing instruments for the conservation of marine biodiversity in ABNJ

To improve the protection of marine biodiversity in ABNJ, a sensible place to begin is to consider those legal and policy instruments currently available – at regional and global levels – and how they can be more fully implemented. Given the low levels of spatial protection currently enjoyed in ABNJ, it is evident that more could be done, and furthermore, that progress to date, through existing international instruments (e.g. MPAs established through the regional seas agreements: O'Leary *et al*., 2012; Rochette *et al*., 2014) can show a way forward.

As noted above an ecosystem-based approach including a representative system of comprehensive MPAs that protect a full range of species and habitats, falls outside the legal scope of any single agreement (Kim, 2012). Sectoral agreements, by definition, apply only to sectoral activities. Conservation agreements, though addressing a larger range of issues, lack the mandate necessary to regulate the major anthropogenic threats. Moreover, only about half of the listed agreements have applicable spatial tools (Table 1). This suggests, at the very least, both an opportunity for further application of existing mandates as well as a need to expand the mandates of others to include the availability and application of spatial protection measures.

While progress in ABNJ has been slow to meet international commitments, this may not be only due to governance gaps. Rather it may also be a reflection of the inherent vested interests of sectoral organizations as well as the practical difficulty of creating an ecologically coherent network of MPAs, a task which requires enhanced efforts by existing authorities that go beyond their normal duties (Ardron, 2008). Even in areas under national jurisdiction, where laws already call for the establishment of MPAs, nowhere has a coherent network of protected areas yet been designated – except perhaps recently in Australia, amidst controversy coming from scientists and stakeholders on both sides of the debate (Barr and Possingham, 2013; Kearney, 2013; Devillers *et al*., 2014).

Notwithstanding the difficulty of the task, the realization that the existing instruments alone may still be insufficient to fully protect biodiversity in ABNJ is slowly gaining acceptance. Given that this conclusion logically leads to the need for developing some sort of new instrument, such as an UNCLOS Implementing Agreement, some States have argued strenuously that before taking that step, more must be done through existing instruments. Such statements can be interpreted as a delaying tactic; nevertheless, that does not a priori disqualify the need to make better use of existing instruments. Rather, the point of disagreement is whether to do so sequentially, or in parallel with developing a new instrument, as is supported here (Ardron *et al*., 2013).

At the BBNJ Working Group, the role of existing instruments was raised when it first met in 2006, and continues through to the present. Delegations on both sides of the debate have recognized from the outset the value of existing mechanisms and institutions, but have also pointed out that these '(…) needed to apply a multi-sectoral and integrated approach to management and cooperate and coordinate to that end, thus moving away from their current sectoral approach'[32] – a sentiment that has been echoed by subsequent

Table 1. Area-based management tools established by international agreements or their implementing bodies. Adapted from Ardron *et al.* (2014)

Shortened name	Area-based tools in ABNJ	Comments
United Nations Convention on the Law of the Sea (UNCLOS)	None	Provides the legal framework for the sectoral and conservation agreements below. Requires the protection of rare and fragile ecosystems and the habitats of depleted, threatened or endangered species (Article 194.5) but no specific provisions.
UNCLOS Part XI Agreement (and the International Seabed Authority)	Areas of Particular Environmental Interest (APEI), Preservation reference zones[a]	Nine APEIs in the North Central Pacific (Clarion-Clipperton Zone)[b]
UN Straddling Fish Stocks Agreement	None	Requires the protection of biodiversity in the marine environment (article 5(g) but no specific provisions. Closed areas are briefly mentioned but not specified in §11(c).
Shipping agreements (through the International Maritime Organisation -IMO)	Special Areas (SAs) under MARPOL[c], Particularly Sensitive Sea Areas (PSSAs) under IMO[d], Areas To Be Avoided (ATBAs) under SOLAS[e]	Two SAs in ABNJ (Mediterranean and Antarctic). Ship routing measures could also be considered as a tool.
London Convention and Protocol	None	While permitting / approval of activities and projects can have a spatial component, there is no protected area designation per se.
International Whaling Convention	Sanctuaries	Two established: Indian Ocean (1979) and Southern Ocean (1994).
Convention on International Trade in Endangered Species (CITES)	None	CITES focuses on trade.
Convention on Migratory Species	None	Requires the protection of habitats and removal of obstacles to migration. CMS has mostly focussed on national jurisdiction, where Range States are expected to cooperatively develop such measures.
Convention on Biological Diversity	None	While CBD actively encourages the establishment of protected areas, it lacks the mandate to do so itself.
[World Heritage Convention]	[World Heritage sites]	Not currently applied in ABNJ
RFMO/As	Fisheries closures	In response to the UNGA bottom fishing resolutions, there are several closures in place to protect VMEs.
Regional Seas Conventions/ Action Plans	MPAs	Seven MPAs in ABNJ under OSPAR (NE Atlantic) and one under the Barcelona Convention (Mediterranean)
Convention for the Conservation of Antarctic Marine Living Resources/ Antarctic Treaty System	MPAs[f], fisheries closures, Antarctic Specially Protected Areas and Antarctic Specially Managed Areas (ASPAs, ASMAs)[g]	One offshore MPA, annual fisheries closures, and several coastal ASPAs & ASMAs with small marine components (technically ABNJ)

[a]ISA. Decision of the Council of the International Seabed Authority relating to amendments to the Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area and related matters. 2013; ISBA/19/C/17;§V.31.6.
[b]ISA. Decision of the Council relating to an environmental management plan for the Clarion-Clipperton Zone. 2012. ISBA/18C/22. <http://www.isa.org.jm/files/documents/EN/18Sess/Council/ISBA-18C-22.pd>f [Accessed Oct. 2013].
[c]MARPOL, Annexes 1, 2, 4, 5, 6.
[d]IMO. Revised guidelines for the identification and designation of Particularly Sensitive Sea Areas (PSSAs), 2005; A.982(24).
[e]Safety of Life at Sea Convention (SOLAS), 1974; V.10 and the General Provisions on Ships' Routing.
[f]CCAMLR. General framework for the establishment of CCAMLR Marine Protected Areas, 2011; Conservation Measure 91-04.
[g]The Antarctic Treaty system. Protocol on environmental protection, 1991; Recommendation XVI-10, Annex V.

BBNJ meetings.[33] This question of cooperation and coordination amongst conflicting priorities has emerged as the 'Achilles heel' (i.e. point of vulnerability and weakness) of the current constellation of arrangements, which while making some progress in their respective topic areas, have shown themselves to be slow to cooperate with other agreement bodies, if at all (Ardron *et al.*, 2014). While a new global agreement continues to be debated and even negotiated, threats to marine biodiversity in ABNJ can still be reduced through calls for both improved implementation of

[32]UNGA. 2006. United Nations General Assembly: 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. A/61/65; §9.
[33]UNGA. 2012. United Nations General Assembly: 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. A/67/95; §13.

individual agreements and improved coordination and cooperation between and among existing regimes. Therefore, it should be incumbent upon those remaining States who argue that the existing agreements are alone sufficient to achieve the protection of biodiversity to demonstrate pragmatically how inter-agreement cooperation can be more readily achieved. While it is indeed true that more could be achieved using existing instruments, real-world experiences seeking to take a more integrated approach to management of ABNJ have to date illustrated that progress is very labour-intensive and time-consuming, with success not altogether assured (Freestone *et al*., 2014).

CONCLUSION

With the Aichi Target 11, the international community set up an ambitious objective that requires the full commitment both of States and international organizations if it is to be implemented effectively and in a timely manner. In ABNJ, the objective to create and manage MPAs comes up against a legal and governance framework that is currently incomplete. Although promising in many aspects, the designation of MPAs by regional organizations is, however, limited, both geographically and legally. To meet the global 10% target set out by the CBD, an UNCLOS Implementing Agreement would make it possible to upscale and expand these initiatives, by creating an appropriate mechanism for the designation of internationally-recognized MPAs, by mainstreaming biodiversity conservation into the actions of sectoral organizations and by organizing the coordination between competent authorities for effective MPA management. The coming months will be crucial since States will have to take a decision on whether to launch the negotiation for an UNCLOS Implementing Agreement by the end of the UNGA 69th session, i.e. by August 2015. The effective implementation of the Aichi Target 11 will hinge on efforts to convince reluctant States, and building the widest international coalition to support this process.

An UNCLOS Implementing Agreement will nevertheless not be a panacea. In parallel, efforts will need to be made to improve cooperation among the existing instruments towards the better conservation of marine biodiversity in ABNJ. In the same manner, an UNCLOS Implementing Agreement will need to go hand in hand with other urgent measures, including the development of surveillance technologies aimed at better ensuring the compliance of human activities at sea and enforcing MPAs regulations.

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