AREAS BEYOND NATIONAL JURISDICTION: A STUDY ON CAPACITY, EFFECTIVENESS OF MARINE PROTECTED AREAS, AND THE ROLE OF NON-GOVERNMENTAL ORGANIZATIONS

by

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A dissertation submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Marine Studies

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ABSTRACT

Areas beyond national jurisdiction (ABNJ) are managed and governed by a patchwork of laws and organizations. Even though these areas constitute 64% of the ocean surface and are vitally important for food, trade, and the environment, only 1.18% of these areas are protected in a marine protected area (MPA). States are currently negotiating a new Implementing Agreement under the United Nations Convention on the Law of the Sea to better manage and conserve ABNJ. This dissertation explores the conservation and management of ABNJ and examines capacity for the conservation and management of ABNJ, the effectiveness of ABNJ MPAs, and the role of non-States in the designation of ABNJ MPAs. Results show capacity could be enhanced by increasing opportunities for training and education, increasing coordination and cooperation, developing a clearinghouse mechanism, and increasing priorities and awareness for ABNJ. While governance of ABNJ MPAs is strong, MPAs could be more effective though increased focus on management and through increased protections of vital areas and ecosystems not as represented in current MPAs. Non-States, specifically non-governmental organizations, have influenced the creation of MPAs in ABNJ and could continue to influence ABNJ MPAs through increasing awareness of the public and policy/decision-makers, pushing States to act on MPAs, and monitoring or conducting research. The January 2020 draft text of the new Implementing Agreement addresses many of these concerns, but States must embrace these concepts and act quickly to effectively conserve and manage ABNJ.

Chapter 1

INTRODUCTION

Areas beyond national jurisdiction (ABNJ) encompass the high seas (surface waters past 200 nautical miles from a State's coastline) as well as the Area (the seabed and subsoil outside a State's extended continental shelf claim, generally 200 nautical miles). These parts of the ocean are governed not by a single State but through a patchwork of global, regional, and sectoral organizations. While the United Nations Convention on the Law of the Sea (UNCLOS) lays out rights, duties, and obligations on States operating in international waters, there is much left to be governed, managed, and conserved. There are intergovernmental and regional organizations operating in ABNJ to regulate and manage shipping and fishing, regulate deep-sea mining, and address environmental concerns. However, these organizations can be limited in their mandate and geographical coverage. Thus, much of ABNJ is lacking governance for important issues, such as establishment of marine protected areas (MPAs). Furthermore, the patchwork governance system means coordination and cooperation is of the upmost importance, though this does not always occur effectively for a variety of reasons.

These areas are remarkably understudied, even though ABNJ accounts for 64% of the ocean's surface. Much of ABNJ is thought of as lifeless and devoid of life. However, marine creatures of all kinds can be found in ABNJ. Marine mammals, sharks, sea turtles, eels, and billfish all use the high seas during migrations. Seamounts, hydrothermal vents, cold seeps, and other benthic habitats house

sometimes rare and endemic species that are only found in a small area of the ocean. These habitats are essential for life and are vital for a healthy ocean.

ABNJ are used heavily for fishing and shipping, but deep-sea mining and bioprospecting are expected to add to human use of these areas. Effects of climate change that could impact ABNJ include ocean acidification, shifts in species range, altered migration patterns and timing, and changes to habitat integrity. Other anthropogenic influences on ABNJ include marine pollution, ocean noise, and potentially carbon sequestration. Despite these many these uses and impacts on ABNJ, only 1.18% of ABNJ is protected in a marine protected area.

For more than 15 years now, the United Nations has undertaken a process to better understand the issues in ABNJ and derive a solution to better manage, conserve, and sustainably use ABNJ. What began as 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 (BBNJ), became a Preparatory Committee (PrepCom), and has now become an Intergovernmental Conference to develop a new instrument under UNCLOS related to ABNJ. The four main issues to make up this instrument are marine genetic resources, capacity development and the transfer of marine technology, area-based management including marine protected areas, and environmental impact assessments.

Given this call to better manage and conserve ABNJ and find solutions to pressing issues in ABNJ, it is important to understand the governance of ABNJ, what capacity States have and need for conservation and management, how

current MPAs are working to conserve species and habitats in ABNJ, and what role non-State actors could play in this space and how NGOs could help further MPAs and State capacity for ABNJ management and conservation. The following chapters look at ABNJ in detail, discussing the legal and regulatory regime and what could be done to better conserve and manage these areas.

Chapter 2 assesses capacity to manage and conserve the high seas and Area and makes recommendations on potential capacity development approaches needed to increase capacity for ABNJ. Methodology included a literature review, content analysis, and a capacity assessment. The literature review was based on white papers, journal articles, and existing international agreements. Submissions made by Member States during meetings of the PrepCom were analyzed for mentions of capacity, constraints, and ways to increase capacity. Finally, Qualtrics was used to deliver a survey tool to global, regional, and national decision-makers in order to assess the level of capacity for ABNJ management and governance and identify ways to increase capacity.

Chapter 3 evaluates the effectiveness of existing MPAs in ABNJ, details what habitats are found in these MPAs, and recommends what could be done to better protect the species and habitats in ABNJ. White papers, journal articles, and MPA management documents provided the foundation of the literature review. Mapping software (ArcGIS online) was used to visually assess the species and habitats within and external to ABNJ MPAs. Each MPA was assigned a protection level score using the regulation-based classification system designed by Horta e Costa et al (2016), which classifies MPAs by no take area and

allowable uses (fishing gears, aquaculture and bottom exploitation, and anchoring/boating). Finally, each MPA was evaluated for effectiveness using semi-structured interviews and a modified framework by Bennett and Dearden (2014), which provides a list of inputs for MPA success.

Chapter 4 assess how non-governmental organizations (NGOs) participate in the governance of ABNJ and how that participation influences State behavior, particularly when it comes to MPAs in ABNJ. Four case studies (Charlie-Gibbs Fracture Zone, Ross Sea, Sargasso Sea, and Costa Rica Dome) were selected to highlight the role of NGOs in ABNJ and how NGOs have asserted influence in ABNJ when it comes to the designation of ABNJ MPAs. Documents such as meeting summaries and official reports were used to create a timeline of events for the selected cases and provide context for each case. Semi-structured interviews were used to identify NGO roles in ABNJ, NGO involvement in getting ABNJ MPAs designated, how NGO involvement impacted State behavior, and what roles NGOs could play in the future. Finally, Chapter 5 ties the chapters together and looks at how well the draft text for the new Implementing Agreement resolves some of the issues presented in the dissertation.

Chapter 2

ASSESSING CAPACITY NEEDS FOR AREA-BASED MANAGEMENT IN AREAS BEYOND NATIONAL JURISDICTION (ABNJ)

2.1 Introduction

Areas beyond national jurisdiction (ABNJ) make up 64% of the ocean's surface. These areas include the high seas and seafloor outside 200 nautical miles (aside from any extended continental shelf claims a State may have). While these areas were once thought of as dull and lifeless, it is now known that ABNJ consists of a variety of habitats and species, many of which are not well studied (Martin et al., 2015). Sharks, billfish, sea turtles, tuna, marine mammals, and many other species traverse the open ocean during migrations. Seamounts are biological hotspots where marine species gather to feed, breed, spawn, and calve (UNEP, 2006). Deep-sea canyons, rich in organic materials, are productive ecosystems that support high species densities and biomass (UNEP, 2006). Hydrothermal vents and cold seeps support unique communities that are new to science and often endemic (UNEP, 2006). Despite the diverse habitats and species found in ABNJ, just 1.18% of ABNJ are protected (UNEP-WCMC and IUCN, 2020).

The United Nations Convention on the Law of the Sea (UNCLOS) sets out the rights, duties, and obligations of States related to oceans. Within the Exclusive Economic Zone (EEZ), Coastal States have the sovereign right for "exploring and exploiting, conserving and managing natural resources" as well jurisdiction for "the protection and preservation of the marine environment" (UNCLOS Article

56). Meaning the State is ultimately responsible for the management and protection of marine biodiversity and has discretion to set up protections for the marine environment, such as marine protected areas. Unlike in waters where a single State has sovereign rights and jurisdiction for conserving, managing, preserving, and protecting, no one State is responsible for the management and conservation of marine biodiversity in ABNJ. Instead, States must cooperate via global and regional organizations (UNCLOS Article 197) in order to carry out their general obligation to protect and preserve the marine environment (UNCLOS Article 192). The global and regional organizations operating in ABNJ have varying scopes, mandates, priorities, and jurisdiction, which makes the obligation to holistically preserve the marine environment a challenge to effectively carry out. There is no "overarching systematic approach for identifying and designating MPAs or managing the multiple and expanding human activities and impacts" (Ban et al., 2014b, p 128). Furthermore, Gjerde et al. (2008, p viii and vii) identified several gaps in the international regime for the conservation and sustainable use of marine biodiversity in ABNJ, including, but not limited to, lack of regulation to manage increasing impacts of traditional uses or a mechanism to assess emerging uses; lack of effective compliance and enforcement mechanisms; lack of "coordination and cooperation within and across sectors, States, and institutions"; and "absence of legally binding instruments for biodiversity conservation in all ocean regions." These challenges leave ABNJ without comprehensive protection, despite the obligation on States to protect and preserve the marine environment.

While comprehensive ocean protection for ABNJ is lacking and there is no international agreement for the protection of marine biodiversity in ABNJ, sectoral and regional agreements have attempted to fill that gap with area-based management. There is no one definition for area-based management; however, it involves, in the context of an ecosystem approach, the identification of areas in need of protection or management, and the application of tools, such as marine spatial planning, fishing closures, marine protected areas, etc. in order to help restore, conserve, or sustainably use those areas. There are area-based management tools available, such as Particularly Sensitive Sea Areas (PSSAs) under the International Maritime Organization (IMO), Vulnerable Marine Ecosystems (VMEs) under the Food and Agriculture Organization of the United Nations (FAO), and Areas of Particular Environmental Interest (APEI) under the International Seabed Authority, all designed with the goal of protecting areas deemed valuable environmentally, sensitive to disturbance, or with high biodiversity. However, these tools are limited due to their sectoral nature, are generally short term, and do not provide comprehensive protection for the ocean.

These tools require consultation, cooperation, and coordination across multiple organizations and States. While some organizations and States have the capacity for this coordination and cooperation, others lack the capacity to carry out such measures and are constrained by several factors. Warner (2014, p 3) has noted that there is no “overarching global instrument or institutional focal point to develop best practice standards or to adopt conservation measures for unregulated activities in ABNJ.” This creates differing priorities and views on how to manage

and protect marine biodiversity, which can lead to conflict and inaction. Furthermore, there are regional organizations, such as Regional Seas Programmes and Regional Fisheries Management Organizations (RFMOs) that have the mandate to coordinate and cooperate on a regional basis for environmental protection and species management; however, not all areas of the ocean are protected under these arrangements. Many Regional Seas Programmes operate only within the EEZ of the Member States and RFMOs, while outside of EEZs, usually only cover target species, especially tuna and tuna-like species. “The result of the traditional approach taken to manage the high seas has been a limited, regional, sector-by-sector approach, with multiple authorities managing parts of the same regions, extensive areas without governance arrangements, and few attempts to coordinate activities, mitigate conflicts, address cumulative impacts, or facilitate communication.” (Ban et al., 2014a, p 42).

2.1.1 Regional and Sectoral Organizations in ABNJ

Regional and sectoral organizations have a variety of area-based management measures for the management and protection of marine biodiversity in ABNJ at their disposal. However, the various organizations operating in ABNJ and levels at which they operate make for a patchwork of regulations, policies, and obligations. Some organizations have the geographic scope for managing ABNJ, but are limited in mandate to a sector, while others have a limited geographic scope and a broad mandate for environmental protection. There are varying perspectives as to which organization(s) have the mandate as well as the capacity for comprehensive management and protection of marine biodiversity in ABNJ.

1. Regional Seas Programmes

Regional Seas Programmes are designed to tackle environmental problems and "address the accelerating degradation of the world's oceans and coastal areas" (UNEP, no date). The programs use conventions and action plans to work towards the sustainable management and use of the marine and coastal environment (UNEP, no date). These programs have the benefit of providing "customized management" and taking the "uniqueness of a marine ecosystem into account before devising and applying the most appropriate legal and management tools" (Rochette et al., 2014, p 109). This tailored management in some cases "surpass[es] global protection requirements" (Rochette et al., 2014, p 109). However, Regional Seas Programmes focus mainly on coastal areas in national jurisdiction (Rochette et al., 2014). Of the 18 Regional Seas Programmes, only five include ABNJ in their geographical coverage (OSPAR Convention, Noumea Convention, CCAMLR Convention, Barcelona Convention, and the Lima Convention), and two are starting to study biodiversity issues in ABNJ (Nairobi Convention and Abidjan Convention) (UNEP, no date). Some regions do not have a program at all (Rochette et al., 2014). Most of ABNJ lies outside the coverage of Regional Seas Programmes. Therefore, if the Regional Seas Programmes were to take on the responsibility for area-based management in ABNJ, most of these programs would need to expand their area of competence, which would also involve increasing financial and human capacity.

2. Food and Agriculture Organization

Most fishing in ABNJ takes place at depths less than 1500m (Wright et al., 2015). As fishing has expanded into ABNJ and as ocean exploration has discovered sensitive marine ecosystems, such as seamounts and hydrothermal vents, RFMOs have used bottom closures as an area-based management measure to protect VMEs. However, bottom closures for fisheries often expire and do not provide permanent protection. For example, certain bottom closures in the North-West Atlantic expire in 2020 (Wright et al., 2015), making protection uncertain. This is especially concerning when one considers that these ecosystems are understudied, meaning effects from human interaction are not fully known, and the species are often slow growing, meaning protections that expire may not give these ecosystems a chance to fully recover from the destructive interactions. Furthermore, other area closures in the North-West Atlantic "did not affect approximately 99 percent of the bottom fishing that has occurred in recent years" (Wright, et al., 2015, p 139). Meaning, protection of the marine environment is not occurring in areas that are heavily utilized and affected by human interaction. The South Indian Ocean Fisheries Agreement (SIOFA) closed eleven areas in the region as "benthic protection areas;" however, 94.5% of seamounts and 93.3% of the seafloor was still open for fishing (Wright et al., 2015). SIOFA claimed the areas that were closed were the areas where fishing was currently taking place and the unprotected areas were not being fished or were unfishable (Wright et al., 2015). However, technological advances will push fishing to greater and greater depths, which will open the doors to more pressure on marine environments. Not

following the precautionary approach now and closing areas where sensitive ecosystems occur, even if those areas are where fishing has not historically taken place or are considered unfishable using current technology, puts these ecosystems and species at risk of destruction and overharvesting.

Adding to the difficulty of managing fisheries in ABNJ is enforcement. As fisheries move to greater depths and farther from coastlines, illegal, unreported, and unregulated (IUU) fishing becomes a large concern. While there is technology, such as the Vessel Monitoring System (VMS) and the Automatic Identification System (AIS), to help track and monitor ships for illegal harvesting, the distance in ABNJ makes cracking down on IUU fishing in order to promote sustainable fisheries a challenge. Individual States have an interest in reducing IUU fishing because it can impact their own revenues from domestic fisheries, food security, as well as livelihoods and culture of its people. States and international organizations have created ways to combat IUU fishing; however, many States still lack the capacity to be able to effectively manage and enforce domestic fisheries let alone contribute to global enforcement in ABNJ.

3. International Seabed Authority

The International Seabed Authority (ISA) has also been mentioned as a possible organization for taking on more area-based management duties. Currently, the ISA utilizes preservation reference zones to “assess any changes in the flora and fauna of the marine environment caused by mining activities” (ISA, no date). They also have nine Areas of Particular Environmental Interest (APEI) in the Clarion-Clipperton Zone, which are closed to mining and set up to preserve the

marine environment. The management plan for the Clarion-Clipperton Zone provides details for these APEIs, including the need for a buffer zone, size requirements, and the need to capture an entire habitat (ISA, 2011). ISA's mandate is global; however, they have an "exclusive mandate to govern all activities concerning the exploitation of mineral resources in the Area" (Matz-Luck and Fuchs, 2014). With a mandate that is limited to protection of the marine environment only when it comes to activities related to seabed mining, the ISA lacks the competency for holistic protection of the seabed for biodiversity, let alone the water column.

4. International Maritime Organization

Similarly, the IMO also has a global mandate and area-based management measures already in place. When an area is designated a PSSA, "specific measures can be used to control the maritime activities in that area, such as routing measures, strict application of MARPOL discharge and equipment requirements for ships,…and installation of Vessel Traffic Services" (IMO, no date). Like the ISA; however, the sectoral nature of the organization leaves questions as to competency for holistic marine ecosystem protection.

5. Convention on Biological Diversity

The Convention on Biological Diversity (CBD) is dedicated to sustainable development and the protection of biological diversity. However, the jurisdictional scope of the CBD is limited to national jurisdiction for components of biological diversity (CBD Article 4, 1992). However, it has been argued that, in accordance to Article 4b, the CBD applies to processes and activities taking

place in ABNJ, provided that such processes or activities are carried out under the jurisdiction or control of a State. The CBD has undertaken a scientific and technical process of applying criteria to identify Ecologically and Biologically Significant Marine Areas (EBSAs) in need of protection in open-ocean waters and deep-sea habitats. The presently identified EBSAs include areas both within and beyond national jurisdiction (see https://www.cbd.int/ebsa/), but these areas do not include any management measures. So, while the CBD would not be an appropriate authority for carrying out area-based management in ABNJ, it would be valuable as an organization to help identify areas that may be worthy of area-based management measures, including MPAs.

6. Coordination and Cooperation and BBNJ

With various regional and sectoral organizations taking on the area-based management duties, coordination and cooperation is key to successful protection of the marine environment. “This requires the identification of institutional synergies for the purpose of fostering activities towards the gradual institutional consolidation of various regimes” (Ardron et al., 2014, p 103). However, coordination and cooperation are lacking among the various regional and sectoral regimes. There are a few attempts at strengthening coordination and cooperation on a regional level. OSPAR has developed the “Collective Arrangement between competent authorities on the management of selected areas in ABNJ in the North-East Atlantic.” However, to date, only OSPAR and NEAFC have signed on to the arrangement. Even so, this “international soft-law agreement might provide a model for other areas where collaboration is essential to sustainable stewardship

(Rochette et al., 2014, p 113). CCAMLR has formal and consultative relations with other arrangements/organizations within the region (ex. Convention for the Conservation of Southern Bluefin Tuna, Southeast Fisheries Management Organization, etc.); however, “their use and effectiveness is largely confined to communications between the respective secretariats rather than formal meetings involving the members of each body which may lead to an agreed course of action on any particular matter” (Rochette et al, 2014, p 114). While these communications are a good start to coordination and cooperation in ABNJ, it adds to the secretariats’ already considerable workloads (Ardron et al., 2014). Still, “there are very few actual examples of cooperation or coordination activities between institutions governing ABNJ at the regional level” (Rochette et al., 2014, p 115). With no mechanism for coordinated activities, “fragmented governance systems can lead to un-coordinated actions or even conflicting management decisions along the different sectoral lines” (Rochette et al., 2014, p 115).

While regional and sectoral organizations have made some progress in managing and protecting the marine environment in ABNJ, there are still gaps when it comes to comprehensive protection for ABNJ. From 2004-2015, 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 (BBNJ) discussed the development of a new instrument under UNCLOS related to ABNJ, which would help fill these gaps. The group discussed the scope, parameters, and feasibility of a new instrument and identified four main issues to make up this instrument: 1) marine genetic resources, 2) capacity

development and the transfer of marine technology, 3) area-based management including marine protected areas, and 4) environmental impact assessments. In resolution 69/292, the General Assembly agreed with the recommendation of the Working Group and decided to develop this new international instrument. A Preparatory Committee was established and tasked with making recommendations on elements of draft text for this instrument.

The committee reported its progress at the end of 2017 and the General Assembly decided to convene an intergovernmental conference to proceed with the development of a new instrument. This conference will meet for four sessions, beginning in September 2018, and the hope was that a new instrument would be elaborated by early 2020. However, due to the global pandemic in 2020, the fourth session that was planned for March 2020 has been delayed. It is also possible the conference will need more than four sessions in order to fully elaborate the instrument. The conference will develop the elements for the international agreement, including what constitutes marine biological diversity. During the BBNJ discussions, some States wanted fisheries to be included in the scope of the agreement, while others felt regional organizations had the mandate and scope to manage fisheries and should be left out of the agreement. Other aspects of the agreement the conference will decide upon include decision-making, responsibilities of Parties, institutional arrangements (decision-making bodies, subsidiary bodies, functions of these bodies, etc.), financial aspects, dispute resolution, and more.

While a new agreement is being negotiated, it is unknown how this agreement will be shaped and what form it will take. Regardless, as technology allows for humans to move into ABNJ more and more, for example fishing in deeper waters and increased shipping activity, it is key to establish the capacity for area-based management to protect and manage these areas. The capacity needed for area-based management in ABNJ is on multiple levels, from the enabling environment down to the organizational and individual capacity.

2.1.2. Capacity

1. Levels of Capacity

In order to effectively conserve and sustainably use marine biological diversity in ABNJ, States, regions, and organizations need to have the capacity to do so. Capacity can be described as "the overall ability of the individual or group to perform their responsibilities. It depends not only on the capabilities of the people, but also on the overall size of the task, the resources which are needed to perform them, and the framework within which they are discharged" (Stephen and Triraganon, 2009, p 2). Capacity can be broken down into three levels: Level I – the enabling environment, Level II – the organizational level, and Level III – the individual level (Kay et al., 2003).

Level I capacity refers to the overarching, broad national and international context in which tasks/actions are carried out. For ABNJ, this is mainly UNCLOS; however, it also includes other marine-oriented international agreements under the FAO, IMO, Regional Seas Programmes, etc. If there is no framework for action, individuals and organizations do not have a common understanding of their goals,

responsibilities, and duties. Capacity at this level can also focus on management, accountability, resource and information flow, and processes (ex. the relationship between organizations) (Kay et al., 2003). Moreover, capacity development, being "a process that touches on profound political issues …may encounter serious resistance from policy-makers" (de Grauwe, 2009, p 91). Thus, a key factor in developing this capacity is the political atmosphere and having decision-makers with the desire to develop this overarching context. In sum, context and leadership are drivers in the success of Level I capacity.

While there is no overarching framework for the conserving or managing ABNJ, there are provisions in UNCLOS related to capacity. Article 202 under Part XII Protection and Preservation of the Marine Environment provides for promoting technical assistance (including training, supplying equipment or facilities, facilitating participation in international programmes, etc.) for protection and preservation of the marine environment. Article 244 in Part XII Marine Scientific Research promotes the exchange of scientific data and information, transfer of knowledge, strengthening research capabilities of developing States, and education and training. Specifically for the Area (the seabed in ABNJ), Article 143 under Part XI The Area calls for promoting marine scientific research and international cooperation, encouraging cooperation in marine scientific research by personnel from different countries, strengthening the research capabilities of less developed States, training personnel, and disseminating research and results. Finally, Part XIV Development and Transfer of Marine Technology is an entire section of UNCLOS dedicated to laying out provisions for promoting technology

transfer, including establishing national and regional centers for marine scientific research (Articles 275 and 276), promoting international cooperation (Part XIV Section 2), and developing human resources through education and training (Article 268(e)). Developing a framework for conserving and managing ABNJ can draw on these provisions to help develop capacity for protecting marine biodiversity in ABNJ.

Level II capacity refers to the organizations involved in the conservation and sustainable use of marine biological diversity in ABNJ. These organizations include, but are not limited to, the U.N. Division for Ocean Affairs and the Law of the Sea (DOALOS), Regional Seas Programmes, RFMOs, the IMO, FAO, national organizations that represent States in UN and regional fora, and in some cases NGOs. Organizational capacity is key to carrying out the necessary tasks and actions as required under the framework in which those organizations work. If organizational capacity is lacking, either in financial or human capacity, Level I capacity will also suffer. Organizational capacity can also focus on mission, strategy, culture, structure, competencies, and infrastructure (Kay et al., 2003). "One fundamental constraint is a weakness in shared vision among all staff…creating a common vision about the role and responsibilities of the organization is therefore a priority (de Grauwe, 2009, p 15).

Level III capacity refers to ensuring individuals have the necessary education and training to effectively help their organization carry out the tasks laid out in the framework. Capacity at this level cannot be focused on one individual but needs to include a "critical mass of trained staff" (UNESCO, 2016). Efforts to

strengthen capacity often focus at this level, since it is the easiest to address and critical (Kay et al., 2003). However, this capacity can be easily lost within an organization if the trained individuals leave the organization or country. Even if organizations have enough financial resources and human resources to be able to support Level I and II capacity, it is important for individuals and organizations to continue education and training to be able to keep up with the ever-changing needs of the environment and organization.

2. Capacity Levels in ABNJ

Unfortunately for area-based management in ABNJ, capacity is lacking at all three of these levels. While UNCLOS provides some context for ABNJ management, there is no single global body for area-based management or the designation of protected areas in ABNJ – *lack of enabling environment (Level I capacity)*. "Despite references to particularly vulnerable areas, e.g. ice-covered areas (Art. 234 UNCLOS), UNCLOS does not contain any specific provisions concerning the designation of MPAs aiming at the preservation of biodiversity in general or of specific species in different maritime zones" (Matz-Luck and Fuchs, 2014, p 157). There are sectoral and regional measures, i.e. PSSAs, protected areas under Regional Seas Programmes, VMEs, etc., that have made progress on area-based management. These arrangements rely on implementation by the parties to the agreement. Sectoral agreements use binding and voluntary management measures; however, only some agreements have compliance measures (Ardon et al., 2014). Without an international framework that assigns a clear mandate or process for designating and regulating MPAs, non-party

compliance will continue to be an issue and will undermine the objectives of the designated MPA (Molenaar & Elferink, 2009). Further hampering the ability for area-based management in ABNJ is the lack of a national maritime policy or development plan for many States (IOC, 2013); thus, making it difficult for national policies to be integrated into the international context.

Additionally, there are functional and geographic gaps to sectoral organizations' capacity for area-based management or designations of protected areas in ABNJ (Freestone and Morrison, 2012) – *lack of organizational capacity (Level II capacity)*. "Limited technical and legal assistance is a major reason for the weak implementation of many regional agreements" (Rochette et al., 2014, 116). Many sectoral organizations do not have the competency for holistic, ecosystem level area-based management or designations of protected areas in ABNJ. While Regional Seas Programmes are environment focused and have the capacity to establish protected areas, there are large parts of ABNJ not covered by one of these programs. Furthermore, even if a protected area has been established under the auspices of a Regional Seas Programmes, only the States that are party to that program are bound to respect the designation. RFMOs do cover much of ABNJ and "they can take different forms concentrating on the regulation of a particular species or group of species"; however, not all species are protected under RFMO regulations (Everson, 2017, p 147). If RFMOs were to take on more duties associated with the protection of the environment, considerable resources will need to be added for effective management and protection. As it stands now, "adding to their responsibilities by broadening the conceptual framework within

which they are expected to operate without enhanced resources is unlikely to result in a satisfactory outcome" (Everson, 2017, p 156).

Finally, marine science education is lacking for most States – *lack of individual capacity (Level III capacity).* The Intergovernmental Oceanographic Commission (IOC), a body within the United Nations Educational, Scientific, and Cultural Organization (UNESCO), completed a baseline study to assess capacity development needs for marine research and ocean observation (IOC, 2013a). This study (2013a) found that most marine science education focused on marine biology, with few marine programs focusing on disciplines such as physical oceanography. Indeed, the lack of trained personnel can lead to non-specialists or to people performing jobs/duties they are not qualified for (IOC, 2013a). Lack of qualified technical experts hampers ocean management at national, regional, and international levels.

3. Capacity Development Process

Capacity development can be defined as "the process through which individuals, organizations, and societies obtain, strengthen, and maintain the capabilities to set and achieve their own development objectives over time" (UNDP, 2008, p 4). "Capacity is not static, it is continually developing and changing – a dynamic process. It is a lengthy process requiring continuous attention and investment and the recognition that the capacity of an individual or organization is never complete or in a steady state." (Kay et al., 2003, p 10). Step 1 of the capacity development process (see Figure 1) is to engage stakeholders on capacity development. This step looks at "the vision of what capacity is required in the

future," and asks the question "where do we want to go?" (Kay et al, 2004, p 5). Step 2 is to assess capacity assets and needs. This step "establishes the baseline and addresses the basic question "where are we now?" (Kay et al., 2004, p 5). Step 3 is to formulate a capacity development response. This step "compares the present situation and future desired state, identifies the capacity gaps, and plans strategies and actions designed to fill these gaps and achieve the desired goals," asking the question "how do we get there?" (Kay et al., 2004, p 5). Step 4 is to implement a capacity development response. The implementation stage focuses on fulfilling the vision created in step 1 and carrying out the activities planned in step 3, asking the question "what actions do we take?" (Kay et al., 2004). Step 5 is to evaluate capacity development. This step involves monitoring and evaluation, asking the question "how do we stay there?" (Kay et al., 2004).

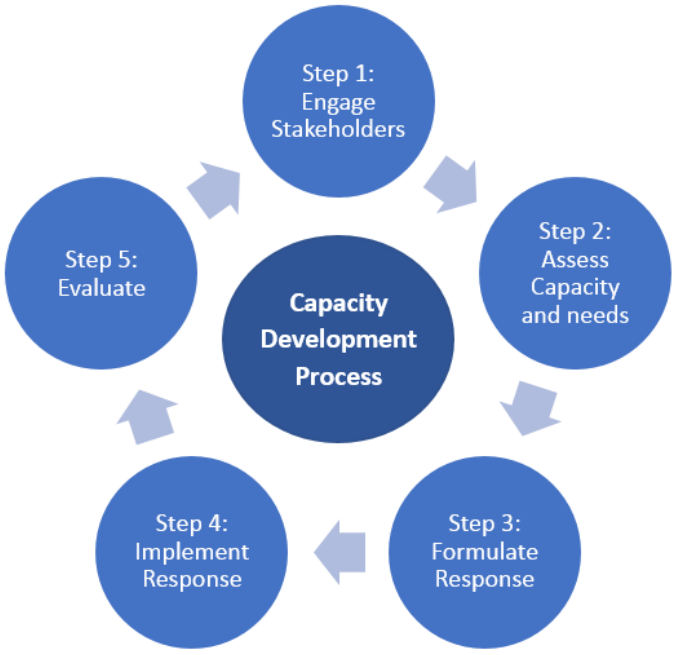

Figure 1: The Capacity Development Process. Modified from: UNDP, 2008

Step 1 of the capacity development process, stakeholder engagement, has already occurred at the U.N. among States, IGOs, and NGOs, and is continuing to occur. Not only did the BBNJ Working Group recommend to the General Assembly that a new agreement under UNCLOS be negotiated, but the Preparatory Committee worked to draft elements of the text. Further stakeholder engagement will continue during the negotiation of a new instrument concerning marine biodiversity in ABNJ. The next step is to assess capacity and what is needed. “A capacity assessment can serve a variety of purposes. It can provide the starting point for formulating a capacity development response; act as a catalyst for action; confirm priorities for action; build political support for an agenda; offer a platform for dialogue among stakeholders; and provide insight into operational hurdles in order to unblock a programme or project” (UNDP, 2008, p 6). Step 3, formulation of a capacity development response, will be developed as part of the potential new international agreement. While States have repeatedly called for capacity development, it is important to assess what capacity is needed before trying to formulate a response to capacity development during negotiations of the potential new international instrument. Steps 4 and 5 occur after an assessment of needed capacity has taken place.

An important factor to remember is that “capacity development is not the territory of external agencies” but rather “the process needs to be owned and led from the inside” (de Grauwe, 2009, p 52). So, while outsiders may push for a process to develop capacity in ABNJ, it is important for individuals and organizations to take ownership of the process and help develop the proper response. Also

important is to remember that capacity development is “not a stand-alone training intervention, but rather a strategically coordinated set of activities aimed at individuals, institutions and sectors” (Analoui and Danquah, 2017, p 40). It is a process that is meaningful, designed with the user’s needs in mind, and flexible enough to be tailored for the situation.

4. Efforts to Build Capacity for Area-based Management in ABNJ

While capacity is lacking at all three levels for ABNJ, there are efforts to help build capacity for managing oceans and marine resources. Member States to the U.N. have begun the process of creating a better enabling environment for the conservation and sustainable use of marine biological diversity in ABNJ by negotiating a new international agreement. If a new instrument is negotiated and implemented successfully, Level I capacity will be developed; the enabling environment will be strengthened. As mentioned above, capacity development and area-based management are issues the potential new instrument will address so that if the new agreement is negotiated effectively, Level II and III capacity will also be developed. When it comes to increasing capacity for area-based management in ABNJ, it is important to remember that capacity development needs be institutionalized. The enabling environment needs to provide organizations and individuals the opportunity to increase capacity, which will flow back to increasing capacity for the enabling environment.

Efforts to develop Level II and III capacity for managing oceans and marine resources range from developing technical/scientific capacity to developing capacity for governance, though most are neither strictly targeted for ABNJ nor

towards area-based management. As part of the baseline study to assess capacity development needs for marine research and ocean observation, the IOC reached out to 38 countries to complete an online questionnaire regarding capacity for marine research and ocean observation (IOC, 2013a). Results showed:

1) Training and capacity building efforts are not long term but are one-off or sporadic. Programs that are available, including guest positions and exchange programs, are not widely known.
2) Getting ocean issues into national development policies is difficult, as the focus is on issues perceived to be greater in economic and social value.
3) Few countries have a national maritime policy.
4) Ocean experts are lacking, and fields of study are limited to certain disciplines.
5) Technology and infrastructure are needed, including research equipment and vessels.
6) Small Island Developing States (SIDS) lack the capacity to develop policies to help sustainably manage their ocean space.
7) Lack of national capacity makes compliance with international treaties more difficult.

Additionally, the IOC has a strategy for increasing capacity for marine science. The IOC's 2015-2021 Capacity Building Strategy (UNESCO, 2016) set up a framework to accomplish the IOC's objectives of sustaining a healthy ocean ecosystem, reducing risk from ocean hazards, increasing resiliency to climate

change, and enhancing knowledge of ocean science issues. This strategy included six outputs:

1) Human resources developed
2) Access to physical infrastructure established or improved
3) Global, regional, and sub-regional mechanisms strengthened
4) Ocean research policies in support of sustainable development objectives promoted
5) Visibility and awareness increased
6) Sustained (long-term) resource mobilization reinforced

The IOC strategy focuses heavily on Level II and III development, takes an adaptive approach to consider the varying needs of regions, and aims for sustainable development, improved management of ocean and coastal areas, and protection of the marine environment (UNESCO, 2016). The outputs seek to address shortcomings in higher education; promote training courses, workshops, and "summer schools"; establish regional training and research centers; promote development and access to infrastructure; increase ocean literacy for the public and decision-makers; and more. While not specific to ABNJ or area-based management, the IOC's efforts to build capacity are notable.

In contrast to the IOC capacity building efforts, which are not strictly targeted towards ABNJ, there are a few capacity building efforts specifically aimed at ABNJ. The GEF and FAO Common Oceans ABNJ Program is targeted towards achieving sustainable management of fisheries resources and biodiversity conservation in ABNJ. The five-year program has four projects that aim to

strengthen long-term management and sustainability of ABNJ (FAO, 2018). One of those programs is specifically aimed at strengthening capacity for ABNJ management. Activities under this program include holding workshops to share information and understanding of ABNJ, hosting events and sessions to raise decision-makers' awareness of ABNJ issues, establish communities of practice for ABNJ issues to share and exchange information, and raise public awareness about ABNJ. These activities are focused on increasing Level III capacity.

The United Nations has proclaimed a Decade of Ocean Science for Sustainable Development (2021-2030). "The ambition of the Decade of Ocean Science is to now use this gathering momentum to mobilize the scientific community, policy-makers, business, and civil society around a program of joint research and technological innovation" (Visbeck, 2018, p 1). This call from the UN for more attention to ocean science can help build momentum for ocean research, capacity building, coordination and cooperation, and frameworks for solving problems plaguing the oceans (pollution, climate change, increasing ocean noise, etc.). A successful Decade of Ocean Science will result in new technology for ocean observation, university curricula, open online courses, open access to ocean information, increased ocean literacy, training courses, and more partnerships (Visbeck, 2018). This effort can be used for developing, funding, and implementing capacity development activities on the national and regional levels, as well as in ABNJ.

While there are capacity building activities going on in ABNJ, it is important to continue the capacity development process and periodically assess existing

capacity for area-based management in ABNJ. While the IOC has assessed capacity for marine science, that assessment was not specifically geared towards area-based management in ABNJ. The capacity development strategy the IOC has implemented is geared towards regional and national capacity. Increasing capacity at those levels is certainly integral to developing capacity for management of ABNJ; however, the issues in the management of ABNJ are unique and require specific capacity that cannot be developed with only building the national and regional levels. Developing capacity for area-based management in ABNJ is especially important to consider now, since there is the opportunity for creating a capacity development process specifically tailored to ABNJ. This paper seeks to determine the capacity for area-based management in ABNJ, determine the capacity development needs for area-based management in ABNJ, and propose capacity building activities that may inform the creation of a capacity development program under a new international agreement for ABNJ.

2.2 Methodology

The methods for this paper consisted of a literature review, content analysis, and a capacity assessment. The literature review was based on white papers, journal articles, and existing international agreements. The content analysis was conducted using submissions made by Member States during the meetings of the BBNJ Preparatory Committee (PrepCom) (four sessions held in 2016 and 2017) and provided on the PrepCom website hosted by the United Nations Division for Ocean Affairs and the Law of the Sea. These submissions were analyzed for 1) mentions of capacity, capacities, capacity development, or capacity building

(excluding headers and in definitions), 2) mentions of capacity constraints (what is it specifically that the country/voting bloc (ex. PSIDS) views as a constraint; ex. funding, technical knowledge, infrastructure, etc.), 3) ways to increase capacity (ex. need more training or a clearinghouse mechanism for capacity building). The number of times capacity is mentioned as a constraining factor by a country or voting bloc during the PrepCom sessions were coded and tallied in Excel, which serve as a reference for how many Member States view capacity as a strain on their ability to meaningfully participate in area-based management in ABNJ. As well, the specific areas/items the country/voting bloc sees as a constraint was tallied to determine where the capacity gap lies.

In order to further determine capacity for ABNJ management, a capacity assessment was conducted between June 13 and July 14, 2016, as part of the Global Environment Facility (GEF)/FAO/Global Ocean Forum (GOF) project on *Strengthening Global Capacity to Effectively Manage Areas Beyond National Jurisdiction,* which was implemented by the University of Delaware's Gerard J. Mangone Center for Marine Policy (Mangone Center). The sample population was 250 global, regional, and national decision-makers that were sent a letter of introduction via email and a link to an online survey. These decision-makers were leaders in global organizations (such as FAO, the United Nations Environment Programme (UNEP), the United Nations Educational, Scientific, and Cultural Organization (UNESCO), and the United Nations Development Programme (UNDP)), regional organizations (such as Regional Seas Programmes, Regional Fisheries Management Bodies, the Caribbean Community (CARICOM), the

Permanent Commission for South Pacific, and regional conventions (such as the Abidjan Convention, Nairobi Convention), and national organizations (which includes permanent missions, academic institutions, research institutions, and non-governmental organizations). These individuals were selected for their knowledge of ABNJ issues and ability to determine their country's or organization's ability to participate in ABNJ management. Individuals were contacted using the UN Blue Book, contact information listed on organization websites, as well as contact information known to researchers at the University of Delaware and GOF. Qualtrics, the online survey tool, was used to deliver the survey and gather results. Each individual was given a unique survey link to ensure the link was not passed on to others and skew the results.

The survey was piloted with attendees of the Capacity Development to Improve the Management of Marine Areas Beyond National Jurisdiction (ABNJ): Needs, Experiences, Options, and Opportunities workshop, held May 18-21, 2016 in St. George's, Grenada, and organized by GOF and FAO, together with the partners of the GEF/FAO/GOF ABNJ Capacity Project. The attendees were global, regional, and national decision-makers, and their responses were included in the full survey results. This pilot survey was to ensure clarity, readability, appropriateness, and length of the survey, and changes were made based upon feedback from the pilot participants.

Participants were asked 14 questions, a mix of open-ended, yes/no, scale ranking, and select among choices questions. The questions asked were designed to assess the level of capacity for ABNJ management, including the level of

coordination/cooperation, the nature of that coordination/cooperation, what specific tools and management approaches were being used in ABNJ, if capacity was a constraint to management of ABNJ and what was the nature of that constraint, etc. For the purposes of this paper, only the questions relevant to use of area-based management tools, capacity constraints, and capacity development activities and needs were used from that larger capacity assessment conducted by the University of Delaware/Mangone Center. Participants were also asked to provide institutional and respondent information on organization, region, country, and position of the respondent. All questions asked were optional (non-mandatory).

There were 65 responses in which a respondent answered all the key questions on capacity, constraints, and participation in negotiations/discussions and at least half the questions in total, resulting in a response rate of 26%. Results were downloaded from Qualtrics and Microsoft Excel was used to compile descriptive statistics. Responses to open-ended questions were binned into categories based on the answer (ex. financial constraints or human capacity). Closed-ended responses were compiled by percentage of the answer. These responses were analyzed as to which level of capacity (Level I, II, or III) is needed and potential area for capacity development are provided.

2.3 Results

2.3.1 PrepCom Breakdown

There were 31 statements made by States and voting bloc (ex. PSIDS) uploaded to the DOALOS PrepCom website (one statement was unable to be analyzed due to lack of translation). Capacity, capacities, capacity development or capacity building was mentioned 258 times in 26 statements. The degree to which specific approaches to capacity development were mentioned varied from general mentions of the need to develop capacity to specific needs (e.g., more training, joint research, scholarships, etc.). Capacity needs or mentions were sorted into four categories: technology and data, human and intuitional, financial, and other. The results were further broken down by specific mentions (e.g., clearinghouse mechanism, training, etc.). Twenty-three of the statements mentioned some form of technology and data as a capacity need. Figure 2 shows the breakdown of specific mentions of capacity needs. The need for a clearinghouse mechanism or mechanism for information sharing was mentioned in 21 of the statements. Three of the 21 statements calling for a clearinghouse or information sharing mechanism referred to a mechanism for marine genetic resources specifically, while the other 18 referenced a mechanism for building capacity generally (sharing information, accessing data and results, sharing opportunities and projects, etc.). Nineteen of the statements called for human and institutional resources development. Fourteen specifically called for training, education, sharing of knowledge and expertise, while eight mentioned the need to develop institutional capacity, regional centers of excellence, and facilities. Twelve statements included references to the need

for funding. Six specifically mentioned funds for participating in meetings, meeting commitments, and implementation, while four mentioned the need for funding for human capacity development (training, scholarships, education, etc.). The need to have better coordination and cooperation and engage in joint research was mentioned in 11 statements.

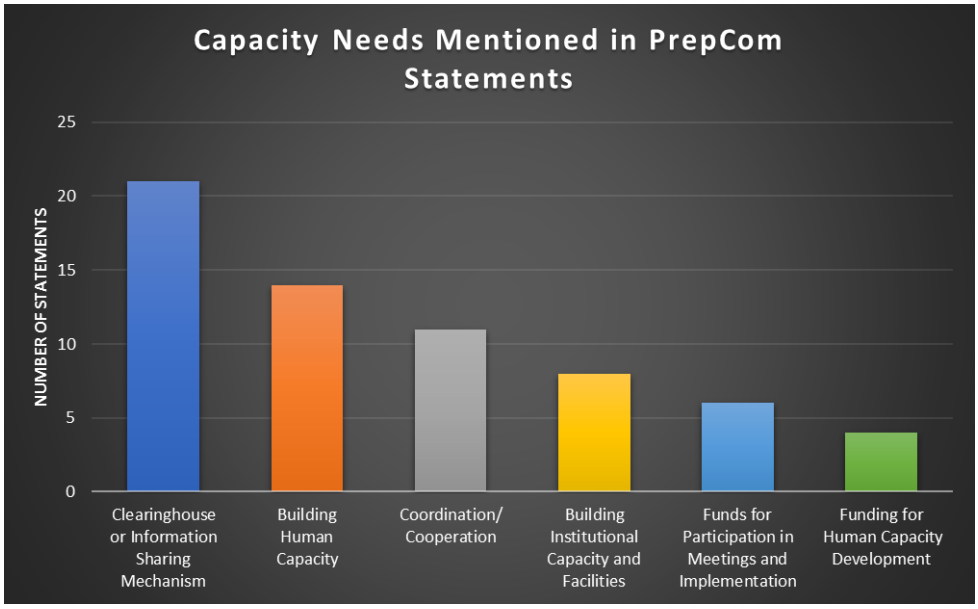

Figure 2: Breakdown of specific capacity needs as referenced in statements made at the Preparatory Committee meetings. The need to build a clearinghouse or information sharing mechanism was referenced in 21 of the 32 statements. Developing human capacity with training, education, and sharing knowledge/expertise was the second most referenced need (mentioned in 14 of the statements). Strengthening coordination and cooperation and engaging joint research was the third most referenced specific capacity need (mentioned in 11 of the statements).

The statements also mentioned the need for capacity development to be open to more than governments, and that the private sector, NGOs, and other stakeholders should be encouraged to participate in capacity development. Some statements saw contributions to funding and capacity development as voluntary, while others wanted capacity development and funding to be mandatory and linked to marine

genetic resources. The statements also referenced several organizations and programs as having already established capacity development programs, guidelines, and mechanisms that can serve as a start to incorporating capacity development into the new international agreement on ABNJ. The IOC was heavily cited as an organization that already has a mechanism for capacity development in their Criteria and Guidelines on the Transfer of Marine Technology. FAO, Group on Earth Observations Marine Biodiversity Observation Network, Istanbul Programme of Action, SAMOA Pathway, and the Nagoya Protocol were also mentioned. A review process and monitoring were also mentioned as needing to be included in a new agreement. Some States also mentioned that capacity development activities should be tailored to a particular need and that certain approaches may be more useful to some States over others.

2.3.2 Capacity Assessment Results

1. Demographics

Most (64%) of the respondents to the survey came from national and regional organizations (see Figure 3). National organization respondents came from various offices in government agencies/ministries. Regional respondents came from fisheries organizations (such as RFMOs), regional environment conventions (such as Abidjan and Nairobi Conventions), and other regionally based environment organizations (such as CARICOM, Permanent Commission for South Pacific, and the Sargasso Sea Commission). The remaining responses were from global organizations (such as the Food and Agriculture Organization of the United Nations) and academia/private organizations/NGOs. Respondents

represented a global population, with responses coming from individuals working for organizations working in each continent (see Figure 4). Africa, Europe, and the Pacific provided 60% of the responses. Responses also came from Antarctica, North and Central America, South America, the Caribbean, and Asia. Developing countries made up 66% of responses (see Figure 5).

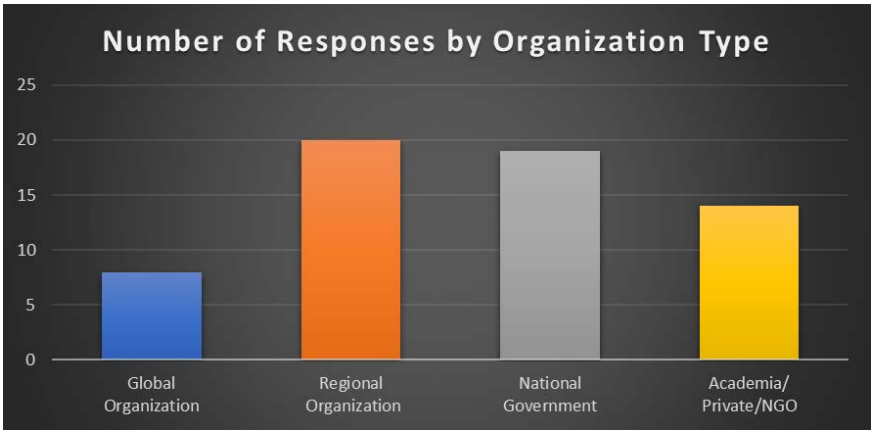

Figure 3: Type of organization. Respondents mainly came from regional (20 responses) and national (19 responses) organizations. Respondents from global organizations made up 11 of the responses and academia, private organizations (including industry), and NGOs made up 14 of the responses.

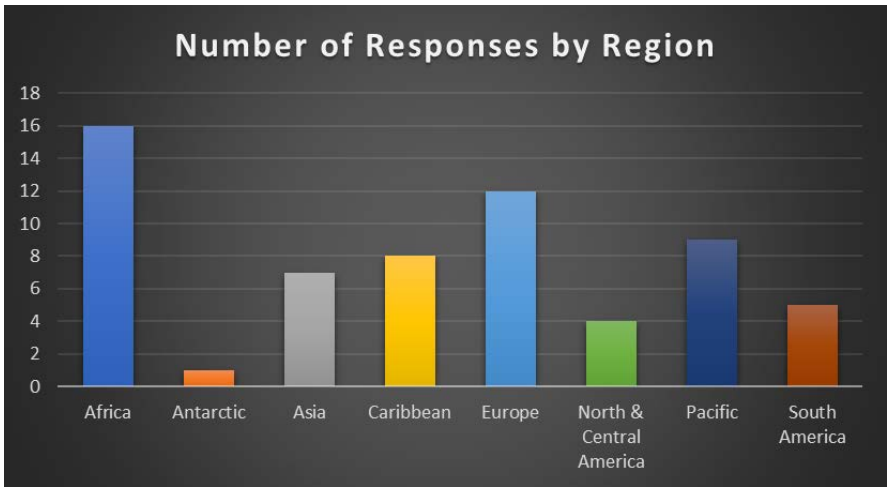

Figure 4: Region of responses. Africa provided the most responses (16), followed by Europe (12), and the Pacific (9). The Caribbean (8), Asia (7), South America (5), North and Central America (4), and the Antarctic (1) also provided responses.

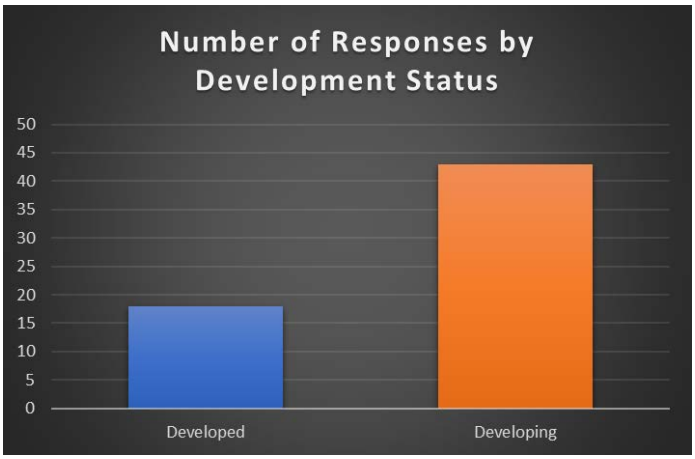

Figure 5: Development status of countries where respondents work. Developing countries made up 66% of the respondents.

2. Use of Area-based Management Tools and Approaches in ABNJ

Respondents were asked how often they use a variety of tools and approaches that could be used for area-based management in ABNJ (see Figure 6). For each tool and approach, nearly 60% of respondents use the tool or approach rarely/never or sometimes/occasionally. The two most frequently used tools or approaches were EBSAs and marine spatial planning (36% of respondents use this tool regularly/often or as an essential part of their job). The remaining tools and approaches were used by roughly 30% of respondents regularly/often or as an essential part of the respondent's job. Wanting to know more about a tool or approach made up 6-12% of responses.

Specifically, integrated ocean management and marine protected areas under Regional Seas conventions were used rarely/never by 25% of respondents, occasionally/sometimes by 33% of respondents, regularly/often by 14% of respondents, used to carry out essential functions by 17% of respondents, and

11% of respondents wanted to know more. For ecosystem-based approach, 24% of respondents use the approach rarely/never 34% of respondents used it occasionally/sometimes, 12% used it regularly/often, 19% used it to carry out essential functions of their jobs, and 12% of respondents wanted to know more. Marine spatial planning and EBSAs were used rarely/ never by 25% of respondents, occasionally/sometimes by 33% of respondents, regularly/often by 14% of respondents, used to carry out essential functions by 22% of respondents, and 6% of respondents wanted to know more. For sector led area-based management approaches, 27% of respondents use the approaches rarely/never 31% of respondents used it occasionally/sometimes, 12% used it regularly/often, 19% used it to carry out essential functions of their jobs, and 12% of respondents wanted to know more.

Diving deeper into sector led area-based management approaches, VMEs and APEIs were used rarely/never by 25% of respondents, occasionally/sometimes by 33% of respondents, regularly/often by 14% of respondents, used to carry out essential functions by 17% of respondents, and 11% wanted to know more. Special Areas (under the IMO) were used rarely/never by 26% of respondents, occasionally/sometimes by 33% of respondents, regularly/often by 15% of respondents, used to carry out essential functions by 16% of respondents, and 10% of respondents wanted to know more. Finally, PSSAs were used rarely/never by 24% of respondents, occasionally/sometimes by 32% of respondents, regularly/often by 15% of respondents, used to carry out essential functions by 18% of respondents, and 11% wanted to know more.

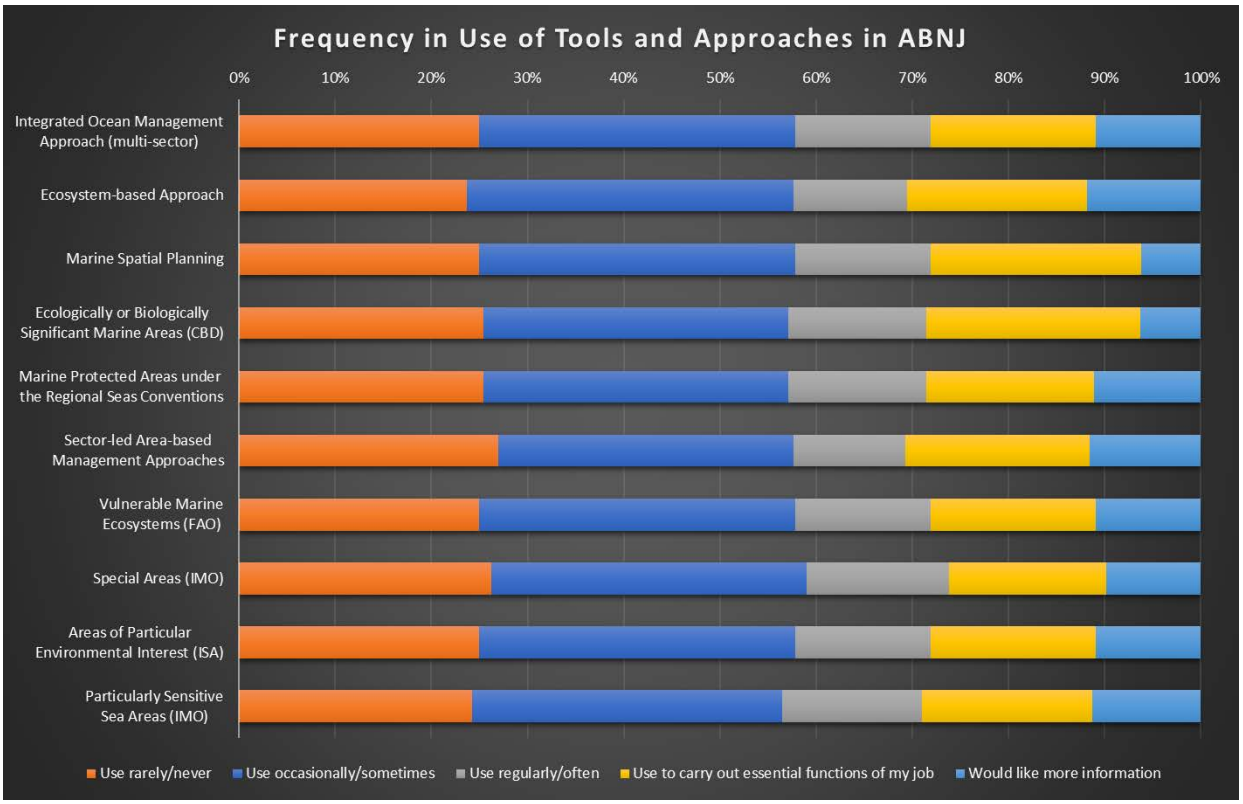

Figure 6: Use of Tools and Approaches for Area Based Management in ABNJ. Results for each tool or approach were similar, with respondents using each tool or approach rarely/never or occasionally/sometimes 60% of the time. Respondents used each tool or approach often/regularly or as an essential part of their job roughly 30% of the time. Wanting to know more about a tool or approach ranged from 6-12% of responses.

3. Constraints

When asked if capacity was a critical constraint to the management of ABNJ at the national and regional levels, 90% of respondents indicated capacity was a major constraint or somewhat a constraint for management at the national level while 94% indicated the same at the regional level (see Figure 7). Breaking the response down further, 75% of respondents from developed countries and 95% of respondents from developing countries thought capacity was somewhat or a major constraint to the management of ABNJ at the national level. At the regional level,

82% of respondents from developed countries and 97% of respondents from developing countries thought capacity was somewhat or a major constraint to the management of ABNJ.

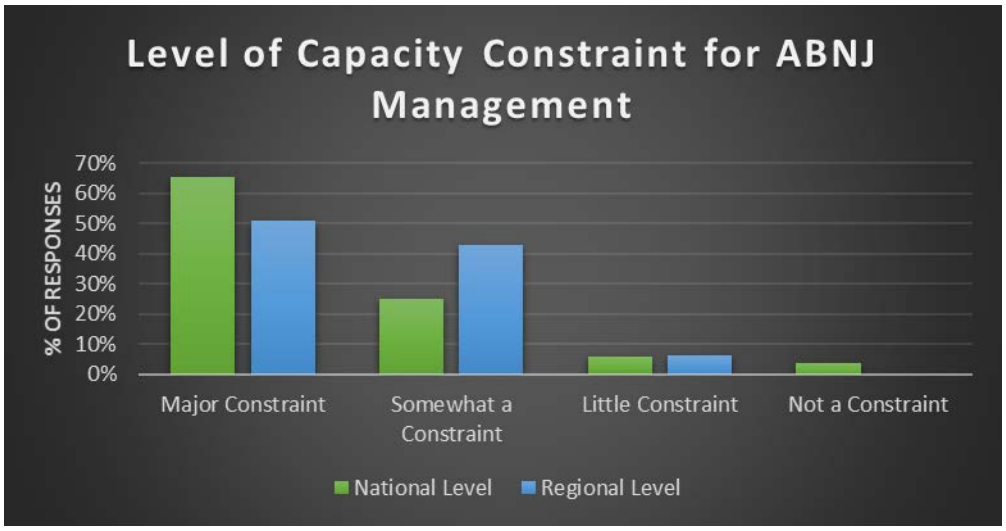

Figure 7*:* Level of capacity constraint for ABNJ management at the national and regional levels. Sixty-five percent of responses indicated capacity was a major constraint to ABNJ management at the national level and 51% said capacity was a major constraint at the regional level. Twenty-five percent of responses indicated capacity was a constraint at the national level and 43% said capacity was a constraint at the regional level. Only 10% of responses indicated capacity was a little constraint or no constraint to ABNJ management at the national level and 6% for the regional level.

Respondents were asked what the capacity constraints are for the management of ABNJ at the national and regional level (Figure 8). Survey participants could answer with multiple constraints, which were binned into categories. Scientific/technical constraints (the need for technical tools, data, knowledge, GIS, etc.) received the most responses at both the national and regional levels (20 and 13, respectively). Increasing awareness (both public and decision-makers) was the second highest category at the national level (17 responses), while policy

aspects was the second highest at the regional level (11 responses). Human capacity constraints (not having enough personnel or trained personnel) was the third highest category at the national level (12 responses), while raising awareness was the third highest for the regional level (10 responses). Responses also fell into enforcement; education; coordination, collaboration, and sharing; and other.

The responses to this question by development status were striking. At the national level, there were no responses from developed countries on human capacity or enforcement constraints (19% of developing country respondents noted human capacity was needed and 6% of developing country respondents noted enforcement was needed). Policy/legal and capacity made up 25% of responses of those from developed countries (10% of developing country responses). Interestingly, the percentage of responses for scientific/technical capacity was relatively even at 25% of developed country responses and 23% of developing country responses. Awareness/understanding made up 19% of responses of both developed and developing country respondents. Financial constraints accounted for 19% of developed country responses and 13% of developing country responses. At the regional level, policy/legal capacity made up 33% of developed country responses, compared to 14% for developing. Scientific/technical capacity made up 20% of developing country responses, compared to 8% for developed. Awareness/understanding was the second highest percentage of responses for developing countries (16%), while the category made up 8% of responses for developed countries. Human capacity percentages were even at 8% for developed and developing countries. All responses for

enforcement needs came from developing countries and all responses for education came from developed countries. The need for coordination or a mechanism for collaboration was relatively even between developed and developing countries (8% and 10% respectively).

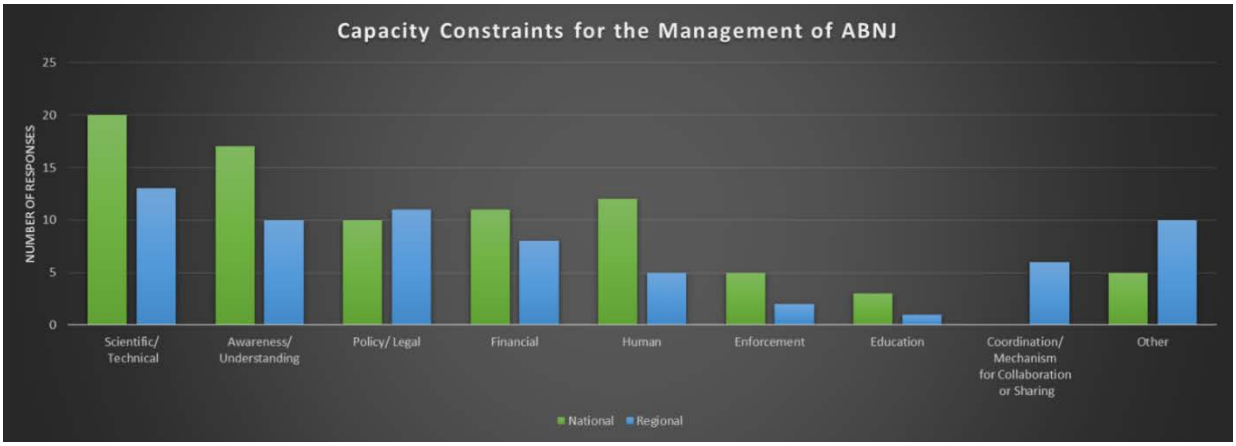

Figure 8: Areas where capacity is needed to reduce capacity restraints. For both the national and regional level, scientific/technical was the top area to reduce capacity constraints. Increasing awareness was the second highest area at the national level, followed by human constraints. At the regional level, policy/legal constraints was the second highest area, followed by awareness/understanding.

Survey participants were asked an open-ended question regarding the factors that constrain the effectiveness of collaboration or work of their institution in ABNJ (Figure 9). Participants could mention multiple factors as a response to this open-ended question and responses were binned into categories in order to see what the constraining factors are for collaboration in ABNJ. The biggest constraining factors were financial (18% of responses), general and human capacity (16% of responses), technical or scientific capacity (13%), and lack of awareness or understanding (13%). The lack of collaboration/information sharing was a constraining factor for 11% of respondents' organizations. Conflicting or varied

priorities/mandates of organizations working in ABNJ and lack of trust among these organizations was a constraining factor for 10% of the respondents, as was lack of interest, engagement, or political will for organizations. Other factors made up for 8% of the responses and 2% of respondents indicated their organization did not experience constraining factors for working in ABNJ.

Breaking this into responses by development status, financial constraints made up 23% of developed country responses (17% of developing country responses). Lack of cooperation/information sharing and conflicting or varied priorities/mandates/lack of trust each made up 18% of developed responses, while the same categories each made up only 8% developing country responses. Human capacity and awareness/understanding was relatively even between developed and developing country responses (14% developed, 17% developing; 14% developed; 12% developing). All the technical/scientific and lack of interest/engagement or political will responses were from developing countries (17% and 14% of developing country responses respectively).

Figure 9: Constraining factors for organizational effectiveness for collaborating or working in ABNJ. The top constraining factors were financial (18%), general capacity or human capacity (16%), technical or scientific knowledge (13%), and a lack of awareness or understanding (13%). Other constraining factors include lack of collaboration/information sharing (11%); conflicting or varied priorities/mandates and lack of trust (10%); lack of interest, engagement, or political will (10%), and 10% indicated another factor or no constraining factors.

Survey participants were asked their organization's level of participation in global discussions and negotiations regarding ABNJ (see Figure 10). Sixteen percent said their organization does not attend global processes, while 38% said their organization attends but does not intervene (make a statement during discussions and negotiations), 34% intervene during these processes, and 12% did not know their organization's level of participation or the question did not apply. When asked if capacity constrained participation in global discussions and negotiations (see Figure 11), 70% of responses indicated it was a major constraint or somewhat of a constraint to participation. Seven percent of responses indicated little constraint, 17% indicated no constraint, and 6% indicated the question was not applicable.

Looking at the data by development status, all the responses for not attending global processes came from developing countries. The developed country responses were relatively evenly split between intervening and attending but not intervening (53% and 47% respectively). Of developing country responses, 32% said their organization intervenes and 41% attends but does not intervene. Looking at capacity as a constraint to an organization's attendance or ability to attend global processes, 81% of developing countries responded capacity was somewhat or a major constraint, compared to 54% of developed country responses. There was no constraint for 31% of developed countries (14% for developing countries) and little constraint for 15% of developed country responses (6% for developing countries).

Figure 10: Participation in global discussions and negotiations regarding ABNJ (ex. the BBNJ Working Group). Seventy-two percent of responses indicated the organization attends, but only 34% intervene. Sixteen percent said their organization does not attend global discussions and negotiations and 12% did not know or the question was not applicable.

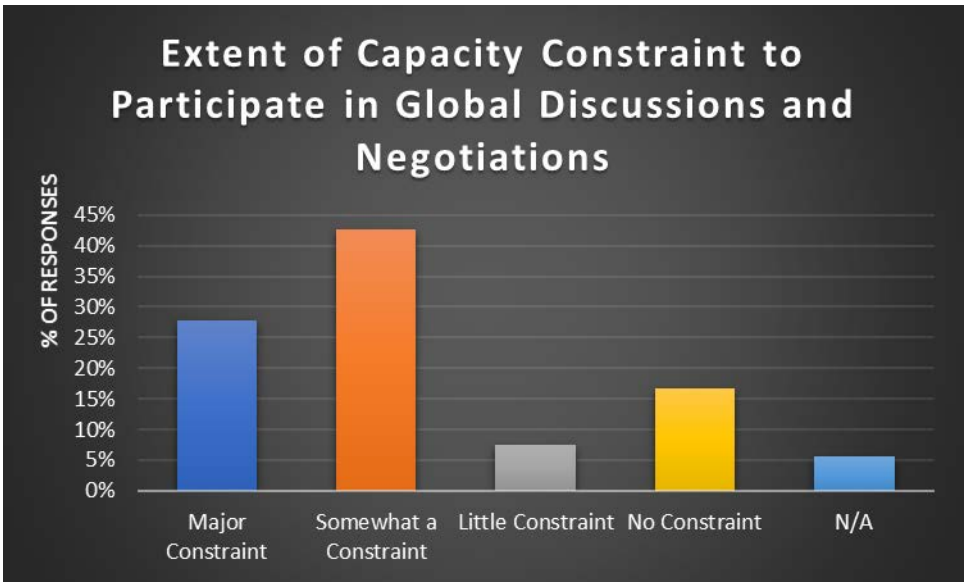

Figure 11: Level of capacity constraint for participation in global discussions and negotiations. For 70% of responses, capacity was a major constraint (34%) or somewhat a constraint (43%) to participation. The remaining 30% of respondents indicated little or no constraint (7%), little constraint (17%), or the question was not applicable (6%).

4. Capacity Development Activities

Survey participants were asked a closed-ended question about the types of capacity development activities that occur at the national and regional levels (Figure 12). For both the national and regional levels, seminars, workshops, and trainings were the activities that occur most (23% for national and 22% for regional), conferences were second (17% for national and 19% for regional), and access to materials, guidelines, documentation, and other materials was the third (16% for national and 17% for regional). Other categories included in the survey are academic programs (12% for national and 7% for regional), demonstration activities/programs (9% for national and 10% for regional), on-line training (5% for national and 8% for regional), and none (7% for national and 5% for regional).

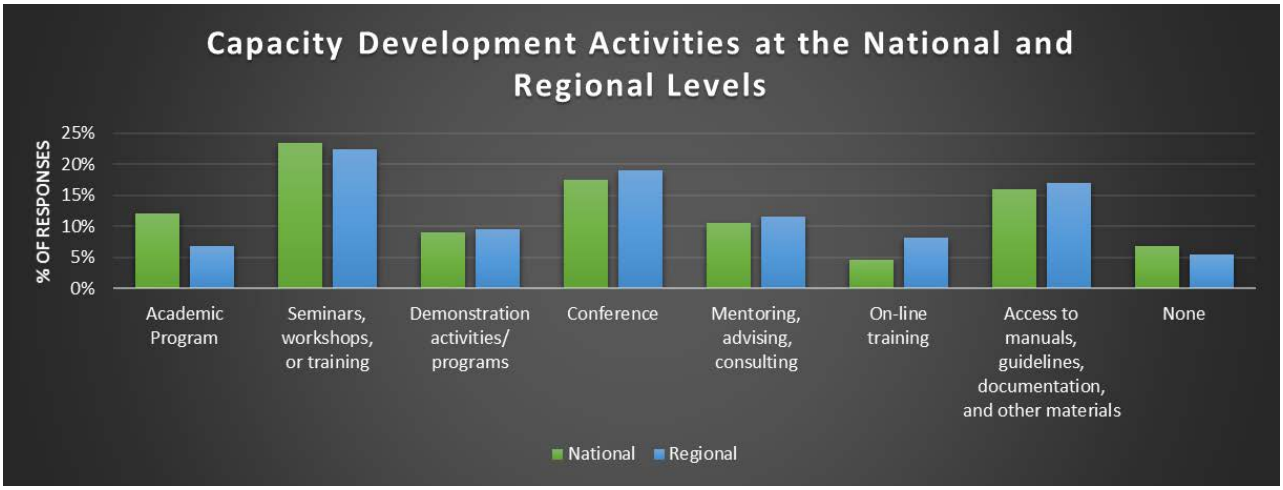

Figure 12: Capacity development activities at the national and regional levels. Seminars, workshops, and trainings were the capacity development activities that occur the most, followed by conferences, and access to manuals, guidelines, documentation, and other materials.

When asked which types of capacity development approaches would be useful to further development of capacity on ABNJ (open-ended question, responses were binned into categories), training, seminars, workshops, and academic opportunities scored highest for both national and regional levels (37% for national and 35% for regional). Building awareness or making ABNJ a priority was the second highest response for national (22%), while coordination, cooperation, and sharing of information was the second highest for regional (19%). Third highest for national was technical/scientific capacity development approaches and coordination, cooperation, and sharing of information (both with 12% of responses). For the regional level, approaches that develop policy, legal, and negotiation capacity scored third highest (15% of responses). Funding scored lowest for both the national and regional levels (2% and 3%, respectively). Other

types of capacity development approaches that were needed made up 8% of the responses for each level (Figure 13).

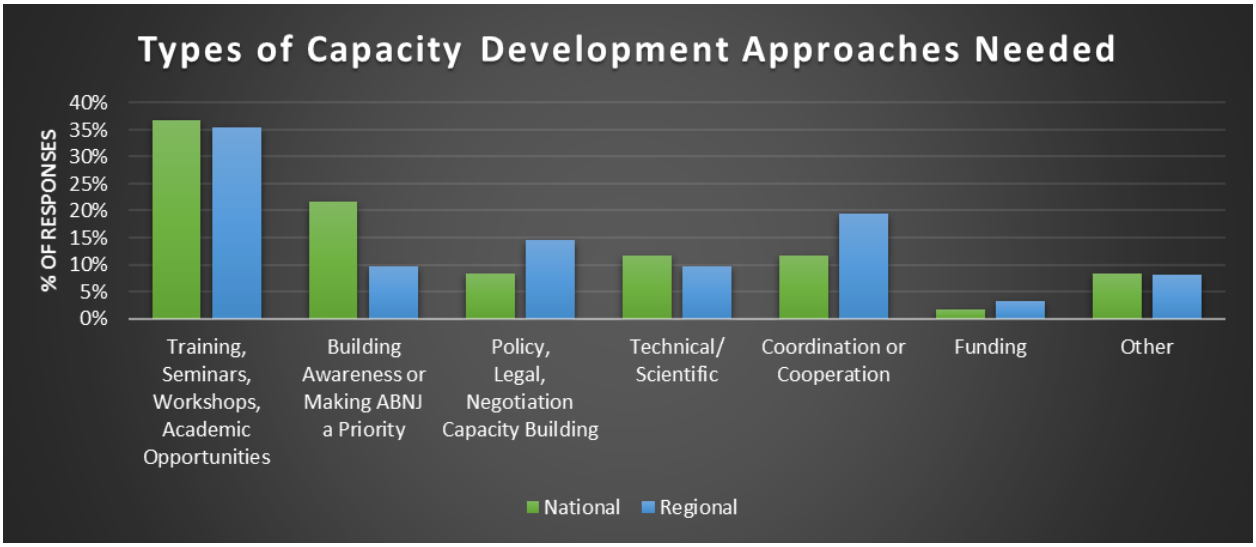

Figure 13: Types of capacity development approaches needed at the national and regional levels to develop capacity for ABNJ. Training, seminars, workshops, and academic opportunities were most needed according to survey participants. Building awareness or making ABNJ a priority was the second most needed capacity development at the national level. Approaches that increase cooperation and aid coordination were the second most needed capacity development approaches at the regional level.

Finally, survey participants were given options for specific capacity development approaches (Figure 14). Three activities each made up 15% of the responses: a primer on ABNJ issues; a short course on ABNJ held at the regional level; and a policy dialogue among global, regional, and national decision-makers focusing on developments at these levels. The second highest approach was a policy dialogue among different regions to compare different approaches and lessons learned from different regions (13% of responses). Three methods received 11% of responses: an academic course on ABNJ, a discussion of a code of stewardship ethics toward

the ABNJ for decision-makers and the public, and ways of involving the public in deliberations on ABNJ. The final approach, a short course on ABNJ held at the global level, was the lowest scoring approach with 9% of responses.

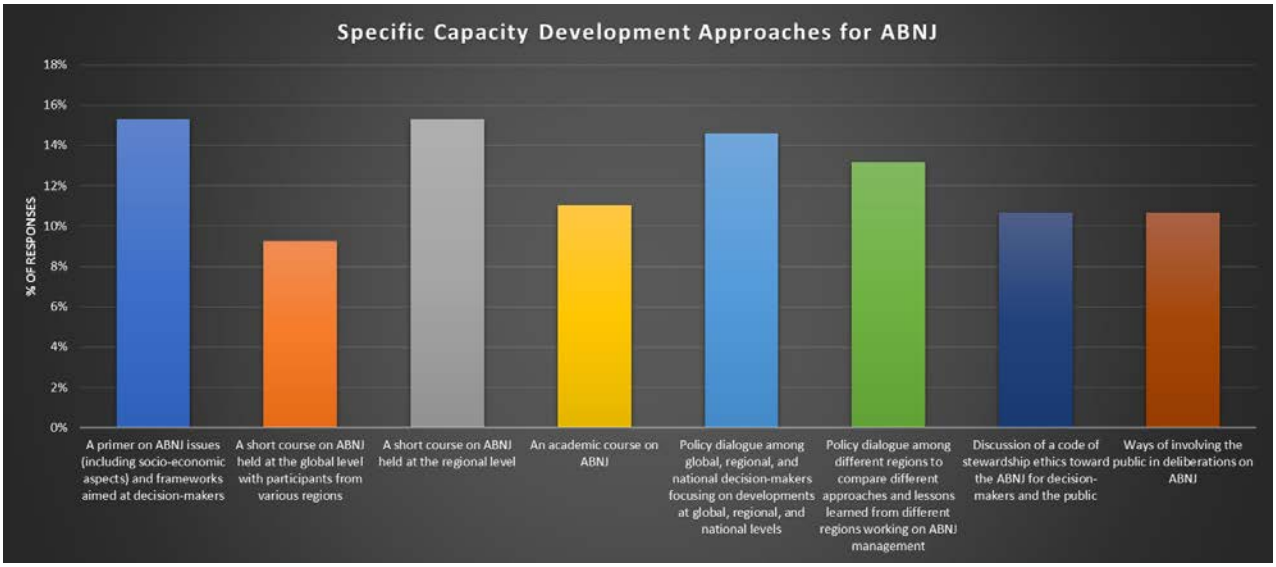

Figure 14: Specific capacity development approaches useful for ABNJ. The highest scoring approaches were a primer on ABNJ issues, a short course on ABNJ at the regional level, and a policy dialogue among global, regional, and national decision-makers (all with 15% of responses). A policy dialogue among different regions was the second highest with 13% of responses. With 11% of responses, an academic course on ABNJ, discussion of a code of stewardship ethics, and ways of involving the public were the third highest scoring approaches. And a short course on ABNJ held at the global level was the final approach (9% of responses).

2.4 Discussion

Capacity is clearly an area for improvement when it comes to the management and conservation of ABNJ. Ninety percent of survey participants thought capacity at the national level was a major constraint or somewhat a constraint for management of ABNJ (95% of developing country respondents and 75% of developed country respondents held this view). As shown by the IOC assessment, lack of capacity at the national level makes it difficult for States to comply with

international treaties (IOC, 2013a). The percentage of survey participants who answered that capacity was somewhat or a major constraint to the management of ABNJ is even higher at the regional level (94% overall; 97% of developing country respondents and 82%% of developed country respondents held this view). Out of the 31 statements analyzed, 26 of them mentioned capacity as an area that should be incorporated into a new international agreement on ABNJ. The tools and approaches for area-based management are not being utilized frequently: the two most used tools do not directly correlate to protections, as they are used to identify areas that could be in need of protection (EBSAs) and coordinate the use of ocean space (marine spatial planning), while approaches that do set up protections are not being utilized. While it is vital to identify areas in need of protection and plan the use of ocean space, it is also key to have the capacity to implement area-based management measures for the identified areas and coordinated use of ocean space. The challenge lies in making any new capacity development mechanisms or measures effective.

Capacity development should be tailored to the needs of a State. Not every State has the same priorities or needs, so capacity development must be flexible and able to be designed for the user (i.e. the State that is requesting the capacity building). Funding (#1 organizational effectiveness constraint for developed and developing country responses to the capacity survey) is needed for individual capacity development (i.e. for trainings, workshops, scholarships/fellowships, etc.) as well as to support State participation in global negotiations/meetings and implementation. Capacity is a constraint for participation in global negotiations

for 70% of survey respondents, and 16% of respondent's organizations do not attend these negotiations (all of which are developing countries), while 34% do not intervene. Capacity for participating in global negotiations was somewhat a constraint or a major constraint for 81% of developing country responses compared to 54% of developed country responses. States had differing views on if funding should be mandatory (tied with revenues from marine genetic resources) or voluntary. Many States expressed a desire to incorporate non-States (NGOs and the private sector) into funding mechanisms and not have States be responsible for all the fundraising. The new international agreement could present an interesting opportunity for a public/private partnership where non-States are integrated into the capacity development mechanism itself.

A secretariat or committee set up under a Conference of Parties system could help bring all the pieces together and give direction to effort strengthening capacity development. The January 2020 draft text of the Implementing Agreement has the IOC, in association with other organizations such as the ISA and IMO, in charge of managing the clearing-house mechanism. It is important to have a focal point for roles such as running the clearinghouse mechanism (update datasets, obtain new datasets, ensure interoperability of datasets, etc.), connecting regional and global organizations, coordinating capacity development efforts, ensuring opportunities reach interested individuals, and monitoring and evaluating capacity development efforts (especially any required financial or technical aid). Going back to Figure 1, Step 5 of the capacity development process is to evaluate efforts. There are current capacity development efforts going on under many different

organizations. However, evaluating what works is key to being able to refine the efforts that are implemented. Certain capacity development efforts may work better than others or the need for certain efforts could decrease over time while others are needed more over time. Without a body to evaluate these efforts, it will not be known what is effective at increasing capacity.

Capacity development does not need to start from scratch. There are programs and organizations that are already involved in this area. One place to start is the IOC, which has the purpose of "promoting international cooperation and to coordinate programmes in research, services and capacity building, in order to learn more about the nature and resources of the ocean and coastal areas and to apply that knowledge for the improvement of management, sustainable development, the protection of the marine environment, and the decision-making processes of its Member States" (IOC, 2013b, no page). The IOC's capacity building strategy through 2021 includes building individual capacity; increasing access to physical infrastructure; strengthening global, regional, and sub-regional mechanisms; developing ocean research policies; increasing visibility and awareness; and reinforcing resource mobilization (UNESCO, 2016). Granted, much of the focus for the IOC has been on national priorities (ex. tsunami warning systems or harmful algal blooms); however, several of the focus areas and activities in the strategy can be applied to ABNJ. For example, building the global ocean observing system, developing human resources, and strengthening mechanisms can all have an impact on ABNJ. Furthermore, while these activities are needed for strengthening capacity in ABNJ, they are also relevant to national

level capacity building and can complement capacity development on that level as well.

Using the IOC as a starting point could help inform where mechanisms and programs for ABNJ should begin or be expanded upon, including what is currently offered by IOC. For example, an ABNJ module could be added to the IOC's Ocean Teacher program. IOC's (and other organizations) efforts could form a floor from which to build and tailor efforts to ABNJ. This is consistent with the IOC's approach to capacity building, which focuses on an adaptive approach to capacity building. Again, the IOC has recognized funding as an issue and establishing a travel grant fund is a part of their capacity development strategy.

2.4.1 Level I Capacity – Enabling Environment

For Level I capacity, it is essential that an agreement on the management and conservation of marine biodiversity not only be discussed and negotiated but also agreed upon and put into force. Without an overarching agreement, the same problems that plague the management and conservation of ABNJ will continue to occur. Looking at Figure 9, the constraining factors for organizational effectiveness for collaboration, 21% of responses indicated problems with cooperation and information sharing or conflicting priorities/mandates and lack of trust. Much of the lack of cooperation and conflicting priorities came from developed countries (18% each of developed country responses). Building capacity for coordination and cooperation was a priority for 11 of the PrepCom statements. These problems can be lessened with a clear framework that enables

organizations working in ABNJ to have a common understanding of goals, obligations, responsibilities, and duties. The new agreement must also be clear about information flow and processes. Even if there is a new body created by the new international agreement that has overall responsibility for conservation and management in ABNJ, the current organizations working in ABNJ still have their own mandates and will continue to work in ABNJ. Therefore, clear direction of how information flows to and from national, regional, and global organizations and a clear division of responsibilities is essential. A new international instrument on management and conservation of ABNJ can provide the Level I capacity lacking in ABNJ, but it must be framed to give the clear, overarching context that is currently lacking.

2.4.2 Level II Capacity – Organizational Capacity

Building institutional capacity and facilities was a middle priority as evidenced by the PrepCom statements (ranked #4 of 6 priority areas identified). Some of this institutional capacity centered around the desire for regional centers for concerns such as data management, environmental assessments, training, or joint operations. Survey participants ranked financial and individual capacity as the top two constraining factors for organizational effectiveness for collaboration in ABNJ. Financial capacity was ranked #1 for developed country responses (23%) and tied for #1 of developing country responses (17%) along with human capacity and scientific/technical capacity. Somewhat surprisingly, funding ranked low in the types of capacity development needed (Figure 14). While funding is a constraint, leveraging resources by strong coordination and cooperation could

help with the lack of funding by decreasing duplicative efforts. Lack of awareness, understanding, interest, engagement, or political will accounts for 22% of survey responses regarding constraining factors for organizational effectiveness for collaboration in ABNJ. Lack of awareness and understanding was relatively evenly split between developed and developing country responses (14% of developed country responses and 12% of developing country responses). Lack of interest, engagement, and political will accounted for 14% of developing country responses (none for developed). For developing countries especially, lack of scientific/technical capacity impedes awareness and understanding of ABNJ. Without knowing what is out there (species and habitats) and the issues (risks, opportunities, possibilities), organizational capacity suffers. As one participant from Africa noted in the capacity assessment, the need to know more about ABNJ issues leaves his/her organization unable to fulfill its mandate.

2.4.3 Level III Capacity – Individual Capacity

Increasing Level III capacity was the number one priority identified in the PrepCom statements after the clearinghouse mechanism. As seen in the statements and the IOC assessment, States recognize the lack of trained personnel is hampering organizational effectiveness and national capacity, as well as the conservation and management of marine biodiversity in ABNJ. Without individual capacity, the other levels collapse. The individual capacity needed is not limited to trained scientists or managers but extends to negotiators and decision-makers. Individual areas to focus on, as identified in the survey, are various scientific disciplines (oceanography, biology, chemistry, etc.), as well as

law and policy. Strong individual capacity can help boost organizational capacity, which flows up to the overarching, enabling environment. Individuals need not only a base education in science, law, and policy, but also professional development opportunities over the course of a career. Tailoring these opportunities to ABNJ will aid with the conservation and management of these areas.

2.4.4 Potential Capacity Development Approaches

1. Training and Education

"The ultimate objective of capacity development is to contribute to the achievement of national and international development objectives" (de Grauwe, 2009, p 54). Institutionalized training and educational opportunities can serve to boost capacity at multiple levels. Figure 12 shows that training and education opportunities (seminars, workshops, trainings, academic programs, conferences, and on-line training) do occur at national and regional levels. However, more of these opportunities are needed. These opportunities should extend to practitioners, scientists, negotiators, and decision-makers. For practitioners and managers, a short course on ABNJ held at the global level with participants from various regions may prove beneficial. Discussion at a global level could provide a valuable avenue for sharing among regions of lessons learned. These workshops also would provide an opportunity for networking. "Exchange and mutual learning are … beneficial to all," and can "take place within fairly equal relationships" (de Grauwe, 2009, p 127). The course could also include training on the tools and approaches for area-based management, so that the practitioners

and managers have a fuller understanding of the tools and approaches and how to apply them. Scientific and technical constraints were the number one capacity constraint for management of ABNJ for both developed (tied with policy/legal) and developing countries at the national level and number one at the regional level for developing countries (Figure 8). For budding scientists, academic programs (undergraduate and graduate) in different disciplines may prove valuable. Scientists trained in chemistry, biology, oceanography are needed to understand ABNJ as well as national waters. Increasing availability of academic programs in these areas would provide developing countries especially with a needed capacity boost for understanding national waters as well.

Negotiators and decision-makers also need training and education. In order to negotiate agreements and make decisions on priorities and goals, negotiators and decision-makers need to understand the issues in depth. Policy/legal was the number one constraint to the management of ABNJ for developed countries at both the national and regional levels, while developing countries ranked policy/legal fourth at the national level and third at the regional level. Building awareness, making ABNJ a priority, and building capacity in policy and law were areas to target for the types of capacity needed in ABNJ (Figure 13). Furthermore, boosting legal and policy education can aid in States' ability to develop their own national maritime policy and sustainably use their ocean space, two areas that are lacking according to the IOC assessment. A primer on ABNJ as well as a policy dialogue with global, regional, and national level decision-makers focusing on developments at global, regional, and national levels were tied for first with the

short course on ABNJ (Figure 14). This primer can include items such as species and habitats in ABNJ, importance of ABNJ (including risks, opportunities, and economic factors), as well as the tools and approaches for area-based management. Boosting capacity for negotiators is key for Level I capacity, since these individuals are the ones doing the negotiating of the new international agreement and must have the knowledge to be able to negotiate content and language of the agreement sometimes very rapidly. Decision-makers are key for setting priorities and goals within organizations. It is key for these individuals to understand ABNJ issues, since their direction is key to organizational effectiveness. This is especially true for developing countries, where the survey showed lack of interest was the second highest ranked constraining factor for organizational effectiveness for developing countries as well as the second highest capacity constraint to ABNJ for developing countries at both the national and regional levels. Once awareness and interest are built on the importance of ABNJ, decision-makers can then help address the policy and legal constraints for management of ABNJ.

While it can sometimes be difficult logistically to effectively organize trainings, workshops, conferences, seminars, etc. for participants within a region or globally, on-line trainings or trainings that can be downloaded could help boost needed training (for example, the IOC's Ocean Teacher program). Modular trainings could allow participants to tailor their learning to areas they want to learn more about. Remote participation for conferences and seminars could help individuals who may not be able to travel due to logistical or funding difficulties.

Granted, the internet and remote learning is not always a solution for areas where strong internet connections are lacking, nor can the internet be a substitute for the connections one can make in person at a workshop, training, seminar, etc. However, it can help provide an option and a tailored solution. Funding for these opportunities could occur from MGR royalties as some States have suggested, although the viability and timeliness of a royalty system is unknown due to the many details that would go into such a system, but could also be a part of the non-State participation in the new agreement (for example, an NGO could host the training or provide scholarships for training opportunities).

The opportunities for training that do exist are "sporadic with few opportunities for sustained long term development" (IOC, 2013a, p 3). The opportunities for capacity development that exist for ABNJ are short term and do not develop a sustainable level of capacity for the long term. For example, while the Common Oceans program is targeted towards increasing capacity for ABNJ management, it is limited to five years. In order to truly develop capacity at all levels, an organized program for capacity development with sustainable funding is needed. It is also key that these opportunities become institutionalized within an organization. Isolated interventions without a long-term capacity development home limits the chances of organizational improvement (de Grauwe, 2009). One-off training opportunities may help develop individual capacity once but does not allow for continued learning as situations change. Furthermore, if these trained individuals leave their organization, organizational capacity suffers. Organizations should emphasize professional development and paid training

opportunities. Institutionalizing training and development is key to continued Level II and III capacity development, which ultimately aids Level I capacity.

2. Coordination and Cooperation

Coordination and cooperation are important in a commons area, an area where no State has jurisdiction. It was the third highest ranked capacity need in the PrepCom statements and second highest ranked constraining factor for organizational effectiveness for developed countries. With many organizations working in the same area, each with a different mandate and priority, it is important for organizations to be able to leverage resources in pursuit of common goals, reduce duplicative efforts, benefit from synergies and ensure the work of one organization does not negatively affect the work of another. While organizations working in ABNJ have MOUs and cooperation agreements, these arrangements are not always committed to or carried out. As previously mentioned, the Collective Arrangement in the North East Atlantic has only been signed onto by NEAFC and OSPAR. While those two organizations play a large role in the management and conservation of this area, they are not the only organizations working in this area; therefore, not the only organizations that could benefit from increased coordination and cooperation. While individual cooperation agreements have the benefit of tailoring the agreement to the context, it takes time and a strong desire by organizations to negotiate these agreements. It takes even more desire and a concerted effort to actually see that the agreement is used. Increasing organizational capacity can focus on strategy, mission, culture, etc. Therefore, the new international agreement (or a concerted effort by

organization heads) should focus on making coordination and cooperation a commitment.

A clearinghouse mechanism could help announce opportunities and exchange programs that would increase coordination and cooperation. Opportunities for joint research (e.g., opportunities for joint ship operations, lab time, etc.) could be published so that resources could be better leveraged and so that individuals from developing countries can develop individual capacity and participate in opportunities they may not otherwise get. Sabbaticals and exchange programs where organizations host a visiting professional could encourage more coordination and cooperation. If a professional from one organization spends a year at another (for example, an RFMO and Regional Seas Programme exchange program), relationships are built (among individuals as well as organizations), skills and knowledge are exchanged, and capacity is built (individually and organizationally).

3. Clearinghouse Mechanism

The breakdown of statements from the PrepCom meetings show that a clearinghouse mechanism is a much-desired form of capacity development. The statements reflect a need for an online, easily accessible resource where information can be consolidated and shared. This mechanism could hold data and information, training modules, opportunities for training and joint research, scholarship information, etc. This mechanism, while perhaps technically challenging with the need to host, update, and fund it, presents an opportunity for transparency and less challenging capacity development. By placing information,

opportunities, data, etc. in an easily accessible database, States can engage in capacity development as they see fit. In the PrepCom statements, States expressed the desire for capacity development that is not one size fits all and tailored to the needs of a State. This mechanism can aid States in developing capacity that would meet their individual needs.

Consolidation of data and information and strengthening transparency would also help solve some of the technical challenges that organizations face, especially for developing countries. Technical/scientific challenges were ranked third for constraining factors for organizational effectiveness regarding collaboration in ABNJ (Figure 9), all of which came from developing countries which ranked technical challenges as the number one constraining factor (along with human factors and financial). Organizations, especially in developing countries, do not always have the data they need or enough data, nor a method to obtain the data (i.e. no research vessel). Having more open access data and/or a clearinghouse mechanism, can help build the capacity of organizations to understand what is in ABNJ, understand where potential hotspots and sensitive areas are, prioritize what to protect, develop environmental impact statements, etc. This would then help build the awareness of ABNJ, which is a major constraining factor for ABNJ management (Figure 9). A clearinghouse mechanism, while technically challenging, though not unprecedented for a global agreement, can provide a needed capacity boost for organizations and States. This mechanism does not have to start from scratch either. For example, the IOC's Ocean Biogeographic Information System (OBIS) has 708 datasets and over 3 million records for

ABNJ. This data set is a great start for an oceanographic and biogeographic node for a clearinghouse mechanism. Collaboration in this way and increased sharing of data and information can make a large impact on organizational effectiveness and help improve area-based management in ABNJ.

4. Priorities and Awareness

A key feature to establishing comprehensive protection for the marine environment in ABNJ is the political will for change. “Any measures aiming at the preservation of marine biodiversity in ABNJ depend upon the capacity and, not least, the willingness of States Parties to enforce such measures against ships of their own nationality” (Matz-Luck and Fuchs, 2014, p 158). Looking at the results of the capacity assessment, participants recognize this need for a shift in priorities and the building of awareness of ABNJ. At the national level, increasing awareness and making ABNJ a priority was noted by 22% of the respondents as a capacity development need (Figure 14). For both developing and developed country respondents, increasing awareness was ranked as the second highest capacity constraint at the national level. At the regional level, 10% said this shift in priorities and awareness was needed and was ranked second highest by developing countries for capacity constraints to the management of ABNJ. While it stands to reason that national level decision-makers are more focused on their own national waters, increasing awareness of ABNJ and making the management of ABNJ a priority can help develop capacity at the national level as well as bring benefits to national waters. Furthermore, awareness of ABNJ and the management aspects going on in that ocean space can help ensure national policies are

complementary to ABNJ management. Increasing awareness and making ABNJ a priority goes hand in hand with training and education. By encouraging more university level academic programs focusing on ABNJ as well as training programs for professionals, the awareness of ABNJ can extend to all levels.

Also important is the establishment of scientific advisory bodies, which is already routine in international agreements/conventions, and the political will to heed the advice and recommendations they provide. For example, the Northwest Atlantic Fisheries Organization (NAFO) identified VMEs and established fisheries closures. However, the organization then decided "little interaction currently takes place between coral indicator species and fishing activities, despite the finding of the SC" (scientific committee) (Wright et al., 2015, p 139). A similar disregard for scientific advice was seen in the South-East Atlantic. The SC recommended a prohibition on gillnet fishing and trawling; however, this advice was also not taken by the RFMO (Wright et al., 2015). While States do have the right to exploit natural resources, they must do so "in accordance with their duty to protect and preserve the marine environment" (UNCLOS Article 194). Without the political will for change, enforcement, and science-based decision making, the conservation and sustainable use of marine biological diversity in ABNJ will not be realized. Alternatively, structuring the new agreement to give a scientific body more weight during decision-making could also help alleviate some of the issues associated with not following scientific advice.

Increasing this awareness and making ABNJ a priority can occur with targeted trainings and materials for decision-makers and negotiators. A primer for

decision-makers and policy dialogues at all levels were tied atop the list of specific capacity development approaches that would be useful for ABNJ (Figure 14). This falls into the Level III capacity development, individual capacity development, yet it also is essential for Level I and II capacity. Having strong leaders who are aware of developments can help strengthen organizations' missions, strategies, culture, etc. (Level II). Having strong negotiators who are knowledgeable of the issues will help lead to a stronger overall framework (Level I).

2.5 Conclusion

The potential new mechanism under UNCLOS for the conservation and management of marine biological diversity in ABNJ is an exciting prospect. With capacity development and area-based management being focal areas in the new mechanism, there is potential to not only aid in conservation and management of ABNJ, but also of national jurisdiction. The tools and approaches for area-based management are not being fully utilized currently, and there are many constraining factors that result in a lack of capacity for the conservation and management of ABNJ. Strengthening one level of capacity is not enough, since each level builds upon and is dependent on the other. Providing a clear framework for priorities, processes, information flow, etc. is key to strengthen the coordination and cooperation of area-based management. Leveraging resources and institutionalizing building human capacity is key for organizations to be able to carry out their mandates and priorities in ABNJ. Ensuring individuals have the

necessary training, not only in terms of university level programs but also in terms of continued training throughout a career, is key to ensuring organizations have the knowledge to carry out the framework set forth in the new mechanism. Individual capacity development needs to occur for scientists, managers, policy/decision-makers, as well as negotiators. Without increasing all three levels of capacity, any new agreement for the conservation and management of ABNJ will ultimately be unsuccessful. “The ideal capacity development strategy forms a package of different interventions. The total possible effect of such a package is worth more than the simple sum of the different interventions” (de Grauwe, 2009, p 99). The key for new international agreement for ABNJ is to lay out a true capacity development process, incorporating all the necessary steps of the process including consistent funding, so that capacity for area-based management is developed in a meaningful and sustainable manner.

REFERENCES

Analoui, F. and Danquah J.K. (2017). *Critical Capacity Development*. Cham, Switzerland: Springer.

Ardron, J., Rayfuse, R., Gjerde, K., and Warner, R. (2014). The sustainable use and conservation of biodiversity in ABNJ: What can be achieved using existing international agreements? *Marine Policy*, 49, 98-108.

Ban, N., Bax, N., Gjerde, K., Devillers, R., Dunn, D., Dunstan, P., Hobday, A., Maxwell, S., Kaplan, D., Pressey, R., Ardron, J., Game, E., and Halpin, P. (2014a). Systematic Conservation Planning: A Better Recipe for Managing the High Seas for Biodiversity Conservation and Sustainable Use. *Conservation Letters*, 7(1), 41-54.

Ban, N. Maxwell, S., Dunn, D., Hobday, A., Bax, N., Ardron, J., Gjerde, K., Game., E., Devillers, R., Kaplan, D., Dunstan, P., Halpin, P., Pressey, R. (2014b). Better integration of sectoral planning and management approaches for the interlinked ecology of the open oceans., *Marine Policy*, 49, 127-136.

CBD (Convention on Biological Diversity) (2012). Report of the Workshop of the Eastern Tropical and Temperate Pacific Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas. Galapagos Island, Ecuador, 28-31 August 2012.

De Grauwe, A. (2009). *Without capacity, there is no development*. Paris, France: UNESCO/International Institute for Educational Planning.

Everson, I. (2017). Designation and management of large-scale MPAs drawing on the experiences of CCAMLR. *Fish and Fisheries*, 18, 145-159.

Food and Agriculture Organization (FAO) (2018). Common Oceans – ABNJ: Global Sustainable Fisheries Management and Biodiversity Conservation in Areas Beyond National Jurisdiction. Rome, Italy: FAO. Available: http://www.fao.org/documents/card/en/c/CA0994EN.

Freestone, D. and Morrison, K. (2012). Current Legal Developments: The Sargasso Sea. *The International Journal of Marine and Coastal Law*, 27, 647-655.

Gjerde, K., Dotinga, H., Hart, S., Molenaar, E., Rayfuse, R., and Warner, R. (2008). Regulatory and Governance Gaps in the International Regime for the Conservation and Sustainable Use of Marine Biodiversity in Areas beyond National Jurisdiction. IUCN, Gland, Switzerland.

International Maritime Organization (IMO) (no date). Particularly Sensitive Sea Areas. Retrieved January 6, 2018, from http://www.imo.org/en/OurWork/Environment/PSSAs/Pages/Default.aspx.

International Oceanographic Commission (IOC) (2013a). Baseline Study for an Assessment of National Capacities and Needs in Marine Research, Observation, and Data/Information Management. Available: http://www.ioc-unesco.org/index.php?option=com_oe&task=viewDocumentRecord&docID=11244

International Oceanographic Commission (IOC) (2013b). Available: http://www.ioc-unesco.org/

International Seabed Authority (ISA) (no date). Preservation reference zones. Retrieved January 6, 2018, from https://www.isa.org.jm/preservation-reference-zone.

International Seabed Authority (ISA) (2011). Environmental Management Plan for the Clarion-Clipperton Zone. Kingston, Jamaica.

Kay, M., Franks, T. and Tato, S. (2004) Capacity Needs Assessment Methodology and Processes. Rome, Italy: FAO.

Martin, C., Tolley, M., Farmer, E., Mcown, C., Geffert, J., Scharlemann, J., Thomas, H., van Bochove, J., Stanwell-Smith, D., Hutton, J., Lascelles, B., Pilgrim, J., Ekstom, J., Tittensor, D. (2015). A global map to aid the identification and screening of critical habitat for marine industries. *Marine Policy,* 53, 45-53.

Matz-Luck, N. and Fuchs, J. (2014). The impact of OSPAR on protected area management beyond national jurisdiction: Effective regional cooperation or a network of paper parks? *Marine Policy,* 24, 155-166.

Molenaar, E. and Elferink, A. (2009). Marine protected areas in areas beyond national jurisdiction The pioneering efforts under the OSPAR Convention. *Utrecht Law Review,* 5:1, 5-20.

Rochette, J., Unger, S., Herr, D., Johnson, D., Nakamura, T., Packeiser, T., Proelss, A., Visbeck, M., Wright., A., and Cebrian, D. (2014). The regional approach to the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction. *Marine Policy,* 49, 109-117.

Stephen, P. and Triraganon, R. (2009). *Strengthening Voices for Better Choices: A capacity needs assessment process.* Gland, Switzerland: IUCN.

United Nations Convention on the Law of the Sea (UNCLOS), December 10, 1982, 1833 U.N.T.S. 397

UNDP (2008). Capacity Assessment Methodology: User's Guide. New York, USA.

UNEP (no date). Regional Seas. Retrieved December 16, 2017, from http://web.unep.org/regionalseas.

UNEP-WCMC and IUCN (2016). Protected Planet Report 2016. UNEP-WCMC and IUCN: Cambridge UK and Gland, Switzerland.

United Nations Environment Programme (UNEP). (2006). *Ecosystems and Biodiversity in Deep Waters and High Seas*. UNEP: Nairobi, Kenya. Available at: https://wedocs.unep.org/bitstream/handle/20.500.11822/11811/rsrs178.pdf?sequence=1&isAllowed=y

United Nations Educational, Scientific, and Cultural Organization (UNESCO) (2016). 2015-2015 IOC Capacity Development Strategy. UNESCO: Paris, France. Available at: http://unesdoc.unesco.org/images/0024/002440/244047m.pdf

Visbeck, M. (2018). Ocean science research is key for a sustainable future. *Nature Communications*, 9:960, 1-4. Available: https://doi.org/10.1038/s41467-018-03158-3.

Warner, R. (2014). Conserving marine biodiversity in areas beyond national jurisdiction: co-evolution and interaction with the law of the sea. *Frontiers in Marine Science*, 1:6, 1-11.

Wright, G., Ardron, J., Gjerde, K., Currie, D., and Rochette, J. (2015). Advancing marine biodiversity protection through regional fisheries management: A review of bottom fisheries closures in areas beyond national jurisdiction. *Marine Policy*, 61, 134-148.

Chapter 3

ANALYZING MPAS IN ABNJ: A LOOK AT REPRESENTATION, LEVEL OF PROTECTION, AND LESSONS LEARNED

3.1 Introduction

3.1.1 The importance of oceans

Making up three quarters of the Earth and 90% of the habitable space (UNESCO, 2017), the ocean is the largest ecosystem on the planet. This ecosystem is teeming with life. Estimates vary from 226,000 to 250,000 formally described marine species, with one third to two thirds of marine species waiting to be described (approximately 482,000-750,000 species), which means there could be 700,000 to one million marine species total (Census of Marine Life, 2011; Appeltans et al., 2012). There are 43 marine phyla, as compared to 28 terrestrial (UNEP, 2006). While only one of the 33 animal phyla is exclusively terrestrial (UNESCO, 2017), 15 are exclusively marine (UNEP, 2006). Although marine biodiversity has been shown to be high, the oceans are remarkably understudied. Approximately 5% of the ocean has been studied, with most of this research occurring in the coastal zone. “Our knowledge about biodiversity is plagued by the so-called Linnean and Wallacean shortfalls” (Brito, 2010, p 710). That is, most species on earth are not formally described and the geographical distributions of species are not well known. Furthermore, the distribution of marine habitats and whereabouts of key evolutionary processes (ex. breeding aggregations) are also not well known (Martin et al., 2015).

Sixty-four percent of the ocean's surface is in areas beyond national jurisdiction (ABNJ), the areas 200 nautical miles from coastlines. While once thought to be dull and lifeless, ABNJ is made up of a variety of ecosystems that supports the diversity of marine life. Seamounts for example, support a wide array of life ranging from tuna to sharks and whales. Trenches and hydrothermal vent communities boast a high rate of endemic species, many of which are not yet described (UNEP, 2006). Martin et al. (2015) attempted to create a global map of areas of "critical habitat," areas that were important for biodiversity such as seamounts, hydrothermal vents, sea turtle nesting grounds, corals, etc. The researchers found that while 44% of the coastal areas could be identified as critical habitat, much of what makes up ABNJ is unclassified (Martin et al., 2015). This underscores the need for more research and sampling effort to be targeted towards ABNJ.

The importance of this biodiversity in the oceans and in ABNJ comes not only from the inherent value of life on Earth, but also in the form of economic, spiritual, and social value. It is no coincidence that the coastal zone houses eight of the top ten largest cities on the globe (Narula, 2016). ABNJ provides four types of services that benefit human life: provisioning services, regulating services, habitat services, and cultural services (Popova et al., 2019). That is, the ocean is critical for food supply, provides mineral and genetic resources, purifies air, regulates waste, and is an important aspect to cultures around the world. Fisheries and shipping are major uses of the ocean and ABNJ. The ocean provides a livelihood for over three billion people and 90% of the global trade is transported

via the ocean (Narula, 2016). Fish accounts for about 20% of global animal protein for 3.2 billion people worldwide (FAO, 2018). The value of healthy oceans and rich biodiversity cannot be overstated.

While ABNJ are hundreds of miles from coastlines, impacts to ABNJ can impact coastal states. Thus, while no single state has jurisdiction in this area to create protections for ABNJ, protecting ABNJ is critical to coastal states. For example, migratory species traverse the oceans and flow between Exclusive Economic Zones (EEZ) and ABNJ. These species are important for cultural and ceremonial purposes for Indian and Pacific Ocean States, as well as being an important food and economic resource (Popova et al., 2019). Seamounts, while generally geographically isolated, may not be biologically isolated and "instead may have assemblages of benthic species similar to those of the continental slopes and banks of EEZs…" (Popova, 2019, p 97). While biodiversity in ABNJ may seem distant to coastlines, they are connected; therefore, protecting ABNJ aids the well-being of coastal cultures and economies around the world.

3.1.2 Challenges to oceans and marine biodiversity

Fishing is a top use of the ocean and a source of stress to ocean ecosystems. Unlike hunting on land, where the top predators are generally not a target (except for trophy hunting), fishing often targets top ecosystem predators (for example, tuna, billfish, and sharks). This fishing pressure leads to "fishing-down-the-food-web" where the lower trophic species are increasingly becoming targets as the top predators are removed from the ecosystem (Pauly et al., 1998). Per capita fish consumption has increased from 9.9kg in the 1960s to 20.2kg in 2015 (FAO,

2018). Small island developing states have the highest per capita fish consumption, over 50kg per person (FAO, 2018). The demand for seafood continues to grow while fish stocks decline. Maximally sustainably fished stocks account for 59.9% of assessed stocks and overfished stocks account for 33.1% of stocks (meaning 93% of stocks are fished at capacity or overfished and only 7% of stocks are underfished) (FAO, 2018). “Unsustainable fisheries management practices have led to globally depleted fish stocks that produce $83 billion less in annual net benefits than would otherwise be the case” (World Bank 2017). Heavy fishing pressure has led to by-catch (removal of non-target species) and discards that amounts to one third of the landed biomass (Murray et al., 1999). Illegal, unreported, and unregulated (IUU) fishing accounts for up to $23.5 billion USD annually (World Bank, 2017). Furthermore, 30% of IUU fishing occurs in ABNJ (UNEP, 2006). Removal of top predators, large amounts of by-catch and discards, as well as heavy fishing pressure has led to ecosystems on the verge of collapse.

Another major use of the ocean is shipping. The global shipping fleet consists of over 50,000 vessels registered in 150 countries (International Chamber of Shipping, 2018). These ships operate worldwide and account for roughly 90% of global trade (International Chamber of Shipping, 2018). As the global economy grows, the amount of goods shipped over the ocean increases, which leads to more, larger, and noisier vessels. According to Kaplan and Solomon (2016), the ocean’s maximum noise capacity is expected to increase 87-102% by 2030. Other risks associated with global shipping include oil spills, groundings, invasive

species, and ship strikes. All this traffic puts pressure on the marine environment and potentially threatens the health of marine habitats and species.

While traditional ocean uses, such as shipping and fishing, are well known, emerging uses of the ocean are increasingly adding to the threats to ocean biodiversity and habitats. The effects of deep-sea mining on ecosystem function and deep-water communities is unknown due to the lack of information on these ecosystems and communities themselves as well as lack of information on the extent of impacts mining will have (Christiansen, et al., in press). The effects of mining may include increased turbidity, underwater noise, and light emissions; introduction of alien species; and alteration of habitat and communities (Christiansen et al., in press). Renewable energy and bioprospecting are increasing the anthropogenic influences on the marine environment. Climate change is a global threat that will alter migration patterns, change species' range, and affect community assemblages in marine ecosystems. Climate change will lead to shifts in environmental gradients, that "will likely affect habitat integrity and representativeness, redistribute species and change community composition and interactions" (Johnson, et al, 2018, p 112). For example, fisheries catches will be impacted by climate change through physiological and behavioral changes of fish, as well as physical and chemical changes to the marine environment (Teh et al., 2017). While effects from climate change for specific areas may not be fully known, currently, it is important to provide areas of refuge for species and protect habitats from anthropogenic effects, so they can adapt to the changing conditions of the marine environment (Roberts et al., 2017). Other threats, including ocean

noise and marine pollution, are on the rise and affect the basic ecosystem functions of the ocean.

3.1.3 Effective ocean protection

The decline of many of the world's fisheries and increasing human-induced disturbances of the marine environment has led to renewed calls to protect marine biodiversity. The international community has embraced the use of marine protected areas (MPAs), setting targets for 10% of marine and coastal areas be set aside for conservation (Aichi Target 11) and a sustainable development goal (SDG) aimed at conservation and sustainable use of the ocean, seas, and marine resources (SDG 14). SDG 14 target 5 reflects Aichi Target 11 by calling for conservation of 10% of coastal and marine areas by 2020. There are also calls from non-governmental organizations to conserve 30% of the ocean by 2030 (https://www.oceanunite.org/issues/marine-reserves/). MPAs help protect species and habitats from human-induced disturbances and are an important tool for area-based management. The use of MPAs increases species richness compared to fished areas, increases the biomass of large fishes, and increases the presence of sharks, a top ecosystem predator (Edgar et al., 2014). Protected areas can help reduce fishing pressure within an ecosystem and often leads to the "spillover effect" where fish populations outside the MPA increase (Bennett and Dearden, 2014). Protected areas can build resilience and allow species and ecosystems to recover from anthropogenic stressors, including climate change (Roberts et al., 2017).

Despite the value of oceans and marine biodiversity, the increasing threats to ocean ecosystems, and calls for more protected areas, ocean and coastal areas are remarkably unprotected. Approximately 7.91% of the ocean is protected in a marine protected area (MPA) and only 2.46% is exclusively no take (UNEP-WCMC and IUCN, 2020). There are only 11 true high seas MPAs (7 OSPAR, 4 CCAMLR) and just 1.18% of the high seas are covered in a protected area (UNEP-WCMC and IUCN, 2020). While these numbers are growing each year and the goal of 10% of marine and coastal areas being protected is an important mark for achieving biodiversity goals, it is also important to ensure that the areas are effectively protected and MPAs are not simply "paper parks" (MPAs that are designated but do not effectively protect the species and habitats they were set up to protect). "Using the total area protected as the sole indicator can obscure trends in other important metrics of the strength of MPA networks" (Roberts et al., 2018, p 24). Ensuring biodiversity is effectively conserved must go along with achieving a set amount of protected ocean space.

Aichi Target 11 can be split into four components for effectively protecting biodiversity: 1) the total coverage, 2) representation, 3) connectivity, and 4) management effectiveness (Leadley et al., 2014). Total coverage of MPAs is lacking (see Figure 15). Not only has the goal of setting aside 10% of ocean and coastal areas for conservation not been achieved, but much of the high seas is unprotected. What's more, the amount of protected ocean space often includes areas where there is intent to create an MPA or a designation of an MPA; however, this does not necessarily translate into actual protection of ocean space,

especially if extractive activities are allowed in the MPA (Sala et al., 2018). According to Sala et al. (2018), as of January 2018, only 3.6% of the global ocean is actually protected in an implemented MPA.

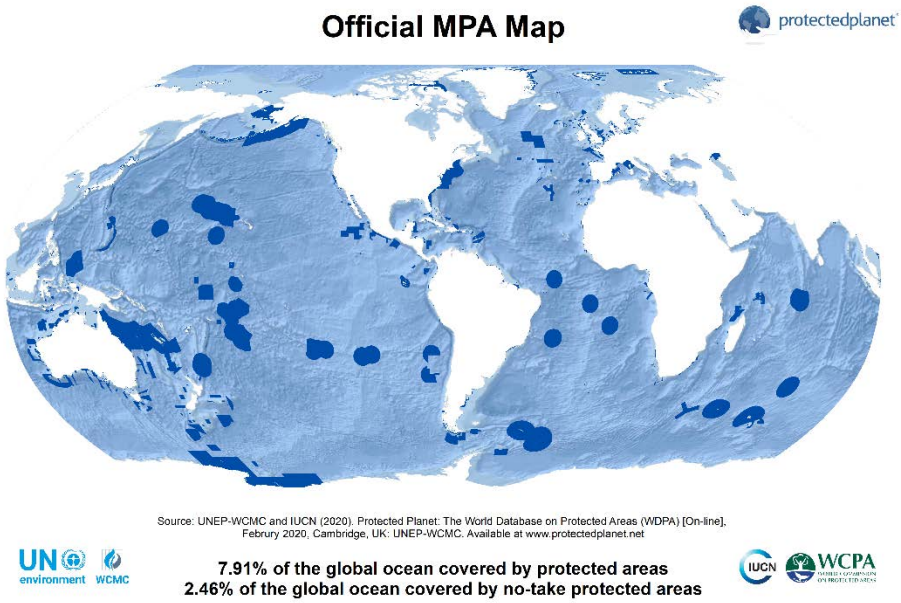

Figure 15: Global marine protected areas. MPAs project 7.9% of ocean space, mainly in territorial waters. While some of these MPAs are strongly protected and include no take zones, many MPAs are paper parks that lack true protection for ocean biodiversity. Source: UNEP-WCMC and IUCN (2020)

Additionally, it is important to ensure that a diverse array of habitats is protected (representation). MPAs should be "distributed along latitudinal, depth, or other environmental gradients, and protect representative species and habitats types found in different biogeographic regions" (Murray et al., 1999, p 17). Nearshore environments and coral reefs are often well protected; however, other forms of biodiversity, such as pelagic environments, are often left without protection (Agardy, et al., 2011). Seabed habitats are protected more than the water column above it due to the "absence of fixed habitat structures that fishing gears might

damage" as well as the mobility of pelagic species (O'Leary and Roberts, 2018, p 2). However, due to the connections between pelagic and benthic environments, activities that negatively affect open water habitats and organisms can also have negative effects on deep-water ecosystems (O'Leary and Roberts, 2018). "Continued adoption of vertical zonation and partial protection will mean that MPAs fail to adequately conserve marine life or secure the goods and services provided by the oceans" (O'Leary and Roberts, 2018, p 2).

Connectivity and the creation of MPA networks can help fishery populations recover, eliminate mortality of non-target species, protect habitat, and increase the presence of rare and vulnerable habitat (Edgar et al., 2014). A systems approach to MPAs where the inherent connection between ecosystems is recognized as vital, as networks of MPAs allow for larval exchange and "replenishment of biodiversity in areas affected by natural or anthropogenic disturbances" (Leadley et al., 2014, p 264). These networks and connected habitats are especially important to consider for ABNJ given the many species that use offshore environments for breeding, feeding, and migration. A single MPA may not be able to encompass the entire ocean space deemed vital for a species' lifecycle; therefore, smaller networks of MPAs are needed to provide these key linkages (Agardy et al., 2011).

MPA effectiveness depends on five core characteristics: no take, enforced, old (well established), large, and isolated (Edgar et al., 2014). Marine reserves, fully protected areas, can increase fish biomass by 600%, organism size by 25%, and species richness by 20% in comparison to unprotected areas in the proximity (Sala

et al., 2018). However, “partially protected MPAs do not deliver the same biodiversity and conservation benefits as protected areas” (Sala et al., 2018, p 12). Placement of MPAs must match the distribution of biodiversity as well as the threats to those species and habitats (Roberts et al., 2018). For example, the South Orkney Islands MPA is no-take and adopted in 2009 without significant conflict; however, “a nearby biologically rich area was left out so as not to interfere with the krill fishing industry, which calls into question the functional importance of this MPA” (De Santo, 2018, p 37).

Additionally, MPAs cannot be viewed in isolation, but must be a part of other area-based management tools. Because ocean currents and species move across boundaries and jurisdictions, MPAs need to be integrated into other forms of area-based management in order to effectively achieve sustainable use and conservation of marine biodiversity (Edgar et al., 2014; Agardy et al., 2003). For the high seas, these area-based management tools include the International Maritime Organization’s (IMO) Particularly Sensitive Sea Areas (PSSAs), the Food and Agriculture Organization of the United Nations’ (FAO) Vulnerable Marine Ecosystems (VMEs), the International Seabed Authority’s Areas of Particular Environmental Interest (APEI). These measures are sectoral in nature but add to the layers of protection from some of the ocean’s stressors. Additionally, the Convention on Biological Diversity’s Ecologically or Biologically Significant Areas (EBSAs) can be used to identify areas in need of protection. While this process does not designate MPAs nor area-based

management measures, the process uses scientific criteria to identify areas in the open ocean or deep sea that are in need of more protection (CBD, no date).

Given the challenges and threats to oceans and marine biodiversity and general lack of information regarding species and habitats, it is important to use a precautionary approach and adaptive management to effectively protect marine biodiversity. “The precautionary approach as used in biodiversity conservation suggests that a lack of full scientific certainty should not be used as a reason for postponing conservation action” (Ban et al., 2014, p 132). That is to say, even if there are gaps in knowledge regarding an area, that is not necessarily a reason to delay protections. If there is enough information regarding a particular habitat or species use of a habitat that warrants protections, conservation actions should be taken to protect the vulnerable species and/or habitat. Having an MPA that has no mechanism to adapt to change or threats could lead to an MPA that is unsuccessful. Using adaptive management based on the best available science will be important for the overall success of any area-based management measures, including MPAs. “Adaptive management focuses on deliberate learning from currently applied management actions in order to improve future iterations of the same management decision” (Ban et al., 2014, p 132). Because conditions in the marine environment will change, it will be important to periodically and systematically adapt any management plans or measures created and not rely on the mere creation of such measures to signal success. This adaptation of plans or measures requires the use of monitoring for ecological change as well as mechanisms to adjust the plans or measures as needed.

Political will and the desire to create truly effective MPAs is also critical. Efforts to protect marine biodiversity are often squandered by political or economic interests. For example, the Northwest Atlantic Fisheries Organization's (NAFO) concluded that "little interaction currently takes place between coral indicator species and fishing activities, despite the finding of the SC" (scientific committee) (Wright et al., 2015, p 139). A similar disregard for scientific advice was seen in the South-East Atlantic where the scientific committee recommended a prohibition on gillnet fishing and trawling; however, this advice was also not taken by the RFMO (Wright et al., 2015). Few CCAMLR members submit scientific papers or regularly collect data, and yet, "members opposing submission of routine data are also those who oppose the adoption of Conservation Measures by arguing there is not sufficient data to support such a measure" (Nilsson et al., 2016). Furthermore, the size and ambition of MPAs are often reduced from the original proposal (Smith and Jabour, 2018). "Political agendas and fishing interests in the Southern Ocean have been the major contributing factors to MPA opposition" (Smith and Jabour, 2018, p 419). However, a sense of ownership and well-established cooperative relationships can aid in MPA designation. All the OSPAR coastal states in the North-East Atlantic have submitted proposals for MPAs, which indicates ownership of regime objectives, and their history of cooperation has likely contributed to quicker progress (Smith and Jabour, 2018). Heeding scientific advice, owning conservation measures, and building relationships create an environment for effective MPAs.

There has been no global assessment of MPA effectiveness (Leadley et al., 2014). Papers that have studied the effectiveness of MPAs tend to focus on how MPAs benefited fisheries rather than conservation goals (Costello and Ballantine, 2015). In order to achieve their conservation goals, MPAs must be well managed, effectively enforced, funded adequately, and well selected and spatially designed (Leadley et al., 2014). While many MPAs have not been assessed for effectiveness, the ones that have been assessed are shown to not be well managed (Campbell and Gray, 2019). Funding and lack of appropriate staffing levels are a main cause of poor management (Campbell and Gray, 2019). Achieving Aichi Target 11 is important; however, the protected 10% of ocean space must be in areas facing real threats and that are in need of protections, rather than low hanging fruit. Effectiveness is important to successful marine conservation; otherwise, achieving protection for 10% of marine and coastal areas, even if they are connected and representative, means the MPAs are simply paper parks and biodiversity will continue to decline.

3.1.4 MPAs in ABNJ

As calls for the creation of MPAs globally increase, so do the calls for MPAs in ABNJ. However, the use of MPAs has been limited in ABNJ. Currently, there are only 11 MPAs in ABNJ, and in just two regions (the North Atlantic and Southern Ocean). Figures 16 and 17 show the 11 MPAs in ABNJ, and Table 1 provides details of management authority, year established, and objectives for each MPA. This lack of diverse habitats in ABNJ MPAs could pose a risk to the unexplored biodiversity that is in the 64% of the ocean that is ABNJ. The patchwork of

sectoral and regional management organizations complicates the creation of MPAs in ABNJ, as there are many organizations working in this space. However, also complicating protection of ABNJ biodiversity is the United Nations Convention on the Law of the Sea (UNCLOS).

While UNCLOS sets forth the general obligation to protect and preserve the marine environment (Article 192) and an entire part of the treaty is devoted to this protection and preservation (Part XII), there are factors that complicate implementation. First, while States also have the duty to limit marine pollution, commercial shipping compliance is up to the Flag State and monitoring and enforcement is lacking in ABNJ (Warner, 2014). Second, modern conservation principles, such as those introduced by the Convention on Biological Diversity (CBD), have yet to be integrated into the framework of UNCLOS (Warner, 2014). Third, the seabed and water column have different legal status, which "complicates the development of a coherent approach to the conservation and sustainable use of biodiversity in ABNJ" (Warner, 2014). The water column in ABNJ (the high seas) is governed by Part VII. This part lays out freedoms of the high seas (including navigation, overflight, and fishing) and rights and duties when it comes to the conservation and management of living resources of the high seas. In ABNJ, the seabed, ocean floor, and subsoil are governed by Part XI of UNCLOS. The resources ("all solid, liquid, or gaseous mineral resources") found here and the Area itself are the common heritage of mankind, and the International Seabed Authority (Authority) is responsible for equitable sharing of benefits from these resources (UNCLOS, 1982). The Authority is also responsible

for adopting rules, regulations, or procedures for reducing pollution and preventing damage to the marine environment and for "the protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment" (Article 197, UNCLOS, 1982). However, the Authority's mandate does not extend past regulating activities beyond those related to marine minerals; therefore, any actions taken to protect the marine environment must be related to marine minerals. This split regime and limited mandates for management of the water column and seafloor makes it difficult to protect both the water column and seafloor in one measure.

The United Nations (UN) created a working group to study the issues of conservation and sustainable use of marine biodiversity beyond national jurisdiction (the Ad hoc open-ended working group to study issues related to the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction, or BBNJ), which began meeting in 2006. One of the areas of focus for this group was area-based management, which includes MPAs. In 2015, the UN General Assembly heeded the group's recommendation to develop a legally binding instrument under UNCLOS regarding the conservation and sustainable use of marine biological diversity in ABNJ. A Preparatory Committee was created to develop recommendations for the General Assembly on elements of a draft text for this instrument. After meeting four times in 2016-2017, the committee delivered its recommendations to the General Assembly, which then issued a resolution convening an intergovernmental conference to elaborate the text of a new international agreement under UNCLOS. The draft text currently includes

MPAs in ABNJ in this new agreement. The conference will meet four times, beginning in September 2018 and ending in 2020.

While the international community is looking to expand the use of area-based management and MPAs in ABNJ, it is important to look now at what can be done to further ocean protection in ABNJ. It is important to look at the current MPAs to determine if they are effective, what habitats they protect, and what can be done to further ocean protection in an area that is understudied. The purpose of this paper is to describe the types of habitats that are protected in current ABNJ MPAs and assess each MPA's level of protection. Additionally, lessons learned from existing MPAs (effectiveness, commonalities in management practices, etc.) and gaps (what is lacking?) will also be considered.

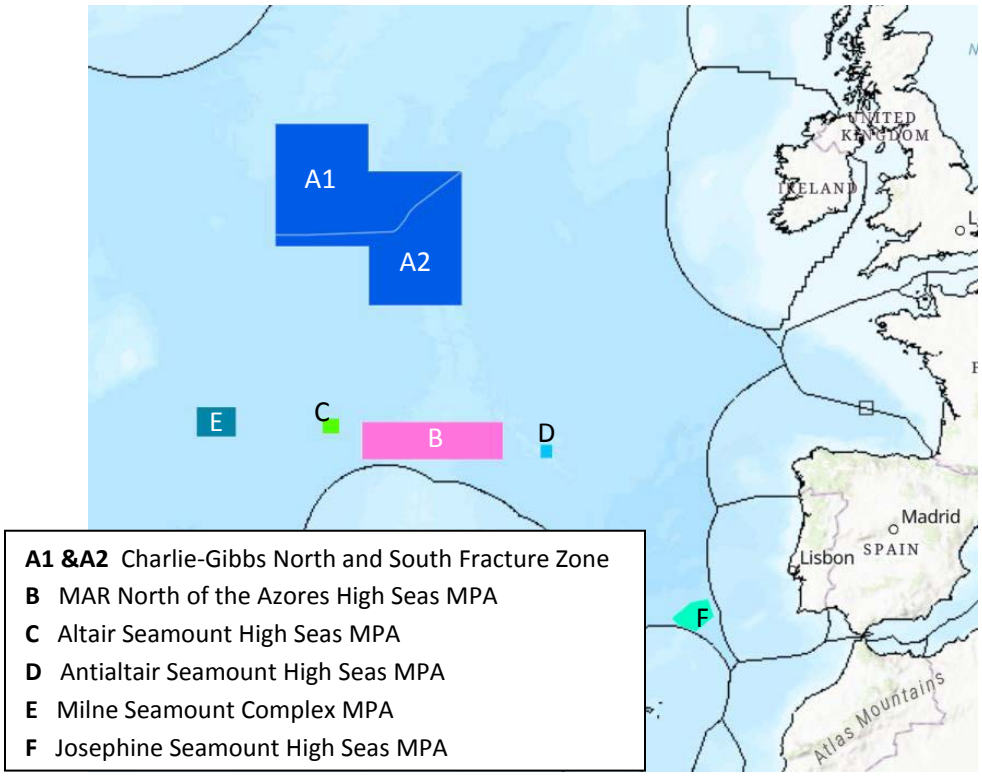

Figure 16: MPAs under OSPAR authority.

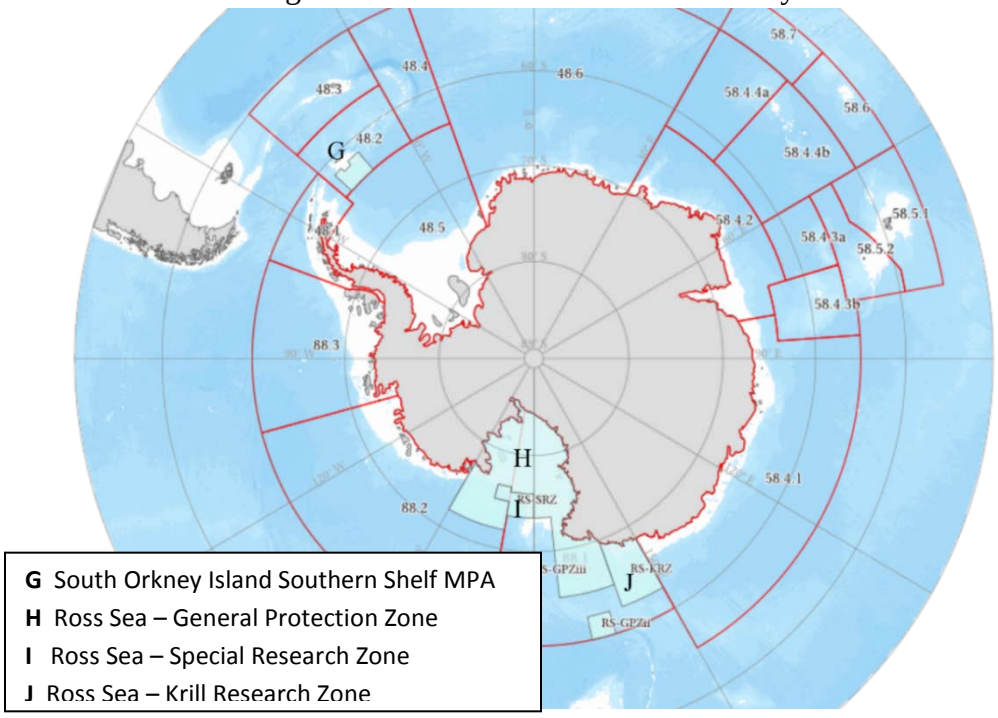

Figure 17: MPAs under CCAMLR authority. Retrieved from: https://gis.ccamlr.org/.

Table 1: MPA management authority, year established, and objectives.

MPA Label	Name of MPA in ABNJ	Management Authority	Year Established	Management Objectives
A1	Charlie-Gibbs North High Seas MPA	OSPAR Commission	2012	• To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes with legal protection status; • To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes without legal protection status; • To maintain key ecological functions (spawning areas, nursery grounds, feeding zones, resting areas, areas of high productivity, etc.); • To promote sustainable management / development of socio-economic activities; • To manage exploitation of natural resources; • To educate on environmental issues and improve public awareness; • To foster scientific research.
A2	Charlie-Gibbs South High Seas MPA	OSPAR Commission	2010	• To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes with legal protection status; • To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes without legal protection status; • To maintain key ecological functions (spawning areas, nursery grounds, feeding zones, resting areas, areas of high productivity, etc.); • To promote sustainable management / development of socio-economic activities; • To manage exploitation of natural resources; • To educate on environmental issues and improve public awareness; • To foster scientific research.

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MPA Label	Name of MPA in ABNJ	Management Authority	Year Established	Management Objectives
B	Milne Seamount Complex MPA	OSPAR Commission	2010	• To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes with legal protection status; • To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes without legal protection status; • To maintain key ecological functions (spawning areas, nursery grounds, feeding zones, resting areas, areas of high productivity, etc.); • To promote sustainable management / development of socio-economic activities; • To manage exploitation of natural resources; • To educate on environmental issues and improve public awareness; • To foster scientific research.
C	Altair Seamount High Seas MPA	OSPAR Commission	2010	• To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes with legal protection status; • To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes without legal protection status; • To maintain key ecological functions (spawning areas, nursery grounds, feeding zones, resting areas, areas of high productivity, etc.); • To promote sustainable management / development of socio-economic activities; • To manage exploitation of natural resources; • To educate on environmental issues and improve public awareness; • To foster scientific research.

MPA Label	Name of MPA in ABNJ	Management Authority	Year Established	Management Objectives
D	MAR North of the Azores High Seas MPA	OSPAR Commission	2010	• To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes with legal protection status; • To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes without legal protection status; • To maintain key ecological functions (spawning areas, nursery grounds, feeding zones, resting areas, areas of high productivity, etc.); • To promote sustainable management / development of socio-economic activities; • To manage exploitation of natural resources; • To educate on environmental issues and improve public awareness; • To foster scientific research.
E	Antialtair Seamount High Seas MPA	OSPAR Commission	2010	• To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes with legal protection status; • To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes without legal protection status; • To maintain key ecological functions (spawning areas, nursery grounds, feeding zones, resting areas, areas of high productivity, etc.); • To promote sustainable management / development of socio-economic activities; • To manage exploitation of natural resources; • To educate on environmental issues and improve public awareness; • To foster scientific research.

MPA Label	Name of MPA in ABNJ	Management Authority	Year Established	Management Objectives
F	Josephine Seamount High Seas MPA	OSPAR Commission	2010	• To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes with legal protection status; • To maintain, conserve or restore biodiversity, natural heritage, habitats, species or landscapes without legal protection status; • To maintain key ecological functions (spawning areas, nursery grounds, feeding zones, resting areas, areas of high productivity, etc.); • To promote sustainable management / development of socio-economic activities; • To manage exploitation of natural resources; • To educate on environmental issues and improve public awareness; • To foster scientific research.
G	South Orkney Islands Southern Shelf Marine Protected Area	CCAMLR	2009	• To protect representative examples of pelagic marine ecosystems, biodiversity and habitats in the Southern Scotia Arc region; • To protect representative examples of benthic marine ecosystems, biodiversity and habitats in the Southern Scotia Arc region; • To protect areas important to critical life history stages for Adélie and chinstrap penguins; • To protect key ecosystem processes associated with the South Orkney Islands southern shelf region.
H	Ross Sea - General Protection Zone	CCAMLR	2016	• To conserve natural ecological structure, dynamics and function throughout the Ross Sea region, at all levels of biological organisation, by protecting habitats that are important to native mammals, birds, fishes and invertebrates; • To provide reference areas for monitoring natural variability and long-term change, and in particular a Special Research Zone, in which fishing is limited to better gauge the ecosystem effects of climate change and fishing, to provide other opportunities for better understanding the Antarctic marine ecosystem (e.g. by developing contrasts similar to that illustrated in SC-CAMLR-XXXIII/BG/23 Rev. 1, Figure 2), to underpin the Antarctic toothfish stock assessment by contributing to a robust tagging program, and to improve understanding of toothfish distribution and movement within the Ross Sea region;

				• To promote research and other scientific activities (including monitoring) focused on marine living resources; • To conserve biodiversity by protecting representative portions of benthic and pelagic marine environments in areas where fewer data exist to define more specific protection objectives: benthic bioregions & pelagic bioregions; • To protect large-scale ecosystem processes responsible for the productivity and functional integrity of the ecosystem - Ross Sea shelf front intersection with seasonal ice, Polar front, Balleny Islands and proximity, Ross Sea polynya marginal ice zone, and Eastern Ross Sea multi-year ice; • To protect core distributions of trophically dominant pelagic prey species - Antarctic krill, crystal krill, and Antarctic silverfish; • To protect core foraging areas for land-based top predators or those that may experience direct trophic competition from fisheries: Adélie penguins, emperor penguins, Weddell seals, and Type C killer whales; • To protect coastal locations of particular ecological importance - southern Ross Sea shelf persistent winter polynya, recurrent coastal polynyas, Terra Nova Bay, Victoria Coast platelet ice formation zone, and Pennell Bank polynya; • To conserve biodiversity by protecting representative portions of benthic and pelagic marine environments in areas where fewer data exist to define more specific protection objectives: benthic bioregions & pelagic bioregions; • To protect large-scale ecosystem processes responsible for the productivity and functional integrity of the ecosystem - Ross Sea shelf front intersection with seasonal ice, Polar front, Balleny Islands and proximity, Ross Sea polynya marginal ice zone, and Eastern Ross Sea multi-year ice; • To protect core distributions of trophically dominant pelagic prey species - Antarctic krill, crystal krill, and Antarctic silverfish;

MPA Label	Name of MPA in ABNJ	Management Authority	Year Established	Management Objectives
	Ross Sea - General Protection Zone continued			• To protect core foraging areas for land-based top predators or those that may experience direct trophic competition from fisheries: Adélie penguins, emperor penguins, Weddell seals, and Type C killer whales; • To protect coastal locations of particular ecological importance - southern Ross Sea shelf persistent winter polynya, recurrent coastal polynyas, Terra Nova Bay, Victoria Coast platelet ice formation zone, and Pennell Bank polynya; • To protect areas of importance in the life cycle of Antarctic toothfish - sub-adult toothfish settlement areas on the Ross Sea shelf, dispersal corridors for maturing toothfish, and adult toothfish feeding areas on the Ross Sea slope; • To protect known rare or vulnerable benthic habitats- Balleny Islands and adjacent seamounts, Admiralty seamount, Cape Adare slope, southeast Ross Sea slope, McMurdo Sound, and Scott Seamount and adjacent underwater features; • To promote research and scientific understanding of krill, including in the Krill Research Zone in the northwestern Ross Sea region.
I	Ross Sea - Special Research Zone	CCAMLR	2016	• To conserve natural ecological structure, dynamics and function throughout the Ross Sea region, at all levels of biological organisation, by protecting habitats that are important to native mammals, birds, fishes and invertebrates; • To provide reference areas for monitoring natural variability and long-term change, and in particular a Special Research Zone, in which fishing is limited to better gauge the ecosystem effects of climate change and fishing, to provide other opportunities for better understanding the Antarctic marine ecosystem (e.g. by developing contrasts similar to that illustrated in SC-CAMLR-XXXIII/BG/23 Rev. 1, Figure 2), to underpin the Antarctic toothfish stock assessment by contributing to a robust tagging program, and to improve understanding of toothfish distribution and movement within the Ross Sea region; • To promote research and other scientific activities (including monitoring) focused on marine living resources;

				• To protect large-scale ecosystem processes responsible for the productivity and functional integrity of the ecosystem - Ross Sea shelf front intersection with seasonal ice & Ross Sea polynya marginal ice zone; • To protect core distributions of trophically dominant pelagic prey species - Antarctic krill, crystal krill, and Antarctic silverfish; • To promote research and scientific understanding of krill, including in the Krill Research Zone in the northwestern Ross Sea region.
J	Ross Sea - Krill Research Zone	CCAMLR	2016	• To conserve natural ecological structure, dynamics and function throughout the Ross Sea region, at all levels of biological organisation, by protecting habitats that are important to native mammals, birds, fishes and invertebrates • To promote research and other scientific activities (including monitoring) focused on marine living resources; • To conserve biodiversity by protecting representative portions of benthic and pelagic marine environments in areas where fewer data exist to define more specific protection objectives: benthic bioregions & pelagic bioregions; • To protect coastal locations of particular ecological importance - southern Ross Sea shelf persistent winter polynya, recurrent coastal polynyas, Terra Nova Bay, Victoria Coast platelet ice formation zone, and Pennell Bank polynya; • To promote research and scientific understanding of krill, including in the Krill Research Zone in the northwestern Ross Sea region.

3.2 Methodology

The methods for this research consisted of a literature review and an analysis of existing protected areas in ABNJ to determine what species and habitats the ABNJ MPAs are protecting, protection level, how effective that protection is, and what steps could be taken to increase the effectiveness of ABNJ MPAs to protect ABNJ species and habitats. The literature review was based on white papers, journal articles, as well as management documents the MPAs have (ex. management plans, annual reviews, strategic plans, charters, etc.).

3.2.1 Data

Data for determining what species and habitats are protected was gathered from Protected Planet (https://www.protectedplanet.net/), NEAFC, Ocean Data Viewer (https://data.unep-wcmc.org/), and CCAMLR. This data consisted of shapefiles that were then used to create maps in ArcGIS online (https://www.arcgis.com/index.html) and information regarding species and habitats within the OSPAR jurisdiction.

Data for determining protection level was downloaded from the MPA Atlas (http://www.mpatlas.org/) and Protected Planet and gathered from the MPA management documents (i.e. documents that designated the MPA, management plans, etc.) downloaded from the CCAMLR and OSPAR websites.

3.2.2 Determination of MPA Level of Protection

Using this data, each MPA's level of protection was determined using the regulation-based classification system by Horta e Costa et al. Most MPAs are

currently classified by their management objectives and are categorized using the IUCN system of classification as a Category VI MPA, regardless of size or single or multiple use attributes (Agardy et al., 2003). However, many MPAs are designed to be multi-purpose and have different rules depending on zone (Horta e Costa et al, 2016). Classifying an MPA by management objectives can lead to uncertainty when evaluating MPA effectiveness because of the varying rules and regulations in each zone. For example, the Great Barrier Marine Park is a Category VI park, even though it has large areas that could be categorized differently (such as no-take zones or scientific research zones) and some of these areas are larger than the area of other MPAs (Agardy et al., 2003). The regulation-based classification scheme takes into account the varying rules regarding uses of an area and classifies MPAs based on types of fishing gear allowed, aquaculture and bottom exploitation activities allowed, and the anchoring/boating index. This system allows for a clearer picture regarding classifying MPA protection level and a more accurate indication of an MPA's protection level. Furthermore, according to the MPA Atlas, many of the MPAs in ABNJ have no reported IUCN category

Table 2: Activity scores for determining zone score, as based upon Horta e Costa et al (2016)

Activity		Score
Fishing	Highly selective and low impact fishing gears	<5
	Medium impact fishing gears	6-8
	High impact fishing gears	9
Other Activities	Aquaculture and bottom exploitation not allowed	0
	Aquaculture and bottom exploitation allowed, but not mining, oil platforms, sand extractions, or detonations	1
	No restrictions on aquaculture or bottom exploitation	2
Anchoring and Boating	No anchoring	0
	Boating and anchoring allowed but fully regulated	1
	No restrictions or partially regulated anchoring and/or boating	2

score to reflect a level of protection; therefore, a classification for level of protected needed to be assigned.

To assign a protection score to each ABNJ MPA examined, the MPA was first broken into zones based upon the activities allowed in the zone. Using the framework in Horta e Costa et al. (2016), each zone was given a classification score based on how many types of fishing gear is allowed, gear score, other allowed activities, and if anchoring/boating is allowed (Table 2). Each zone was given an index (score), which takes the zone classification and multiplied by the area of the zone and divided by the total MPA area (Table 3).

The MPA index (protection score) score was calculated by summing the individual zone scores (see formula below). The score classified the MPA into levels of protection, with 1-3 being fully protected, 3-5 being highly protected, 5-6 being moderately protected, 6-7 being poorly protected, and 7-8 being unprotected (Table 3).

$$MPA\ index = SUM\ (ZONEi\ Type\ \times \frac{Area\ ZONEi}{Area\ MPA})$$

Table 3: Zone classification and MPA classification, as based upon Horta e Costa et al (2016)

Zone Classification		MPA Classification
1	No take	Fully Protected
2	No take - regulated access	
3	No take - unregulated access	Highly Protected
4	Highly regulated extraction	
5	Moderately regulated extraction	Moderately Protected
6	Weakly regulated extraction	Poorly Protected
7	Very weakly regulated extraction	Unprotected
8	Unregulated extraction	

3.2.3 MPA Effectiveness Evaluation

Each ABNJ MPA was evaluated for effectiveness and scored to determine success of the MPA using a framework adapted from Bennet and Dearden (2014). Bennet and Dearden (2014, p 106) created a "list of inputs that are likely to contribute to successful MPA outcomes" and separated these inputs into three categories: governance, management, and local development. While the tool Bennet and Dearden created was focused on coastal MPAs, the inputs of governance and management are transferable to any MPA, regardless of location. However, the local development category and certain questions in the framework apply more to coastal MPAs rather than ABNJ MPAs. Therefore, for the present evaluation, only the governance and management categories have been utilized and the framework further adapted to include only the questions that were relevant for MPAs in ABNJ.

"Governance is the structural, institutional, ideological, and procedural umbrella under which development programs and management practices operate" (Bennett and Dearden, 2014, p 99). The questions under this category were designed to evaluate the effectiveness of the overall design, structures, and processes of the MPA. Whereas the questions in the management section were designed to evaluate the effectiveness of how the design, structures, and processes are carried out. On the other hand, questions related to visitor facilities and services, local governance, and land tenure rights are not included.

Each question was scored from 0-4 where 0=lowest scoring option, 1=somewhat low option, 2=neutral option, 3=somewhat high option, and 4=the highest scoring

option. The scale remains the same while the option changes to match the question posed (ex. level of satisfaction, level of agreement, level of accountability, etc.). The ratings were summed and given a score:

$$Category\ score = \frac{sum\ of\ indicator\ scores\ for\ category}{total\ possible\ score\ for\ category\ (number\ of\ indicators\ \times 4)} \times 100$$

This percentage was then assigned a rating for success for both the governance and management categories (0-25% = very unlikely to succeed, 26-50% = unlikely to succeed, 51-75% = likely to succeed, 76-100% = very likely to succeed), as determined by Bennett and Dearden (2014). Each MPA was also given an overall rating for success (sum of the category score divided by two) using the same scale as above.

3.2.4 Stakeholder Interviews

The questions in the framework were answered via interviews with stakeholders involved in the management and design of the 11 ABNJ MPAs. These stakeholders were a former Executive Secretary, who provided the needed information for all seven of the OSPAR ABNJ MPAs, and a designated scientific committee representative, who provided all the information needed for the four CCAMLR MPAs. Semi-structured interviews allowed for the questions in the framework to be answered, but also allowed for follow up questions to be asked to get more detail in the answers. The interviews were conducted via Skype and telephone. Audio recording occurred with permission of the respondent, and detailed notes were recorded for each interview.

Most questions asked during the interview were closed-ended questions, which asked for a "structured, fixed response" (Neuman, 2013, p 331). Closed-ended questions where the respondent chooses the answer allows for quicker data analysis, since questions do not need to be coded after the fact, which can be a time-consuming process (Neuman, 2013). Interview participants were allowed to expand upon their answer and provide an open-ended response to provide details or explanations for their answers. Providing this open-ended response option also allowed for insight into why respondents answered the way they did and provided clarity to their answers (Neuman, 2013). Additionally, follow up questions were asked based upon the responses given.

3.3 Results

3.3.1 Protection and Effectiveness Scoring

The CCAMLR MPAs—the South Orkney MPA and Ross Sea General Protection Zone—were given an MPA score of 2 or Fully Protected – No-take/Regulated Access (Table 4). Both MPAs are fully no take and do not allow fishing (aside from some scientific research) or other activities (oil and gas extraction, sand extraction, detonations, etc.) within the MPA. The Ross Sea Special Research Zone and Protected – Highly Regulated Extraction. The score differences came from the fact that, while commercial fishing is not allowed in the Special Research Zone or Krill Research Zone, both zones allow directed fishing for scientific purposes (special research zone allows directed toothfish fishing and the krill research zones allows for krill fishing to occur). Other activities are also not allowed in these zones. All the CCAMLR MPAs received a score of 0 for the

other activities impact due to Article 7 of the Protocol on Environmental Protection to the Antarctic Treaty (1991) not allowing activity related to mineral resources to occur.

Table 4: MPA scores for CCAMLR MPAs.

Name of MPA	Total Area	No Take Area	# Fishing Gear	Fishing Gear Impact	Gears Allowed	Other Activities Impact	Anchoring/ Boating	Zone Class	Zone Area	MPA Score
Ross Sea - General Protection Zone	1,117,000.00	1,117,000.00	0	0		0	1	2	1,117,000.00	**2**
Ross Sea - Special Research Zone	109,563.00	0	1	4	pelagic longline	0	1	4	109,563.00	**4**
Ross Sea - Krill Research Zone	328,750.00	0	1	5	pelagic trawling	0	1	4	328,750.00	**4**
South Orkney Islands Southern Shelf MP	93,818.88	93,818.88	0	0	0	0	1	2	93,818.88	**2**

For the OSPAR MPAs, all seven of the MPAs were given an MPA score of 6 or Poorly Protected (Table 5). None of the information found online, in the MPA datasheets, in the recommendations establishing the MPA, nor the OSPAR Convention explicitly prohibits aquaculture or bottom exploitation nor are there restrictions on boating or anchoring.

Table 5: MPA scores for OSPAR MPAs. Data sources: http://www.mpatlas.org/map/mpas/, https://www.protectedplanet.net/, http://mpa.ospar.org/home_ospar/mpa_datasheets?recherche=1

Name of MPA	Total Area	No Take Area	# Fishing Gear	Fishing Gear Impact	Gears Allowed	Other Activities Impact	Anchoring/ Boating	Zone Class	Zone Area	MPA Score	MPA Classification
Antialtair Seamount High Seas MPA	2,806.55	0	3	5	pelagic long lines; pelagic trawling; drive nets	2	2	6	2,806.55	**6**	Poorly Protected
Altair Seamount High Seas MPA	4,383.76	0	3	5	pelagic long lines; pelagic trawling; drive nets	2	2	6	4,383.76	**6**	Poorly Protected
Josephine Seamount High Seas MPA	19,364.95	0	5	9	pelagic long lines; pelagic trawling; bottom trawl; bottom purse seine; pelagic purse seine	2	2	6	19,364.95	**6**	Poorly Protected
MAR North of the Azores High Seas MPA	93,572.46	0	5	9	pelagic long lines; pelagic trawling; bottom trawl; bottom purse seine; pelagic purse seine	2	2	6	93,572.46	**6**	Poorly Protected
Milne Seamount Complex MPA	20,913.88	0	5	9	pelagic long lines; pelagic trawling; bottom trawl; bottom purse seine; pelagic purse seine	2	2	6	20,913.88	**6**	Poorly Protected
Charlie-Gibbs North High Seas MPA	178,651.00	0	3	5	pelagic long lines; pelagic trawling; drive nets	2	2	6	178,651.00	**6**	Poorly Protected
Charlie-Gibbs South High Seas MPA	145,420.00	0	3	5	pelagic long lines; pelagic trawling; drive nets	2	2	6	145,420.00	**6**	Poorly Protected

Additionally, since OSPAR does not have the mandate to prohibit fishing, none of the areas are technically no take. However, OSPAR works closely with the North East Atlantic Fisheries Commission (NEAFC) and many of the fisheries closures coincide with OSPAR MPAs (see Figure 18). NEAFC has closed several areas to bottom exploitation as part of the protection of Vulnerable Marine Ecosystems (VMEs). Even though bottom fishing is not allowed, other fishing methods are allowed as long as they do not have an encounter with a VME. Since fishing is still allowed, the scores for these MPAs remain at 6, even when accounting for these closures.

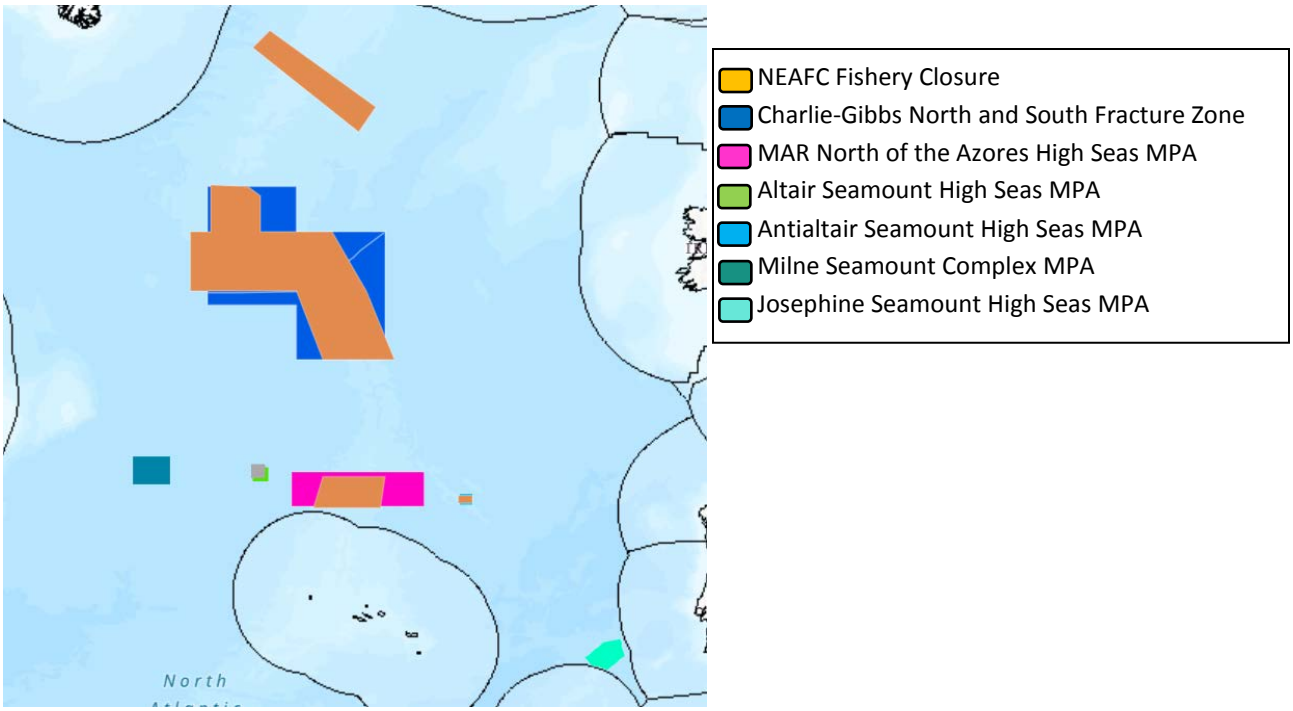


Figure 18: OSPAR MPAs and NEAFC closures. The NEAFC closures (orange) overlap many of the MPAs designated by OSPAR. MPA data available at: https://www.protectedplanet.net/. VME data available at: https://www.neafc.org/managing_fisheries/vmec.

For the effectiveness of the CCAMLR MPAs, the South Orkney MPA earned a rating of 75% or likely to succeed for both governance and management. The Ross Sea MPAs earned a slightly higher rating of 76%, which falls within highly likely to succeed, for both governance and management. For the effectiveness of the OSPAR MPAs, all the MPAs received a score of 81% or highly likely to succeed for governance. The OSPAR MPAs were given a score of 50% or unlikely to succeed for management. Overall, the OSPAR MPAs received a score of 66% or likely to succeed. Table 6 has the effectiveness scores for the OSPAR and CCAMLR MPAs.

Table 6: Effectiveness scores for CCAMLR and OSPAR MPAs.

Name of MPA	Governance Score	Management Score	Overall Score
Altair Seamount High Seas MPA	81%	50%	66%
Antialtair Seamount High Seas MPA	81%	50%	66%
Charlie-Gibbs North High Seas MPA	81%	50%	66%
Charlie-Gibbs South High Seas MPA	81%	50%	66%
Josephine Seamount High Seas MPA	81%	50%	66%
MAR North of the Azores High Seas MPA	81%	50%	66%
Milne Seamount Complex MPA	81%	50%	66%
Ross Sea - General Protection Zone	76%	76%	76%
Ross Sea - Krill Research Zone	76%	76%	76%
Ross Sea - Special Research Zone	76%	76%	76%
South Orkney Islands Southern Shelf MPA	75%	75%	75%

Governance was a strong area for both regions, though there are areas of weakness. The MPAs scored high for having clear, enabling, and consistent laws,

policies, and norms. The exception was the CCAMLR norms being clear and consistent (both questions only received 2 of 4 total points); however, the interview participant expanded upon the answer, stating the norms are flexible depending upon the situation, which serves the greater purpose of meeting the conservation objective.

Interview participants said connectivity could be better for OSPAR and CCAMLR. Both regions are working towards integrating their MPAs into a management system for the entire treaty area. OSPAR is working towards ecosystem-based management, while CCAMLR is working to integrate the krill and toothfish fisheries into an MPA framework. Additionally, interview participants said there are mechanisms to adapt governance, which is useful as more MPAs are created and lessons are learned. Neither region has MPA managers for any of the 11 MPAs.

Both regions struggle with effectively achieving conservation targets. While OSPAR has conservation objectives, there is little monitoring and surveillance to assess if these objectives are being met (the OSPAR score was zero in this area). CCAMLR on the other hand is taking action to achieve the conservation targets; however, the effectiveness is still being determined.

Both regions score high to somewhat high for inclusive, equitable, and representative co-management arrangements. This speaks to both regions collaborative nature and ability to coordinate among various States, regional organizations, and sectoral organizations. Transparency also increases effectiveness of governance. Transparency is needed not only in voting to adopt

an MPA, but also in the decision-making process as the MPA evolves over time. CCAMLR was ranked low in this area. While the adoption of MPAs is often transparent and recorded in meeting reports, who opposes the MPA is not always recorded in the official documents, nor are all the steps in the how the MPA came into the current format documented. OSPAR, however, was ranked highly in this area, as decisions are made by consensus and recorded in a public meeting summary.

Management on the other hand was strong for CCAMLR and weak for OSPAR. Capacity (human and equipment) for carrying out management objectives is a shortcoming (OSPAR MPAs scored zeros for these questions and CCAMLR MPAs scored neutral (2s)); although, both regions scored somewhat high for capacity building programs being sufficient. Monitoring and surveillance could be improved, especially for OSPAR, which received a zero (CCAMLR scored low on monitoring for South Orkney but somewhat high for Ross Sea monitoring). As there are no management plans for the OSPAR ABNJ MPAs, there are no specific measures to achieve objectives, no zones, and no site-specific strategies to mitigate against nor adapt to threats. For CCAMLR, there are site specific measures to achieve the MPA objectives and zones that are established and marked (marked on maps and clear boundaries are provided). There are also site-specific strategies to mitigate against threats, but more work could be done to adapt to threats.

According to an interview participant, in some cases, the adaptation to things like climate change is built into the design (e.g., the large span of the Ross Sea MPA).

In other cases, there is nothing different outside than inside. The amount of baseline data was a strong suit of the MPAs, as both regions relied heavily on baseline ecological data/knowledge of the species and habitats when establishing the MPA. OSPAR scored high for monitoring for ecological outcomes; however, CCAMLR scored neutral to somewhat high (2 for South Orkney and 3s for the Ross Sea MPAs). The interview respondent noted the OSPAR program for monitoring for ecological outcomes is voluntary and relies on the parties self-reporting any problems encountered. While there are no sanctions for violating OSPAR MPA rules (scores were zeros for adequacy of the system of sanctions), the interviewee said the ethos of the MPA has not been challenged; however, the rules and regulations are equitably and consistently enforced (OSPAR scored the maximum 4 points for these questions). CCAMLR was ranked high for monitoring and surveillance, adequacy of the system of sanctions, and equitable and consistently enforced rules and regulations.

3.3.2 Habitats Protected in OSPAR

The OSPAR website lists the following habitats as threatened or declining habitats present in ABNJ in the OSPAR region: carbonate mounts, coral gardens, deep-sea sponges, *Lophelia pertusa* reef, oceanic ridges with hydrothermal vents, seamounts (OSPAR, no date). Table 7 lists the MPA along with the habitats they were designed to protect. Seamounts and coral gardens are present in all the current MPAs. Deep-sea sponges and *Lophelia pertusa* reefs are present in all but Altair and Antialtair. Not included in any of the MPAs are carbonate mounds nor ridges/hydrothermal vents.

Table 7: OSPAR MPAs and the habits they protect. Data taken from OSPAR MPA datasheets, available: http://mpa.ospar.org/home_ospar/mpa_datasheets.

MPA	Carbonate Mounds	Coral Garden	Deep-sea Sponges	*Lophelia pertusa* reef	Oceanic Ridges and Hydro-thermal Vents	Seamounts
Altair		X				X
Antialtair		X				X
Charlie-Gibbs North		X	X	X		X
Charlie-Gibbs South		X	X	X		X
Josephine		X				X
Mar North		X	X	X		X
Milne		X	X	X		X

Figure 19 shows potential and likely critical habitat in OSPAR. There are areas of critical habitat protected within each of the OSPAR MPAs, especially Antialtair and Josephine. However, there is a significant area of likely critical habitat excluded from OSPAR MPAs.

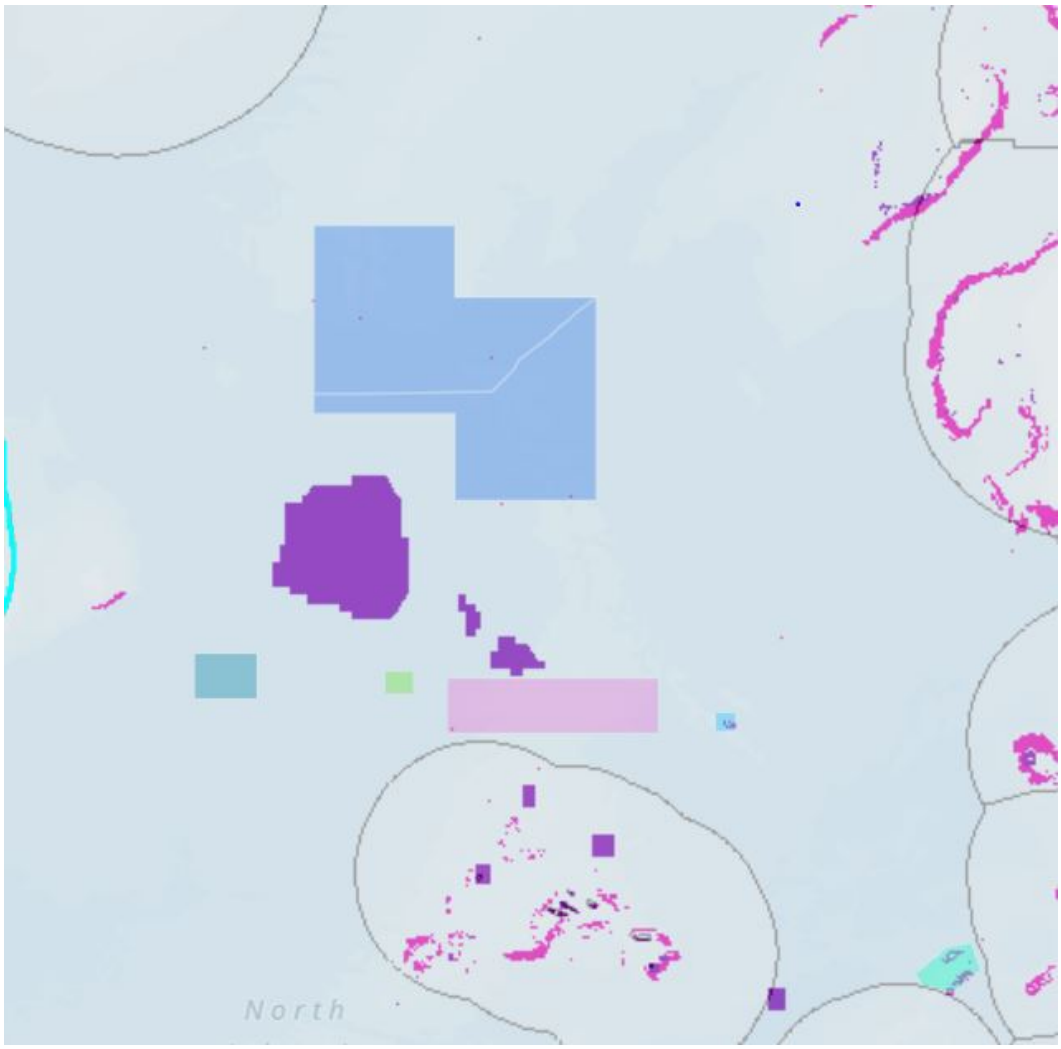


Figure 19: Presence of critical habitat in OSPAR MPAs. Data source: UNEP-WCMC (2017) - http://data.unep-wcmc.org/datasets/44.

Figure 20 shows the presence of seamounts within the OSPAR regions. All the OSPAR MPAs have seamounts within their boundaries. This makes sense considering the names of several of the MPAs include “seamount” and are a main reason for protecting those areas. There are still areas within the OSPAR region where seamounts are present but are not included in an MPA.

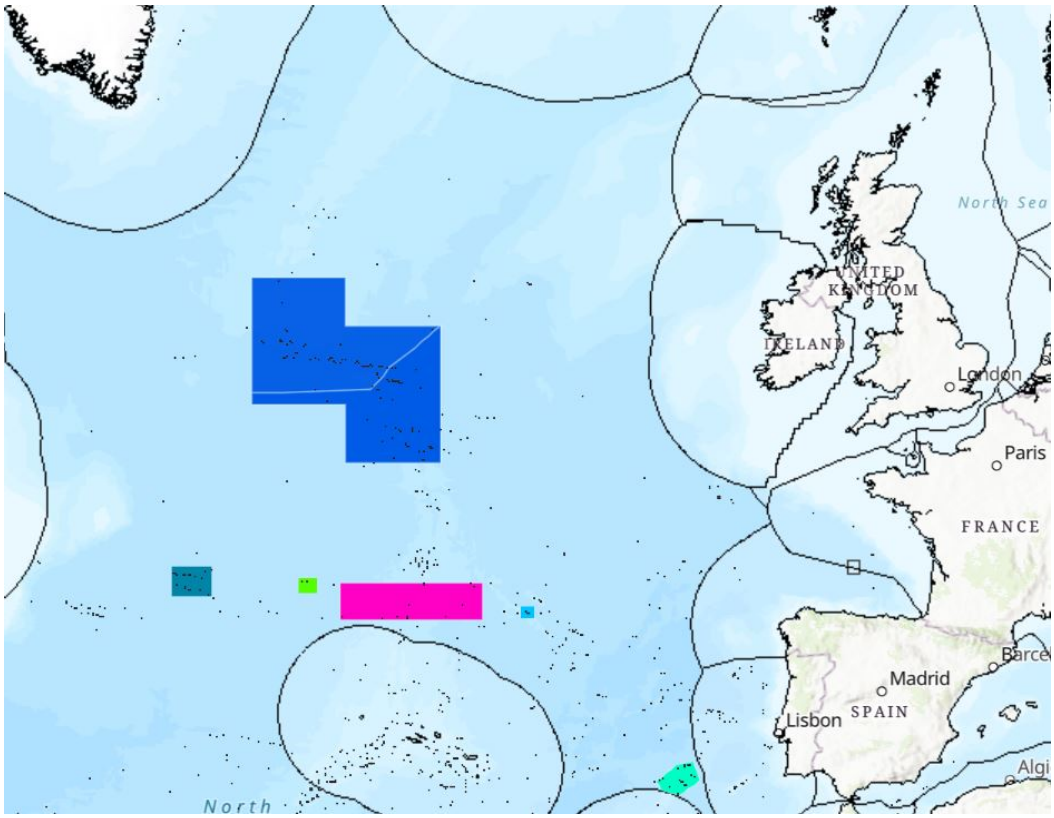


Figure 20: Presence of seamounts in OSPAR MPAs. Data source: Yesson et al. (2011), http://data.unep-wcmc.org/datasets/41.

- Seamounts
- Charlie-Gibbs North and South Fracture Zone
- MAR North of the Azores High Seas MPA
- Altair Seamount High Seas MPA
- Antialtair Seamount High Seas MPA
- Milne Seamount Complex MPA
- Josephine Seamount High Seas MPA

Figure 21 shows the presence of cold-water coral in the OSPAR region MPAs. The Josephine MPA has a large amount of cold-water coal within the MPA. Outside of this MPA, especially to the north of the Charlie-Gibbs MPAs and around the MAR North MPA, there are concentrations of cold-water corals unprotected.

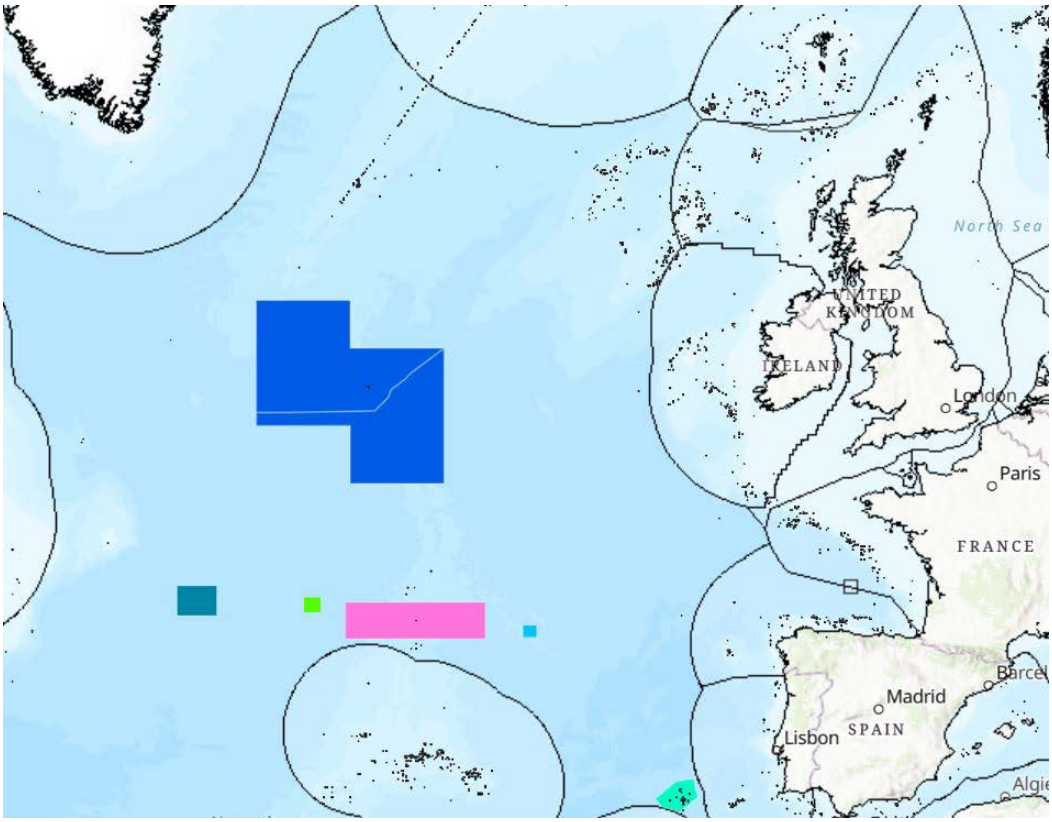


Figure 21: Presence of cold-water corals in OSPAR MPAs. Data source: Freiwald (2017) - http://data.unep-wcmc.org/datasets/3.

- Cold-water coral
- Charlie-Gibbs North and South Fracture Zone
- MAR North of the Azores High Seas MPA
- Altair Seamount High Seas MPA
- Antialtair Seamount High Seas MPA
- Milne Seamount Complex MPA
- Josephine Seamount High Seas MPA

3.3.3 Habitats Protected in CCAMLR

Figure 22 shows critical habitat within the CCAMLR region. Areas along the Antarctic peninsula are likely critical habitat areas that are excluded from MPAs.

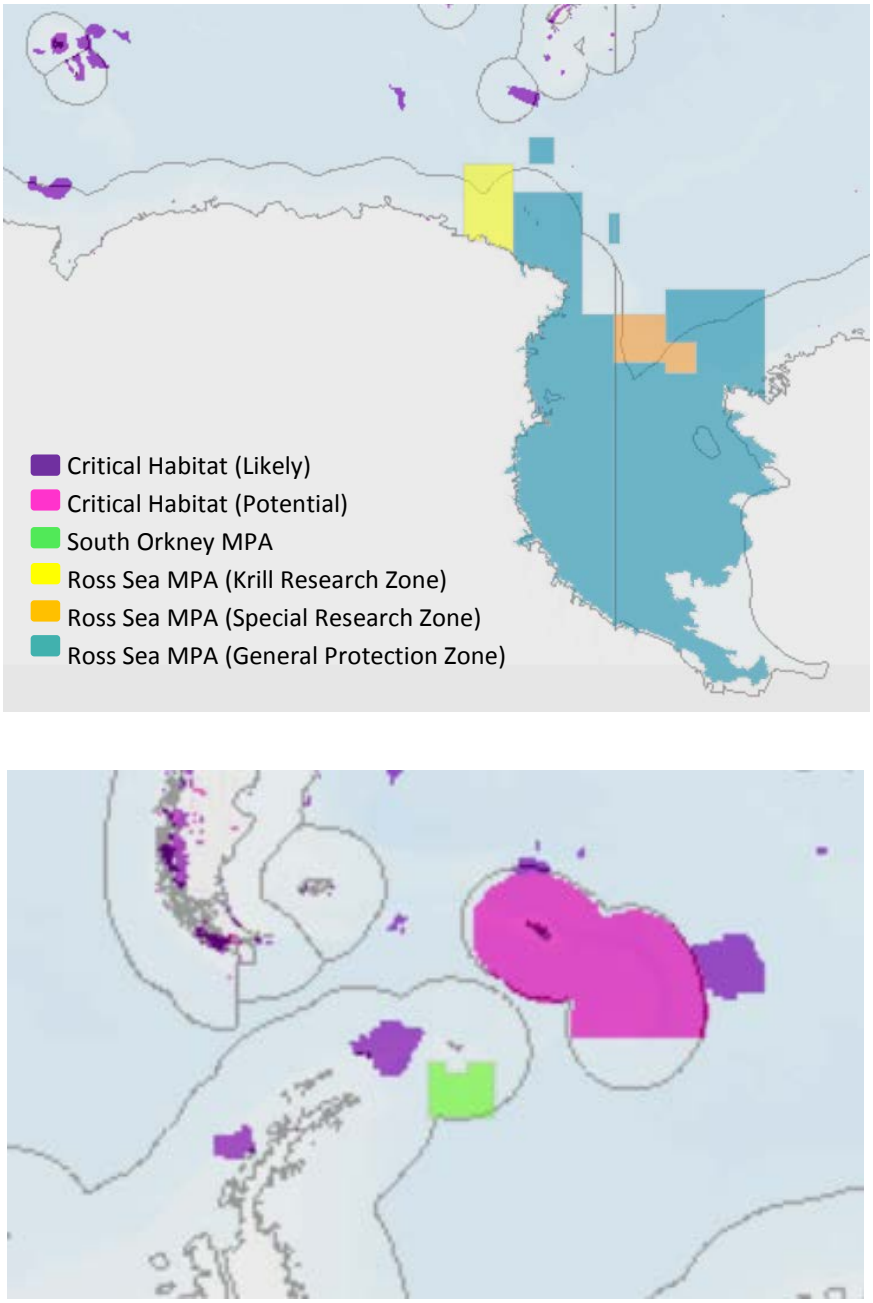


Figure 22: Presence of critical habitat in CCAMLR MPAs. Data source: UNEP-WCMC (2017) - http://data.unep-wcmc.org/datasets/44.

Figure 23 shows the presence of seamounts in the CCAMLR MPAs. While there are many seamounts protected in these MPAs, especially within the Ross Sea General Protection Zone, others are excluded.

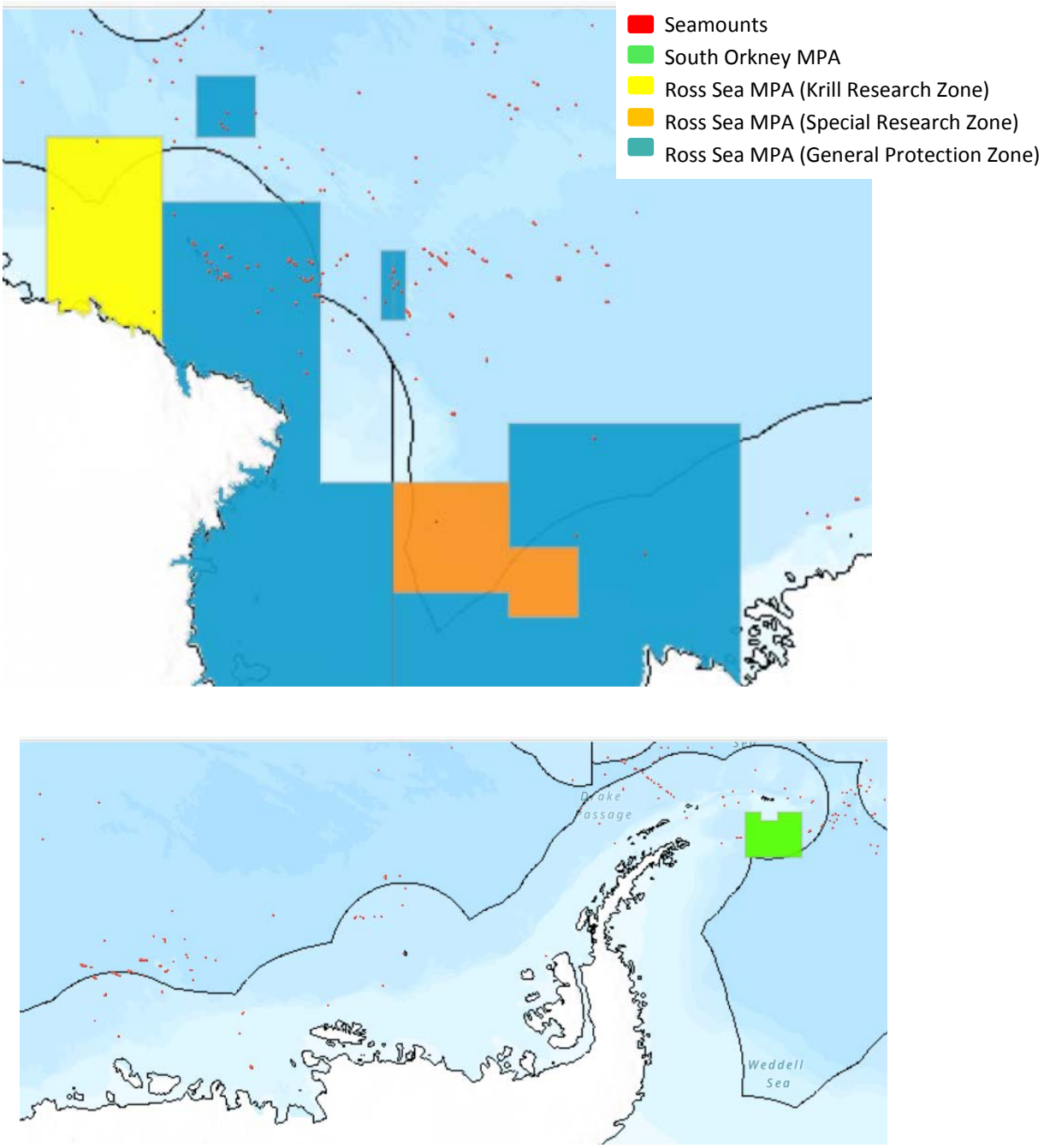
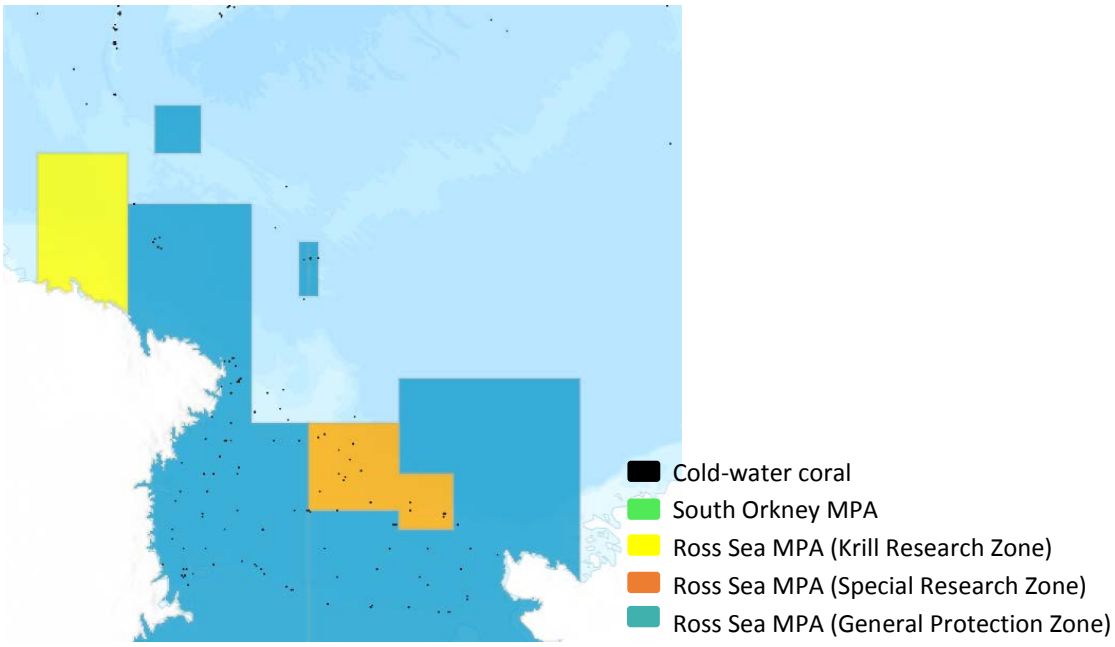


Figure 23: Presence of seamounts in CCAMLR MPAs. Data source: Yesson et al. (2011) - http://data.unep-wcmc.org/datasets/41.

Figure 24 shows the presence of cold-water coral in the CCAMLR MPAs. While there are many cold-water corals protected in these MPAs, especially within the Ross Sea General Protection Zone, the Antarctic Peninsula has a large concentration of cold-water coral unprotected.



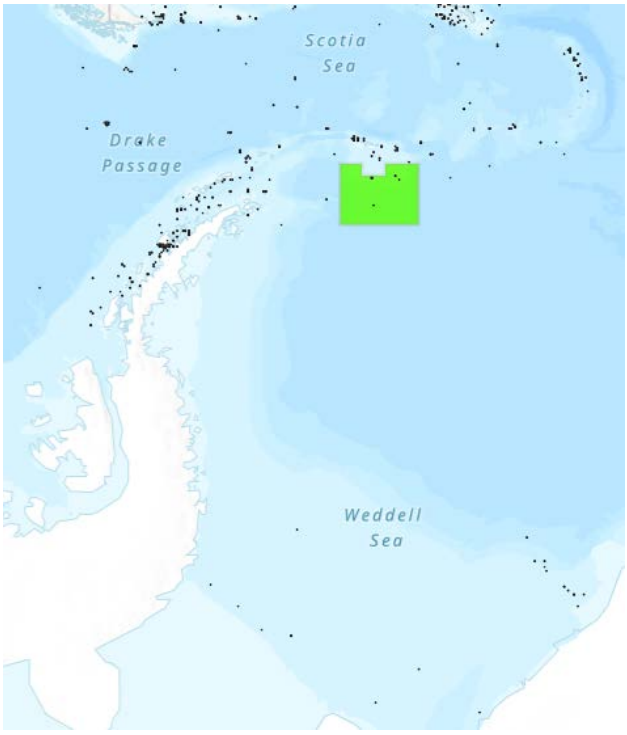


Figure 24: Presence of cold-water coral in CCAMLR MPAs. Data source: Freiwald (2017) - http://data.unep-wcmc.org/datasets/3.

Figure 25 shows the VMEs in the waters of Antarctica. There are several VMEs within the Ross sea MPA. However, several other VMEs are not protected within any MPA, including several spots just outside the South Orkney MPA and several long the Antarctic Peninsula.

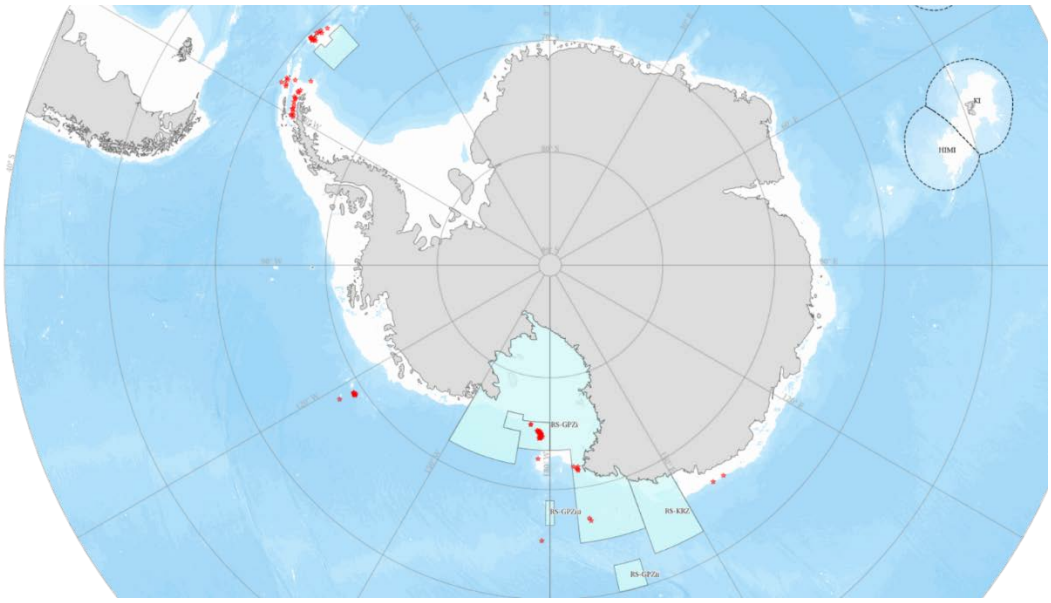


Figure 25: VMEs (red) and MPAs (blue) in the CCAMLR region. Data source: https://gis.ccamlr.org/.

Vulnerable Marine Ecosystem (VME)
CCAMLR MPA

Figure 26 shows the chlorophyll concentration in the CCAMLR MPAs. The Ross Sea MPA protects a large concentration of chlorophyll, while areas of high chlorophyll concentration along the Antarctic Peninsula are excluded. Chlorophyll is key for phytoplankton, which krill feed on; thus, key for the Antarctic food web.

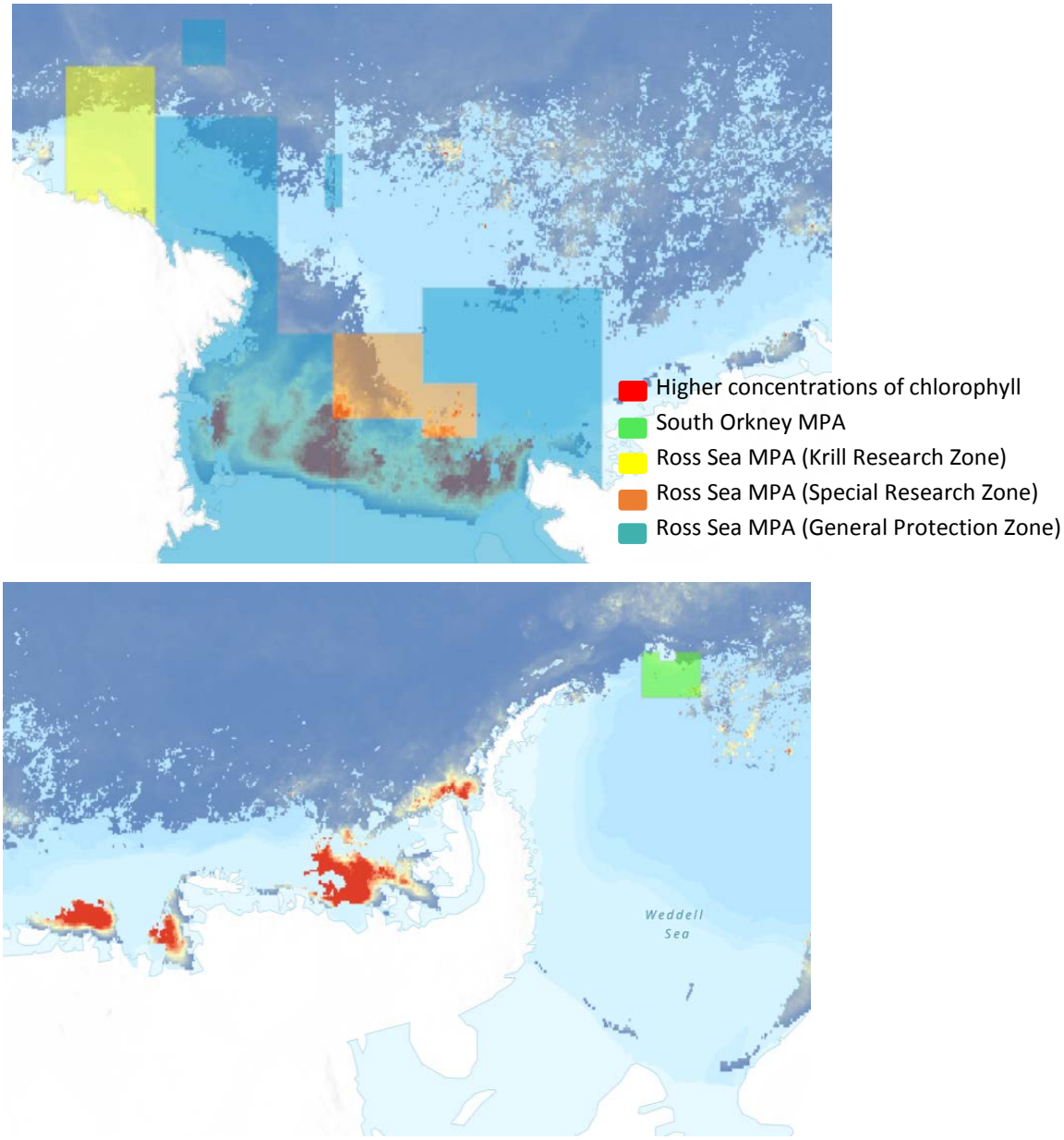


Figure 26: Chlorophyll-a concentration in CCAMLR MPAs. Red indicates higher levels of chlorophyll, while blue is lower concentrations. Data source: NASA (2014) - http://data.unep-wcmc.org/datasets/37.

3.4 Discussion

3.4.1 Effectiveness of Governance

Networked MPAs are key for biodiversity protection. This will require "a larger vision: to develop strategic, comprehensive, coordinated planning efforts for large ocean and coastal regions" (Agardy et al., 2011, p 230). "Coordinated, regional plans are not only necessary because of the large scale over which the dynamics of key ecosystem processes, resource markets, and governance processes occur, but also likely more efficient and cost-effective (Agardy et al., 2011, p 230). Governance of the OSPAR and CCAMLR MPAs seems to be strong, with both areas scoring high for effectiveness of governance. Both regions have overarching visions for the creation of a network of MPAs (see https://www.ccamlr.org/en/measure-91-04-2011 and https://www.ospar.org/work-areas/bdc/marine-protected-areas/guidance-for-the-development-and-management-of-the-ospar-network). However, connectivity could be improved for both regions.

OPSAR scores highly for governance effectiveness and this points to success for this area. The organization scored near perfect for inclusive, equitable, and representative collaborative co-management arrangements and level of coordination and cooperation. This could be in part to the member Parties having shared interests and a strong desire to cooperate with other like-minded countries to achieve common goals. As an interview participant said, "the strength of OSPAR is the cooperation it achieves." OSPAR has no mandate to regulate fisheries, shipping, or mining; thus, strong coordination and cooperation is needed

to ensure these sectors do not have negative effects on the MPAs and the habitats and species within. There are MOUs with NEAFC and IMO in which the organizations agree to work together, and OSPAR has developed a "Collective Arrangement" for international organizations operating in the North-East Atlantic to come together to better protect the marine environment and manage human activities (see here: https://www.ospar.org/about/international-cooperation/collective-arrangement). However, only NEAFC and OSPAR are parties to the arrangement currently. Additionally, there is remarkable overlap between the MPAs and NEAFC fishery closures (Figure 18 above), which speaks to OSPAR and NEAFC working collectively to conserve marine resources and the strength of the NEAFC/OSPAR relationship; however, the current measures in place still allow fishing to occur in the MPAs and only ban certain forms of fishing. These MOUs and agreements, while encouraging cooperation and coordination, do not always translate into effective measures. There are no measures for shipping and mining, and the fishery measures do not entirely close the MPAs. So, while the coordination mechanisms are in place, it comes down to implementing the measures and translating that into effective management. This will be key if OSPAR wants to effectively integrate the MPAs into an ecosystem-based management scheme. Time will tell if the MOUs/agreements and coordination and cooperation between organizations with different mandates can achieve effective marine conservation.

While the CCAMLR MPAs scored high for protection level, governance could be improved to ensure the protection is effective. There are several key areas excluded from the MPAs. Leaving these areas unprotected could have impacts on the health of the other MPAs and the Antarctic ecosystem as a whole. As mentioned earlier, the Antarctic Peninsula has high value for many marine species yet is unprotected. Argentina and Chile have, however, submitted a proposal to CCAMLR to designate an Antarctic Peninsula MPA (see Figure 27 and proposal here: https://www.ccamlr.org/en/ccamlr-xxxvii/31). Additionally, the EU has submitted a proposal for an MPA in the Weddell Sea (see here: https://www.ccamlr.org/en/ccamlr-xxxvii/29) and Australia and the EU have submitted a draft conservation measure for an MPA in East Antarctica (see here: https://www.ccamlr.org/en/ccamlr-xxxvii/24-rev-1). Increasing this connectivity and ensuring the MPAs and fisheries are integrated into a management scheme are key for holistic protection.

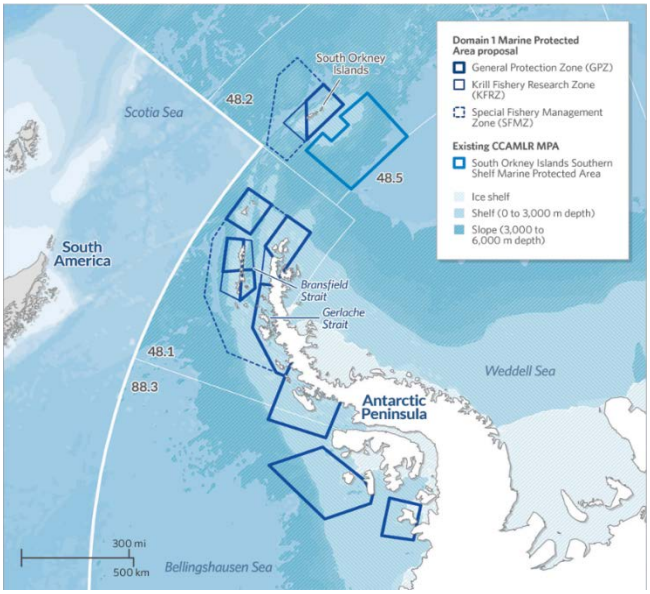


Figure 27: Proposed Antarctic Peninsula MPA. Source: https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2018/10/protections-for-the-antarctic-peninsula-are-critical-for-marine-life.

Of particular concern, for both OSPAR and CCAMLR, is the lack of MPA managers. Although the Secretariat of OSPAR and the CCAMLR Commissioners

could be considered the managers, there is no one person responsible for ensuring the MPAs are managed effectively and adequately protected. Granted, these organizations operate via international cooperation; therefore, decisions must be made via a participatory process. However, not having a person whose responsibility it is to see to the management of the MPA and leaving management to a group of individuals could create a tension in how to best manage the MPA and lead to inaction. There is no individual to set the agenda for conservation and management, highlight gaps in management, nor be able to take steps to remedy gaps or deficiencies.

3.4.2 Effectiveness of Management

OSPAR scored low in management effectiveness, which does not point to success. The lack of a management plan, strategies, sanctions, and zoning substantially reduces the OSPAR management effectiveness score. Lack of management is cause for concern. For example, OSPAR Member States implement conservation measures for MPAs without the benefit of management plans, leading to uncertainty in how well these measures are being implemented and if they are working (De Santo, 2018). Not having management plans that are implemented and working toward objectives is a common occurrence within OSPAR, as only “14% of OSPAR MPAS are now moving towards or have achieved their conservation objectives” and “additional efforts to implement management measures necessary to achieve the conservation objectives of the protected features of OSPAR MPAs should be considered” (OSPAR, 2018, p 2). Although adopting management measures after an MPA is created could allow for

flexibility in implementation, which could be important for high seas MPAs where data is scarce, a delay makes it difficult for States to decide “where and how much to protect” as they do not know “what activities will be restricted” (De Santo, 2018, p 40). Management plans would provide objectives, measures to achieve the objectives, and establish zones. Without these, it is difficult to assess how well an MPA is doing at conserving what it was designed to conserve.

For CCAMLR, while there are management plans that establish the zones and provide strategies (at least in terms of what you cannot do, though this is mainly in the conservation measure establishing MPAs), none of the plans provide specific objectives. There are objectives, as is required from the MPA Framework; however, they are relatively general. That being said, the conservation measures to designate an MPA in CCAMLR as well as the proposals for MPAs in CCAMLR are increasing in specificity. For example, the South Orkney MPA designation did not include a management plan in the conservation measure the parties adopted. The Ross Sea MPA conservation measure had a management plan; however, it echoed the objectives in CM 91-04, which is the General Famework for Establishing MPAs in CCAMLR, and did not provide much detail on specific management measures to be taken. However, the East Antarctica proposal and Weddell Sea proposal have far greater detail. The East Antarctica proposal specifies the need for an adaptive approach, includes review intervals, specifies the duration of the MPA, and includes specific objectives. A management plan is also included that provides more information on the objectives (not simply echoing the objectives in CM 91-04), details areas where

fishing is prohibited or specifie species cannot be taken, and specifies vessel requirements (observers must be on board, AIS is required, and the Secretariat must be notified of entry dates into the MPA). The Weddell Sea MPA proposal also has greater detail than previous MPA proposals put forth by CCAMLR members. As with the East Antarctica management plan, the objectives are more specific than in CM 91-04 and there are easy to read tables with details on the types of fishing allowed/not allowed and which species can be taken in which zone. The proposal itself has general and specific objectives, does not allow for transhipment (transfer) of harvested marine life (effort to combat illegal, unreported, and unregulated (IUU) fishing), and specifies review intervals. However, there is no note on duration of the MPA. The increasing specificity of the proposals and management plans is an indicator that CCAMLR parties are learning from previous designations and are working towards a strong, coherent network of MPAs. This bodes well for the future of CCAMLR MPAs.

Furthermore, there are several other MPAs and reserves in the surrounding waters of the Southern Ocean (South Georgia and South Sandwich Islands, Prince Edwards Island, Crozet Islands, Kerguelen Islands, and Heard Island and McDonald Islands) that together create a connected system of MPAs. It is important to pair these surrounding MPAs and terrestrial protected areas into this system. The challenge for CCAMLR will be ensuring there is a robust monitoring program for all the MPAs as well as the MPA system as a whole. Not only do the individual MPAs need to have established targets and strategies to achieve the targets, but the entire system of MPAs needs to be reviewed peridically to ensure

the system is functioning as the connected system it is meant to be. The CCAMLR conservation measures that designate the MPAs include priorities for research and monitoring. The key is to implement these measures and transfer priorities into a robust monitoring program.

3.4.3 Protection of Habitats

"Despite good progress, the OSPAR MPA network cannot yet be considered ecologically coherent" (OSPAR, 2018, p 1). OSPAR does well to protect some habitats but not others. OSPAR is lacking protection for carbonate mounds and oceanic ridges/hydrothermal vents, even though these are listed as threatened or declining habitats. This is concerning, especially for hydrothermal vents, as the communities living on and around the vent are often unique and endemic (UNEP, 2006). Furthermore, polymetallic sulphide deposits have been found on the Mid-Atlantic Ridge, around/on hydrothermal vents (see here: https://ran-s3.s3.amazonaws.com/isa.org.jm/s3fs-public/maps/37-sulphides_global.jpg). It appears that these unique communities may be at risk from negative effects of deep-sea mining if a portion of the vents are not protected sooner rather than later. Of note is an MOU between OSPAR and the International Seabed Authority (ISA), which commits the organizations to consult on matters of mutual interest, encourage marine scientific research, and cooperate for the collection of data and information (OSPAR and ISA, 2011). Thus, there is a mechanism for coordination and cooperation regarding mining in the OSPAR area; however, more could be done to protect these threatened and declining habitats in MPAs, including designated MPAs for these habitats.

The region does well to protect seamounts, as all the current MPAs have multiple seamounts within their boundaries. Nevertheless, there are large areas with seamounts that are unprotected. Given the importance of seamounts as "stepping stones for the dispersal of species…and a refuge for relict species" as well as their importance as a hotspot for breeding, feeding, and spawning, it may be wise to protect even more of these vital habitats (UNEP, 2006, p 14). Josephine MPA has high concentrations of cold-water corals within the boundaries, and all the MPAs aside from Altair, Antialtair, and Josephine have *Lophelia pertusa* within their boundaries. Cold-water corals are hundreds or thousands of years old and are important habitats for deep-water species (UNEP, 2006). As seen in Figure 28, there are two large areas in OSPAR's Region V that contain cold-water coral concentrations that are unprotected. Given the lack of protection for some potentially vital areas and unique communities, "further work is also required to ensure that habitats and species considered by OSPAR to be at risk are adequately protected by MPAs where appropriate" (OSPAR, 2018, p 1).

For CCAMLR, there are several areas of critical habitat not included in an MPA, including large areas off the Antarctic Peninsula. The Ross Sea MPA seems to do well in protecting seamounts, cold-water coral, and VMEs; however, there are large concentrations of cold-water coral and VMEs just outside the South Orkney MPA and off the Antarctic Peninsula that are unprotected. The Ross Sea MPA also protects areas of high chlorophyll concentrations, but again the Antarctic Peninsula is lacking protection. The Antarctic Peninsula is an area that has critical habitats, seamounts, cold-water coral, high chlorophyll concentrations, and VMEs

all unprotected. As seen in Figure 28, this area is key for fur seals, penguins, and birds. Despite this value, there is no protection.

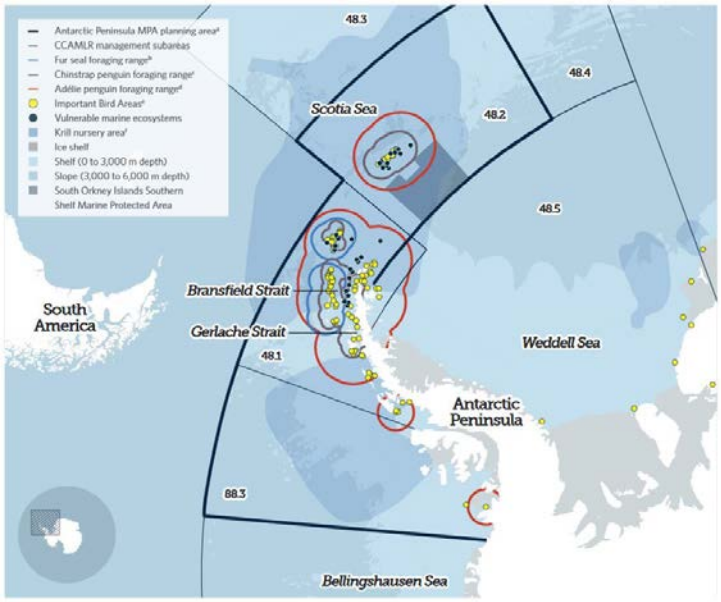


Figure 28: Importance of the Antarctic Peninsula. Source: https://www.pewtrusts.org/-/media/assets/2017/10/protection-for-the-antarctic-peninsula-region.pdf.

Both regions may want to consider the use of mobile MPAs. As the impacts of climate change are realized, it will become necessary to develop and implement innovative tools to keep up with the changing dynamics of the marine ecosystem. Mobile MPAs "whose boundaries shift across space and time, could help to safeguard marine life and build ecosystem resilience by protecting dynamic habitats as well as migratory marine species in a changing ocean" (Maxwell et al., 2020). The boundaries of the MPA could shift with environmental characteristics (for example, changes in sea surface temperature), the presence of a particular species (through acoustic or visual detection), or through modeling and predicting species or habitat occupancy (Maxwell et al., 2020). These MPAs would require the use of advanced monitoring tools and enforcement; however, they present an opportunity for a pro-active approach to protection of marine species and habitats.

3.4.4 Methodology

The methodology by Horta e Costa et al. translated well into determining protection level for ABNJ MPAs. A difficulty for using this methodology for ABNJ MPAs is lack of specificity in regulations. What fishing methods are allowed or not allowed? Is mining allowed? This goes back to lack of management plans that clearly lay out what can and cannot occur in the MPA. The data for this determination of level of protection was pieced together from official documents, information online, and through the interviews, which made determining the protection level difficult. However, use of this methodology allowed for the MPAs to be given a level of protection score, which they previously did not have (at least not according to the MPA Atlas nor any official documents).

The Bennett and Dearden framework also translated well to ABNJ; however, as noted above, it was necessary to amend the framework to be more relevant to ABNJ. This framework could be further amended to include questions more relevant to ABNJ, to consider the unique conditions around ABNJ MPAs, as more MPAs are implemented and lessons are learned. Furthermore, while the local development category was removed for this analysis, it would be interesting to see if the development questions could be structured in a way to evaluate the effectiveness of MPAs on fisheries or migratory species. That may prove to be quite difficult but should be a consideration for future research. The framework was designed as a set of indicators to be answered in multiple ways. For example, the questions could be answered as semi-structured interviews with one or more

individuals or as a focus group with various stakeholders (government representatives, NGOs, community representatives, etc.). While this assessment relied on a small number of interviews, it could be expanded to include others. This would allow for comparison of different stakeholder perceptions. The framework could also be used to assess effectiveness over time. “It could serve as a monitoring and evaluation tool for examining whether, and to what extent, the recommended inputs require attention in individual sites or in entire systems of MPAs” (Bennett and Dearden, 2014, p 106) If MPA managers for each MPA were adopted, it would be useful for each of those individuals to answer the questions about their MPA and compare results over time.

While there were only two interview participants for the effectiveness scoring, they both had intimate knowledge of the MPAs, an understanding of the workings of the regional organizations, and were able to answer all the questions with confidence. While the scoring within each region was the same or nearly the same for each MPA, this can be explained that each of the MPAs was designed under a framework, which is meant for MPAs to form a coherent network. Thus, it makes sense that the governance and management of the MPAs is rated similarly. Furthermore, since none of the MPAs have managers, which may impose different methods of management and governance within the MPA he or she manages, the MPAs rely on the overall governance and management as set forth in the MPA frameworks of the regions. If managers were to be appointed, it would be useful to reevaluate the MPAs to see the impact of an MPA manager on the governance and management.

3.5 Conclusion

Going back to the breakdown of Aichi Target 11, the effectiveness of MPAs in ABNJ can be evaluated by the four components identified by Leadly et al, (2014). First, the total coverage of MPAs in ABNJ is lacking with just 1.18% of ABNJ protected in an MPA. Second, representation of ABNJ habitats is lacking, as only two regions have ABNJ MPAs. Within these regions, there is lack of representative MPAs for hydrothermal vents and carbonate mounds, and protection for seamounts and corals could be improved. Third, connectivity is currently an issue for ABNJ MPAs. CCAMLR and OSPAR are working to better increase connectivity of the MPAs; however, key habitats that could help boost connectivity (and representativeness) are not currently protected. Lastly, management effectiveness needs improvement. While the CCAMLR MPAs are likely to succeed, the OSPAR MPAs should pay more attention paid to management in order to increase probability of success.

The international community has large goals for MPAs and there is a need to protect large portions of the marine environment. However, this protection cannot be ad hoc and only at the whim of decision-makers. The MPAs must be designed and implemented in a thoughtful and planned manner. CCAMLR and OSPAR have frameworks to designate MPAs. This is a good first step. Governance for both organizations is strong, as collaboration and coordination seem to be a strong suit. However, OSPAR's management could be improved as they work toward successful implementation of the MPAs. OSPAR needs to expand the use of MPAs, especially for carbonate mounds and ridges/hydrothermal vents. The

organization does well to coordinate and collaborate with NEAFC, IMO, and ISA; however, the MOUs/arrangements need to be translated into effective in-water protection. None of their MPAs are no-take, even in areas where fishery closures are in place. Mining is allowed in the OSPAR management zone, which could potentially put MPAs in jeopardy. There are no IMO measures within the MPAs to restrict vessel activities. So, while governance is strong, management needs to be improved for the MPAs to be successful. CCAMLR's governance and management is strong; however, there are key ecosystems not protected in MPAs, though CCAMLR is working on MPAs for these areas.

With all these new MPAs, a strong monitoring program is needed to ensure this unique and special ecosystem is meeting objectives. Both organizations need management plans with targets and to adopt indicators and strategies to meet those targets. This is a key weakness for both organizations. Without the ability to confidently say an MPA has met a target, it is hard to say the MPAs are more than paper parks. That being said, the organizations are working towards more monitoring and evaluation. Only time will tell if these MPAs are meeting their objectives or if the years of hard work to designate the MPAs were all for naught. These early MPAs being successful is key to inform later MPAs about lessons learned, encourage more biodiversity protection in ABNJ to meet international goals, and effectively protect marine biodiversity in a world where ocean stressors are increasing.

REFERENCES

Agardy, T., Bridgewater, P., Crosby, M., Day, J., Dayton, P., Kenchington, R., Laffoley, D., McConney, P., Murray, P., Parks, J., and Peau, L. (2003). Dangerous targets? Unresolved issues and ideological clashes around marine protected areas. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 13, 353-367.

Agardy, T., Notarbartolo di Sciara, G., and Christie, P. (2011). Mind the gap: Addressing the shortcomings of marine protected areas through large scale marine spatial planning. *Marine Policy,* 35, 226-232.

Appeltans, W., Ahyong, S., Anderson, G., Angel, M., Artois, T., Bailly, N., Bamber, R., Barber, A., Bartsch, I., Berta, A., Blazewicz-Paszkowycz, M., Bock, P., Boxshall, G., Boyko, C., Brandao, S., Bray, R., Bruce, N., Cairns, S., Chan, T., Cheng, L., Collins, A., Cribb, T., Curini-Galletti, M., Dahdouh-Guebas, F., Davie, P., Dawson, M., De Clerck, O., Decock, W., De Grave, S., de Voogd, N., Domning, D., Emig, C., Erseus, C., Eschmeyer, W., Fauchald, K., Fautin, D., Feist, S., Fransen, C., Furuya, H., Garcia-Alvarez, O., Gerken, S., Gibson, D., Gittenberger, A., Gogas, S., Gomez-Daglio, L., Gordon, D., Guiry, M., Hernandez, F., Hoeksema, B., Hopcroft, R., Jaume, D., Kirk, P., Koedam, N., Koenemann, S., Kolb, J., Kristensen, R., Kroh, A., Lambert, G., Lazarus, D., Lemaitre, R., Longshaw, M., Lowry, J., Macpherson, E., McLaughlin, P., Mees, J., Meland, K., Messing, C., Mills, C., Molodtsova, T., Mooi, R., Neuhaus, B., Ng, P., Nielsen, C., Norenburg, J., Opresko, D., Osawa., M., Paulay, G., Perrin, W., Pilger, J., Poore, G., Pugh, P., Read, G., Reimer, K., Ruis, M., Rocha., R., Saiz-Salinas, J., Scarabino, V., Schierwater, B., Schmidt-Rhaesa, A., Schnabel, K., Schotte, M., Schuchert, P., Schwabe, E., Segers, H., Self-Sullivan, C., Shenkar, N., Siegal., V., Sterrer, W., Stohr, S., Swalla, B., Tasker, M., Thuesen, E., Timm, T., Todar, A., Turon, X., Tyler, S., Uetz, P., van der Land, J., Vanhoorne, B., van Ofwegen, J., van Soest, r., Vanaverbeke, J., Walker-Smith, G., Walter, C., Warren, A., Williams, G., Wilson, S., and Costello, M. (2012). The Magnitude of Global Marine Species Diversity. *Current Biology.,* 22:23, 2189-2202.

Ban, N., Maxwell, S., Dunn, D., Hobday, A., Bax, N., Ardron, J., Gjerde, K, Game, E., Devlillers, R., Kaplan, D., Dunstan, P., Halpin, P., and Pressey, R. (2014). Better integration of sectoral planning and management approaches for the interlinked ecology of the open oceans. *Marine Policy,* 49, 127-136.

Bennett, N., and Dearden, P. (2015). From measuring outcomes to providing inputs: Governance, management, and local development for more effective marine protected areas. *Marine Policy*, 50, 96-110.

Brito, D. (2010). Overcoming the Linnean shortfall: Data deficiency and biological survey priorities. *Basic and Applied Ecology*, 11, 709-713.

Campbell, L. and Gray, N. (2019). Area expansion versus effective and equitable management in international marine protected areas goals and targets. *Marine Policy*, 100, 192-199.

Census of Marine Life (2011). *Highlights of a decade of discovery scientific results to support the sustainable use and conservation of marine life. A summary of the Census of Marine Life for decision makers.* Available at: http://www.coml.org/comlfiles/policy/ENGLISH_Policy_Report_reduced.pdf.

Commission for the Conservation of Antarctic Marine Living Resource (CCAMLR) (no date). CCAMLR GIS. Available: https://gis.ccamlr.org/.

CCAMLR (2018a). EU proposal to establish the Weddell Sea MPA (WSMPA). Available: https://www.ccamlr.org/en/ccamlr-xxxvii/29.

CCAMLR (2018b). Draft conservation measure for an East Antarctic Marine Protected Area. Available: https://www.ccamlr.org/en/ccamlr-xxxvii/24-rev-1.

CCAMLR (2011). Conservation Measure 91-04 – General framework for the establishment of CCAMLR Marine Protected Areas. Available: https://www.ccamlr.org/en/measure-91-04-2011.

Costello, M. and Ballantine, B. (2015). Biodiversity conservation should focus on no-take Marine Reservers. *Trends in Ecology and Evolution*, 30:9.

De Santo, E. (2018). Implementation challenges of area-based management tools (ABMTs) for biodiversity beyond national jurisdiction (BBNJ). *Marine Policy*, 97, 34-43.

Christiansen, B., Denda, A., and Christiansen, S. (in press). Potential effects of deep seabed mining on pelagic and benthopelagic biota. *Marine Policy*. https://doi.org/10.1016/j.marpol.2019.02.014.

Edgar, G., Stuart-Smith, R.,Willis, T., Kinimonth, S., Backer, S., Banks, S., Barrett, N., Becerro, M., Bernard, A., Berkhout, J., Buxton, C., Campbell, S., Cooper, A., Davey, M., Edgar, S., Forsterra, G., Irigoyen, A., Kushner, D., Moura, R., Parnell, P., Shears, N., Soler, G., Strain, E., Thomson, R. (2014). Global conservation outcomes depend on marine protected areas with five key features. *Nature*, 36, 216-220.

Food and Agriculture Organization (FAO). (2018). *The State of World Fisheries and Aquaculture 2018.* Rome: FAO.

Freiwald A, Rogers A, Hall-Spencer J, Guinotte JM, Davies AJ, Yesson C, Martin CS, Weatherdon LV (2017). Global distribution of cold-water corals (version 5.0). Fifth update to the dataset in Freiwald et al. (2004) by UNEP-WCMC, in

collaboration with Andre Freiwald and John Guinotte. Cambridge (UK): UN Environment World Conservation Monitoring Centre. URL: http://data.unep-wcmc.org/datasets/3

Horta e Costa, B., Claudet, J., Franco, G., Erzini, K., Caro, A., and Goncalves, E. (2016). A Regulation-based Classification System for Marine Protected Areas (MPAs). *Marine Policy*, 72, 192-198.

Hughes, K., and Grant, S. (2017). The spatial distribution of Antarctica's protected areas: A product of pragmatism, geopolitics, or conservation need? *Environmental Science and Policy,* 72, 41-51.

International Chamber of Shipping (2018). Shipping Facts. Available: http://www.ics-shipping.org/shipping-facts/shipping-facts

International Seabed Authority (ISA) (2019). Map of polymetallic sulphide deposits. Available: https://www.isa.org.jm/maps#maps-block_1-2.

Johnson, D., Ferreira, M., and Kenchington, E. (2018). Climate change is likely to severely limit effectiveness of deep-sea ABMTs in the North Atlantic. *Marine Policy,* 87, 111-122.

Kaplan, M. and Solomon, S. (2016). A coming boom in commercial shipping? The potential for rapid growth of noise from commercial ships by 2030. *Marine Policy, 73, 119-121.*

Leadley, P.W., Krug, C.B., Alkemade, R., Pereira, H.M., Sumaila U.R., Walpole, M., Marques, A., Newbold, T., Teh, L.S.L, van Kolck, J., Bellard, C., Januchowski-Hartley, S.R. and Mumby, P.J. (2014): Progress towards the Aichi Biodiversity Targets: An Assessment of Biodiversity Trends, Policy Scenarios and Key Actions. Secretariat of the Convention on Biological Diversity, Montreal, Canada. Technical Series 78, 500 pages.

Marine Conservation Institute (2019). MPA Atlas. Available: http://www.mpatlas.org/map/mpas/.

Martin, C., Tolley, M., Farmer, E., Mcown, C., Geffert, J., Scharlemann, J., Thomas, H., van Bochove, J., Stanwell-Smith, D., Hutton, J., Lascelles, B., Pilgrim, J., Ekstom, J., Tittensor, D. (2015). A global map to aid the identification and screening of critical habitat for marine industries. *Marine Policy,* 53, 45-53.

Maxwell, S., Gjerde, K., Conners, M., and Crowder, L. (2020). Mobile Protected areas for biodiversity on the high seas. *Science.* 367:6475, 252-254.

Murray S., Ambrose R., Bohnsack J., Botsford W., Carr M., Davis G., Dayton P., Gotshall D., Gunderson D., Hixon M., Lubchenco J., Mangel M., MacCall A., McCardle D., Ogden J., Roughgarden J., Starr R., Tegner M., Yoklavich M.

(1999). No-take reserve networks: sustainable fishery populations and marine ecosystems. *Fisheries* 24(11): 11–25.

Narula, K. (2016). Ocean governance: strengthening the legal framework for conservation of marine biological diversity beyond areas of national jurisdiction. *Maritime Affairs: Journal of the National Maritime Foundation of India*, 12:1, 65-78, DOI: 10.1080/09733159.2016.1181394

NASA Ocean Biology (OB.DAAC). (2014). Mean annual sea surface chlorophyll-a concentration for the period 2009-2013 (composite dataset created by UNEP-WCMC). Data obtained from the Moderate Resolution Imaging Spectroradiometer (MODIS) Aqua Ocean Colour website (NASA OB.DAAC, Greenbelt, MD, USA). Accessed 28/11/2014. URL: http://oceancolor.gsfc.nasa.gov/cgi/l3. Cambridge (UK): UNEP World Conservation Monitoring Centre. URL: http://data.unep-wcmc.org/datasets/37.

Neuman, L. (2014). *Social Research Methods: Qualitative and Quantitative Approaches.* Essex, England: Pearson Education Limited.

Nilsson, J., Fulton, E., Haward, M., and Johnson, C. (2016) Consensus Management in Antarctica's high seas – Past success and current challenges. *Marine Policy*, 73, 172-180.

North-East Atlantic Fisheries Commission (NEAFC) No Date. VMEs and Closure Maps and Coordinates. https://www.neafc.org/managing_fisheries/vmec

O'Leary, B. and Roberts, C. (2018). Ecological connectivity across ocean depths: Implications for protected area design. *Global Ecology and Conservation*, 15, 1-10.

OSPAR (no date). List of Threatened and/or Declining Species and Habitats. Available: https://www.ospar.org/work-areas/bdc/species-habitats/list-of-threatened-declining-species-habitats.

OSPAR (2019). MPA Datasheets. Available: http://mpa.ospar.org/home_ospar/mpa_datasheets?recherche=1.

OSPAR (2018). Status of the OSPAR Network of Marine Protected Areas in 2018. Available: https://www.ospar.org/site/assets/files/40996/assessment_sheet_mpa_status_2018.pdf.

OSPAR and ISA (2011). Memorandum of Understanding between the OSPAR Commission and the International Seabed Authority. Available: https://www.ospar.org/site/assets/files/1357/mou_isa.pdf.

OSPAR (2010). Recommendation 2003/3 on a network of Marine Protected Areas. Available: https://www.ospar.org/work-areas/bdc/marine-protected-areas/guidance-for-the-development-and-management-of-the-ospar-network.

OSPAR and NEAFC (2008). Memorandum of Understanding between the North East Atlantic Commission (NEAFC) and the OSPAR Commission. Available: https://www.ospar.org/site/assets/files/1357/mou_neafc_ospar.pdf

Pauly, D., Christensen, V., Dalsgaard, J., Froese, R., and Torres Jr., F. (1998). Fishing Down Marine Food Webs. *Science*, 297, 860-863. DOI: 10.1126/science.279.5352.860

Pew Charitable Trusts (2018). Protections for the Antarctic Peninsula are Critical for Marine Life. Available: https://www.pewtrusts.org/-/media/assets/2018/10/protections-for-the-antarctic-peninsula-are-critical-for-marine-life.pdf.

Pew Charitable Trusts (2017). Protection for the Antarctic Peninsula Region. Available: https://www.pewtrusts.org/-/media/assets/2017/10/protection-for-the-antarctic-peninsula-region.pdf.

Popova, E., Vousden, D., Sauer, W., Mohammed, E., Allain, V., Downey-Breedt., N., Fletcher, R., Gjerde, K., Halpin, P., Kelly, S., Obura, D., Peci, G., Roberts, M., Raitsos, D., Rogers, A., Samoilys, M., Sumalia, U., Tracey, S., and Yool, A. (2019). Ecological connectivity between the areas beyond national jurisdiction and coastal waters: Safeguarding interests of coastal communities in developing countries. *Marine Policy,* 104, 90-102.

Protocol on Environmental Protection to the Antarctic Treaty, October 4, 1991. XI ATSCM/2.

Smith, D., and Jabour, J. (2018). MPAs in ABNJ: lessons from two high seas regimes. *ICES Journal of Marine Science,* 75(1), 417-425.

Roberts, C., O'Leary, B., McCauley, D., Cury, P., Duarte, C., Lubchenco, J., Pauly, D., Saenz-Arroyo, A., Sumaila, U., Wilson, R., Worm, B., and Castilla, J. (2017). Marine Reserves can mitigate and promote adaptation to climate change. *Proceedings of the National Academies of Science,* 114:24, 6167-6175. https://doi.org/10.1073/pnas.1701262114

Roberts, K., Valkan, R., and Cook, C. (2018). Measuring progress in marine protection: A new set of metrics to evaluate the strength of marine protected area networks. *Biological Conservation,* 219, 20-27.

Sala, E., Lubchenco, J., Grorud-Colvert, K., Novelli, C., Roberts, C., and Sumalia, R. (2018). Assessing real progress towards effective ocean protection. *Marine Policy*, 91, 11-13.

Teh, L., Cheung, W., Christensen, V., and Sumaila, U. (2017). Can we meet the Target? Status and future trends for fisheries sustainability. *Current Opinion in Environmental Sustainability.* 29, 118-130.

United Nations Convention on the Law of the Sea (UNCLOS), December 10, 1982, 1833 U.N.T.S. 397

UNEP. (2006). Ecosystems and Biodiversity in Deep Waters and High Seas. UNEP Regional Seas Reports and Studies No. 178. UNEP/ IUCN, Switzerland 2006. ISBN: 92-807-2734-6

UNEP-WCMC and IUCN. (2016). Protected Planet Report 2016. UNEP-WCMC and IUCN: Cambridge UK and Gland, Switzerland.

UNEP-WCMC. (2017). Global Critical Habitat screening layer (Version 1.0). Cambridge (UK): UN Environment World Conservation Monitoring Centre. http://data.unep-wcmc.org/datasets/44

UNEP-WCMC and IUCN. (2020), Protected Planet: Official MPA Map; The World Database on Protected Areas (WDPA)/The Global Database on Protected Areas Management Effectiveness (GD-PAME) [On-line], February 2020, Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UNESCO. (2017). Facts and Figures on marine biodiversity. Accessed April 20, 2017. Available at: http://www.unesco.org/new/en/natural-sciences/ioc-oceans/focus-areas/rio-20-ocean/blueprint-for-the-future-we-want/marine-biodiversity/facts-and-figures-on-marine-biodiversity/

Warner, R. (2014). Conserving marine biodiversity in areas beyond national jurisdiction: co-evolution and interaction with the law of the sea. Frontiers in Marine Science, 1:6, 1-11.

Wright, G., Ardron, J., Gjerde, K., Currie, D., and Rochette, J. (2015). Advancing marine biodiversity protection through regional fisheries management: A review of bottom fisheries closures in areas beyond national jurisdiction. Marine Policy, 61, 134-148.

World Bank (2017). The Sunken Billions Revisited: Progress and Challenges in Global Marine Fisheries. Washington, DC: World Bank. Environment and Sustainable Development series. doi:10.1596/978-1-4648-0919-4.

Yesson C, Clark MR, Taylor M, Rogers AD (2011). The global distribution of seamounts based on 30-second bathymetry data. Deep Sea Research Part I: Oceanographic Research Papers 58: 442-453. doi: 10.1016/j.dsr.2011.02.004. Data URL: http://data.unep-wcmc.org/datasets/41

Chapter 4

GLOBAL GOVERNANCE IN AREAS BEYOND NATIONAL JURISDICTION: THE ROLE OF NON-GOVERNMENTAL ORGANIZATIONS IN THE DESIGNATION OF MARINE PROTECTED AREAS

4.1 Introduction

Areas beyond national jurisdiction (ABNJ) are a unique space when it comes to the management of resources and activities. On one hand, ABNJ lie outside the bounds of any single State and is an area of shared resources and responsibility. On the other hand, because ABNJ are outside the bounds of any single State, no single State or organization is responsible for managing the resources and activities in ABNJ. While the United Nations Convention on the Law of the Sea (UNCLOS) does lay out certain freedoms of the high seas (Part VII, Article 87), management of the high seas is rather limited. There are Intergovernmental Organizations (IGOs) (such as the International Maritime Organization (IMO) and Food and Agriculture Organization (FAO)) that manage sectoral activities and Regional Seas Programmes that manage environmental issues (though this is rather limited as most Regional Seas Programmes are limited to the Exclusive Economic Zone). Additionally, the International Seabed Authority (ISA) has the mandate to regulate the exploitation of mineral resources in ABNJ, giving them jurisdiction on the seabed for certain activities. Overall, governance of the ocean space is a patchwork of organizations with varying interests.

Global Governance is defined as “the sum of organizations, policy instruments, financing mechanisms, rules, procedures, and norms” that operate beyond the capacity of individual States (Avant et al, 2010, p 1). For the ocean, governance has mainly focused on UNCLOS and the various regional organizations and IGOs mentioned above. For all these organizations/governing authorities, it is the States that are ultimately the final decision-makers on what actions to take in the governance/management of the ocean and its resources. However, non-State actors can have great influence on these organizations and can alter State behavior.

4.1.1 The role of NGOs in Global Governance

Non-State actors include civil society, which “is generally used to classify persons, institutions, and organizations that have the goal of advancing or expressing a common purpose through ideas, actions, and demands on governments” (Gemmill and Bamidele-Izu, 2002, p 3). Civil society ranges from individuals working for a cause to community, labor, and special interest groups. This paper focuses on non-governmental organizations (NGOs), a subset of civil society, specifically environmental-focused NGOs. Non-state actors are critical in governance. Their role varies depending on the context; however, “the multitude of strategies used by NGOs to contribute to international policy processes includes directly participating in international forums and meetings, providing information and expertise, advocating their views through coalitions or direct and indirect lobbying as well as using the media to mobilize public opinion” (Blasiak et al., 2017, p 2). That is, non-state actors have various methods for participating

in global governance and find different ways to affect the outcomes of policy processes.

NGOs are not only stakeholders in governance, but also play vital roles in mobilizing public support (Gemmill and Bamidele-Izu, 2002). NGOs often hold events and conferences aimed at generating support for certain campaigns. These events and conferences often bring the public, governments, and the private sector together to further dialogue and progress. These "conferences [are] essential in fostering a global dialogue, in raising public awareness, and in providing the platform on which the global civil society could move to the forefront of the policy debate" (Castells, 2008, p 90). For example, in 2013, Pew Charitable Trust hosted a reception to mobilize support for a marine protected area (MPA) in the Southern Ocean. The event brought together NGOs, the private sector, and governments, and included remarks from then U.S. Secretary of State John Kerry and New Zealand Ambassador to the U.S. Mike Moore.

Looking at the governance of oceans from an international relations perspective, NGOs often exert power and authority on States and use influence (the intentional transmittal of information that alters the action of another) to help encourage a particular course of action. Compulsory power is defined as "relations of interaction that allow one actor to have direct control over another" or "the ability of A to get B to do what B otherwise would not do" (Barnett and Duvall, 2006, p 3, 13). Typically, this refers to one State ordering another to do/not do something or risk the consequences (of military action, sanctions, etc.). However, compulsory power can also involve "rhetorical and symbolic tools and shaming

tactics to get targeted states, multinational corporations, and others to comply with the values and norms that they advance" (Barnett and Duvall, 2006, p 15). In other words, NGOs will "name and shame" States and organizations they feel are not taking proper action or doing enough for a particular cause. For example, the Climate Action Network utilizes the "Fossil of the Day" award during UN climate change negotiations to shame countries into making progress towards climate change goals. The award is given to countries that blocked progress the most during the talks, with the goal of shaming them into making more progress during the rest of the negotiations. So, while the NGOs do not hold compulsory power in the same sense States do, naming and shaming countries has political fallout that States often wish to avoid. "These organizations reach the public and mobilize people in support of these causes. In so doing, they eventually put pressure on governments threatened by the voters…" (Castells, 2008, p 85). In that sense, NGOs can hold power over States and can use fear of political fallout to get States to agree to do what they many not otherwise do.

NGOs also have productive power (or expert authority) via specialized knowledge. "Specialized knowledge derived from training or experience persuades us to confer on experts, and the bureaucracies that house them, the power to make judgements or solve problems" (Barnett and Finnemore, 2006, 173). That is, experts have in-depth knowledge about a subject; therefore, they wield a degree of power from possessing this knowledge and are granted the power to make decisions. The power in productive power lies in the ability to shape or define "what constitutes legitimate knowledge, and shapes whose

knowledge matters" (Barnett and Duvall, 2006, p 4). Many of the NGOs working in the marine realm have a cadre of biologists, ecologists, oceanographers, and other scientists that help make a scientific case for an action the NGO is trying to get a State(s) to take. The NGOs seek to convince others that their experts have more knowledge or employ better science than other actors and that its knowledge should be used to shape the decision at hand. These groups use their knowledge as a "capacity that turns people into experts and course of action into truthful, appropriate, efficient, or rational policies" (Adler and Bernstein, 2006, p 295). For example, NGOs use their expertise to state the scientific case when advocating for an area to be designated an MPA. "Governments often turn to NGOs to fill research gaps that stand in the way of effective decisionmaking" (Gemmill and Bamidele-Izu, 2002, p 11). Thus, NGOs use their knowledge as a basis for stating a certain course of action is truthful and appropriate. This in turn gives these NGOs expert authority and productive power they use to shape behavior.

"NGOs have evolved…to become widely accepted – and contested – as the de facto guardians of the interests of humanity; filling the gaps in global governance where governments lack a foothold" (McArthur, 2008, p 58). NGOs can range from small, local organizations that work at the community level to large, international organizations that work in nearly every country in the world. Their actions can range from implementing community gardens to advocating for international marine protected areas. While many NGOs provide goods and services or monitor governments and international organizations, the evolution of the NGO may not be over. "NGOs increasingly look both like quasi-governmental

institutions, because of the way they substitute for state functions, and at the same time like a market, because of the way they compete with one another" (Kaldor, 2003, p 589). In other words, States do not always have the capacity to deal with every problem or issue and sometimes work with NGOs to fill that gap. ABNJ are exactly the type of area where governments lack a foothold and where NGOs may be useful in filling that governance gap.

4.1.2 NGO influence in ABNJ MPAs

1. Charlie-Gibbs Fracture Zone

MPAs are one area where NGOs have greatly influenced State behavior. For example, the World Wildlife Fund (WWF), an observer organization to OSPAR, was key in obtaining protection for the Charlie-Gibbs Fracture Zone. This area is the largest geological fault in the northern Mid-Atlantic Ridge and is an area with high productivity and species richness due to the coming together of polar and southern waters (Charlie Gibbs, no date). Even though the decision to create a network of MPAs was adopted by OSPAR during a ministerial meeting in 1998, it took more than 10 years for such a network to actually be created (Matz-Luk and Fuchs, 2014). The effort to get the Fracture Zone protected started as early as 2000 with WWF campaigning and presenting a proposal (which the Netherlands co-sponsored in 2007) to the OSPAR Parties (O'Leary et al., 2012). OSPAR's expert group on MPAs took this proposal and strengthened it, which led to more States co-sponsoring the proposal (O'Leary et al., 2012). In 2003, OSPAR decided to establish a network of MPAs "with the purpose of establishing an ecologically coherent network of well-managed MPAs in the North-East Atlantic"

(OSPAR, 2016, no page). In 2008, the OSPAR parties agreed in principle to establish the Charlie-Gibbs Fracture Zone MPA (though the MPA was not formally established until 2010, and later expanded in 2012) (Charlie Gibbs, no date). In 2010, OSPAR took a pioneering step and established a network of six MPAs, one of which was the Charlie-Gibbs Fracture Zone. By creating the initial proposal and campaigning States for support, WWF was able to find its "champion" in the Netherlands. Having no power to move its proposal forward (due to OSPAR rules of procedure), finding a State to co-sponsor the proposal was vital in the designation of the MPA network.

2. Ross Sea

NGOs also had influence in gaining protection for the Ross Sea MPA in the Southern Ocean. This biologically rich area supports breeding populations of seals, penguins, and flying birds; a large biomass of krill; as well as cetaceans, fish, and squid (Hughes and Grant, 2017). The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), a regional fisheries management organization (RFMO), was established in 1982 when the Convention on the Conservation of Antarctic Marine Living Resources came into force (CCAMLR, 2014). "Unlike other marine resource management bodies, in which the primary objective is managing fisheries, the explicit objective of the Convention is to conserve Antarctic marine living resources" (Brooks, 2013, p 280). There are 25 members and 11 acceding States to the Convention, which is consensus-based. The idea for the creation of a network of MPAs in the Southern Ocean began in 2009 when CCAMLR created the first high seas MPA with the

designation of the South Orkney Islands Southern Shelf MPA. At that time, CCAMLR Parties also committed to create a network of MPAs (Brooks, 2013). In 2011, CCAMLR adopted Conservation Measure 91-04 “General framework for the establishment of CCAMLR Marine Protected Areas” (CCAMLR, 2018). Also in 2011, New Zealand and the U.S. submitted proposals for a Ross Sea MPA to the Scientific Committee of CCAMLR. Though the two proposals had a similar scientific understanding of the ecosystem of the Ross Sea, the proposals differed in the extent to which fishing was to be accommodated (CCAMLR, 2011). Because CCAMLR’s rules of procedure dictate consensus must be reached for substantive decisions, rather than a three-quarter majority like OSPAR, and because of strong fishing interests in this area, these proposals were rejected by the CCAMLR parties.

Seeing proposals for protecting the Ross Sea were not moving forward, and because this area of the Southern Ocean is uniquely pristine and is vital penguin habitat, more than 500 scientists signed a petition supporting greater protection for the Ross Sea (Brooks, 2013). The Antarctic and Southern Ocean Alliance (ASOC), a coalition of 31 NGOs, including Pew Charitable Trusts, took up this call from scientists and worked to help gain protection for the Ross Sea. ASOC is an observer to CCAMLR and has presented information papers on MPAs, which are then discussed by member states (Cordonnery and Kriwoken, 2015). While this participation was limited to “passive exchange of information”, ASOC was still able to “create a dialogue with governmental decision-makers within CCAMLR…[by] working within governments, within relevant agencies, and

through some interested individuals," (Cordonnery and Kriwoken, 2015, p 191). ASOC worked to influence CCAMLR decisions by working with member states to become representatives on the CCAMLR delegations (Cordonnery and Kriwoken, 2015). While the exchange of information was important in building support for MPAs, the consensus nature of CCAMLR decision making made advancing protections difficult. In an effort to advance the proposals for a Ross Sea MPA and get more protection for the Southern Ocean, Pew created a public awareness campaign, organized events (including one at the National Geographic Society in Washington D.C. in 2013 where then U.S. Secretary of State John Kerry called for the creation of an Antarctic MPA), and worked to get consensus from the CCAMLR Parties. Through lobbying and public awareness campaigns, ASOC was able to get all members, except for Russia and China, in agreement by 2015 (Smith and Jabour, 2018). Finally, in 2016, the Ross Sea MPA was designated by Conservation Measure 91-05. By working to rally support and provide scientific advice, NGOs played a role in the designation of the Ross Sea MPA.

3. Costa Rica Dome

However, not all efforts by NGOs to alter State behavior are successful. The Costa Rica Dome is an area in the Eastern Tropical Pacific, situated off the coast of several Central American countries. While the location of the Dome varies year by year (as it is formed by currents and winds), it is considered a biological hotspot (CBD, 2012). It is characterized by high nutrient levels, high productivity, low levels of oxygen, and a strongly stratified water column (Jimenez, 2017).

“The Dome is a dynamic yet persistent offshore upwelling system that plays a significant role in the ecological functioning of the eastern tropical Pacific Ocean.” (Johnson et al., 2018, p 335). These conditions allow for high biomass and diversity of zooplankton, including larvae of many oceanic species, such as sardines, herring, dolphinfish, and others (Jimenez, 2017). Upwelling in the Dome attracts large, highly-migratory predators, including tuna and dolphins (CBD, 2012). The Dome is important year-round habitat for endangered blue whales, serving as an important area for mating and raising calves (Popova et al., 2019). Endangered leatherback turtles use the Dome as part of the migratory path, connecting the Dome to their nesting beaches in Central America (Popova et al., 2019). Additionally, it acts as a carbon sink, but this capacity is unfortunately threatened by climate change (Jimenez, 2012).

Due to the biological importance of the Dome, at the 2012 Eastern Tropical and Temperate Pacific Regional Workshop, MarViva (an NGO) proposed the Dome be designated as an Ecologically or Biologically Significant Area (EBSA) under the Convention on Biological Diversity (CBD) (which the government of Costa Rica supported). In 2014, the Dome (or at least parts of the Dome) was officially recognized as an EBSA. While part of the Dome is designated an EBSA, this does not equate to MPA designation nor legal protection. It means the features of the Dome meet the CBD’s scientific criteria to be considered critically important to ecosystem function and identified as an area in need of protection. Since the Dome’s designation as an EBSA, the NGO has worked to promote conservation and sustainable management of the area.

There are, however, considerable challenges in protecting this area. The Dome is situated mostly in ABNJ and in an area where the Regional Seas Programme does not extend past national jurisdiction, making holistic ecosystem protection a challenge. Underwater noise and ship strikes are a concern for the Dome, as the Dome is near shipping routes converging on the Panama Canal (Johnson et al., 2018). Microplastics are present in high particle counts; although more research is needed in this area (Johnson et al., 2018). There are strong fishing interests in the area, due to the high productivity. While there are RFMOs/RFBs in the region, the Inter-American Tropical Tuna Commission only has competence for tuna and tuna-like species, and the other two bodies (Central America Fisheries and Aquaculture Organization and Latin American Organization for Fisheries Development) only extend to national jurisdiction. Tuna, mahi-mahi, and squid all are target species (Johnson et al., 2018). Despite the work of MarViva (and other organizations such as Sylvia Earle's Mission Blue, which named the Dome a Hope Spot – anyone can nominate a Hope Spot to highlight an area that is in need of new or more protection due to diversity of the area, particular populations of species, presence of natural processes, etc. as a way of telling politicians and governments the area is biologically and ecologically important and should be looked at closer) and the significant role the Dome plays as a carbon sink, and for fisheries, and the lifecycle of endangered species, the Dome is without significant protection. There are no Vulnerable Marine Ecosystems (VME) in the area, which is an area-based management designation under the Food and Agriculture Organization that allows for closures to fishing areas due the "species,

communities or habitats that may be vulnerable to impacts from fishing activities" (FAO, 2020). Nor are there any Particularly Sensitive Sea Areas (PSSA) in the area, which is an area-based management designation under the International Maritime Organization that allows specific measures (such as routing measures, discharge and equipment requirements, etc.) to be put in place to protect areas "recognized [for] ecological or socioeconomic or scientific reasons and may be vulnerable to damage by international maritime activities" (IMO, 2020). Unlike in the case of the Ross Sea and Charlie-Gibbs Fracture Zone, NGOs have been unsuccessful in altering State behavior and obtaining protection for the Dome.

4. Sargasso Sea

NGOs have, in some cases, been successful altering State behavior and getting MPAs designated in ABNJ. But, can the role of an NGO go further? As it stands now, there is no global authority to designate and manage MPAs in ABNJ. "States create and delegate to IOs [international organizations] because they provide essential functions…. [and] help states overcome problems associated with collective action and enhance individual and collective welfare" (Barnett and Finnemore, 2006, p 161). The notion of collective action and collective welfare is incredibly important when dealing with a common space, such as ABNJ. No single State is in charge of managing ABNJ, regional organizations do not cover all ABNJ, and the current IGOs are too sectoral in nature. Having an NGO carry out the management duties an IGO would normally carry out, could help solve collection action problems. Given that NGOs have the expert authority necessary for identifying and proposing places of significant biological value, can their role

be expanded to fill the governance gap in ABNJ? The case of the Sargasso Sea Commission is a starting point in looking at the evolving role of NGOs in global governance.

The Sargasso Sea is an area in the Atlantic Ocean where an NGO has taken on a unique stewardship role. The Sargasso Sea, defined by currents and gyres and surrounding Bermuda, is named for the seaweed (*Sargassum*) that floats in mats and provides habitat for over 127 species. Due to the importance of this extraordinary part of the ocean, the Sargasso Sea Alliance formed in 2010 with the aim of conserving this globally significant sea. The Alliance became a Commission in 2013 and has taken on a hybrid-IGO role in the conservation of this part of the high seas. Unlike IGOs, they have no management authority. Instead, they work through the Hamilton Declaration (a non-legally binding instrument between Bermuda, the Azores, the United Kingdom, and the United States) to develop proposals for the signatories to submit through international and regional organizations. However, they also have the authority to develop work programs and action plans related to conservation, budgets and financial reports, and rules and procedures; take on a role in public outreach and awareness; and liaise with national, regional, and international organizations for scientific research and observation as well as raise awareness and undertake outreach; publish reports; monitor the effects of anthropogenic activities; and encourage cooperation among governments, regional organizations, and international organizations (Hamilton Declaration, 2014). Thus, their authority goes beyond

that of most NGOs and has evolved into a role with considerable power to influence State behavior.

The bureaucratic nature of IGOs often lends them to being viewed as apolitical and carrying out the duties of their office (Barnett and Finnemore, 2006). Current IGOs in the marine realm (e.g., IMO, FAO, ISA) hold a great deal of power and authority over States because their technical experts are in charge of carrying out the mandate of their organization and of the treaties they administer. The States that have signed on to the Hamilton Declaration have already delegated authority to the Sargasso Sea Commission for certain activities. If NGOs were to fill the management/governance gap in ABNJ and become more IGO-like, their power would move to institutional power. Institutional power would shift agenda-setting from States to NGOs. Instead of having to convince States to do something, NGOs would have the power to set the agenda and decide what is discussed and what actions are taken. This has already occurred with the Sargasso Sea Commission. The Commission can develop work plans, rules, and procedures, which further reinforces their power. Having an NGO take on a management role in what is normally a State or IGO arena is not without precedent. The International Union for the Conservation of Nature (IUCN) acts as the secretariat for the Ramsar Convention on Wetlands (1971) (Raustiala, 1997). The key feature of this arrangement is that the IUCN is "relatively apolitical" and is a "distinctive government-nongovernment hybrid" (Raustiala, 1997, p 722). Remaining apolitical is important for NGOs that may wish to take on more management duties.

The Commission is allowed to gather and exchange data and information, develop work plans for conserving the ecosystem, cooperate in the development of environmental impact assessments, and publish reports. The Commission is also allowed to "assess the appropriateness and effectiveness of any measures being adopted for the conservation of the Sargasso Sea" (Hamilton Declaration, 2014, Annex II). If an appropriate measure would be to set up a marine protected area within the bounds of the Sargasso Sea, an organization with competency for managing such an area would be needed. Since no regional environmental program exists for the Sea, expanding the role of the Commission could help plug the governance gap. Although the Sargasso Sea Commission was set up with a stewardship role only, and was given no management authority at that time, it is allowed to "undertake such other tasks as may be deemed appropriate by the meeting of the Signatories" (Hamilton Declaration, 2014, Annex II). This final line in their mandate could leave open the possibility for more management-like duties.

NGOs can and have influenced State behavior when it comes to MPAs in ABNJ. Some of this influence came in the form of scientific and technical advice, while other came in the form of advocacy. However, not all NGOs are successful in their ability to influence State behavior. As discussions on ABNJ and MPAs continue globally, it is important to consider the role NGOs play in the creation of MPAs and management of ABNJ. This paper seeks to determine the roles NGOs have played in the creation of MPAs in ABNJ, the power NGOs have used to

affect State behavior in relation to the creation of MPAs in ABNJ, and the role of NGOs in the governance or management of MPAs in ABNJ.

4.2 Methodology

This paper utilized case studies involving NGO involvement in the designation of an MPA in ABNJ. The first case study considered WWF's advocacy for the designation of the Charlie-Gibbs Fracture Zone within the OSPAR management area. This case was chosen to examine how NGO advocacy can lead from proposal submission to "champion" States supporting the proposal, and then to MPA creation. The second case looked at NGO advocacy for the designation of the Ross Sea MPAs. This case evaluated how NGO advocacy advanced a proposal already submitted by a State. The third case study looked at the role of the Sargasso Sea Commission. This case was chosen because of the special nature of the Commission's role in the Sargasso Sea and the unique nature in which an NGO has evolved from an advocacy role to a hybrid-IGO role. In all three of these cases, the scientific/technical assistance the NGO provided was key to the influence. The final case is the Costa Rica Dome and explored why those efforts, despite NGO involvement, have not been successful. This case was chosen because, despite the evidence to suggest that this area is in need of conservation, efforts to get the area protected have stalled. Similar to the Sargasso Sea, this area does not have a Regional Seas Programme that encompasses the entire zone. Despite this similarity and similarities in the unique biology of the areas, the Dome does not have an NGO with stewardship responsibilities like the Sargasso Sea does.

This paper used a multiple-case design to look at cases in which NGOs have exerted influence on ABNJ management and governance, specifically in the realm of MPAs, and shows how NGOs' role may be evolving. "As a research method, the case study is used in many situations, to contribute to our knowledge of individual, group, organizational, social, political, and related phenomena" (Yin, 2014). While NGOs are not new, nor is their influence on State behavior, their role in ABNJ is seemingly evolving. Context is important for case studies. Case study can be done to understand a real-world case, under the assumption that "such an understanding is likely to involve important contextual conditions pertinent to your case" (Yin, 2014). In other words, these case studies examined NGO influence, the context in which their influence came about, and evaluated how their influence may change in the future. In order to understand this influence, process tracing was utilized to "build a logical chain of evidence linking NGO participation…with the effects of that participation" (Betsill and Corell, 2001). This involved documenting which activities NGOs conducted (including transmission of knowledge and information to decision-makers), how decision-makers responded to those activities, and if the goal of the NGO was attained. Cross-case analysis was used to draw conclusions on the future of NGOs in ABNJ management and how they can act to conserve large areas of ABNJ not covered by regional schemes. Counterfactual analysis was used to "consider whether the outcome of the negotiations might have been different in the absence of NGOs" (Betsill and Corell, 2001). Overall, the paper sought to show the extent to which and how NGOs exert influence with States to advance ABNJ

governance, how the NGO role in ABNJ concerning MPAs has evolved over time, and how NGOs may influence ABNJ management and governance of MPAs in the future.

The study utilized two main sources of data, documents and interviews. Documents, such as meeting summaries and reports (e.g., meeting summaries from CCAMLR and OSPAR annual meetings, reports from scientific bodies, and NGO documents), were used as a history of events (i.e., who participated in the meeting, when a proposal for an MPA was first submitted, what State(s) first introduced the proposal, what reservations/objections States had to the proposal, when the proposal was adopted, etc.) as well as to provide context to the cases. Interviews were conducted with relevant individuals to identify what the NGO involvement entailed, how the involvement affected the outcome of the event, and explore rival theories (e.g., did a non-NGO entity play a larger role in getting the MPA designated than the NGO, was the designation more about the champion State than the NGO influence, etc.). While small in number, the interviewees provided in-depth knowledge of a specific case study area, knowledge of how NGOs operate in ABNJ in general, as well as knowledge of the other case study areas. These documents and interviews allow for triangulation, "the use of multiple data types, sources, and methodologies to determine the role of NGOs in international environmental negotiations" (Betsill and Corell, 2001). Interviews were conducted with individuals in the following positions:

- a former U.S. Ambassador
- a U.S. CCAMLR scientific committee representative
- a former member of the OSPAR Secretariat

- a member of MarViva
- a member of the Sargasso Sea Commission, and
- a member of the Antarctic and Southern Ocean Coalition (ASOC).

These interviews were conducted via phone, Skype, or in-person depending on location of the individuals being interviewed. The interviews were semi-structured, which allowed for a framework of questions to be followed, while allowing for open and free dialogue. Audio recording occurred with permission of the subject, and detailed notes of the interview responses were recorded. The interviews were then coded, which "involves identifying concepts or labels that may be used to describe a group of similar ideas, behaviors, incidents, attitudes, actors, contexts, processes, etc." (Mahama and Khalifa, 2017). This coding was an iterative process and allowed for the qualitative data obtained from the interviews to be analyzed for meaning, explanation, and relationships (Mahama and Khalifa, 2017). A list of questions asked can be found in Appendix I. The qualitative data obtained from the interviews informed the research questions above.

4.3 Results

1. Overall

The timeline below shows the different route each case study (MPA or area working towards protections) has taken – when the process to establish protections began for each area, when NGOs first entered the process, when the MPAs were designated (if an MPA was designated), and key steps along the way. OSPAR began with the creation of an MPA framework, then had NGO influence/support for the Charlie-Gibbs Fracture zone, State sponsorship of the

MPA proposal, and MPA selection and designation by the regional body. CCAMLR began with NGO influence/support for a Ross Sea MPA (though there were discussions in the scientific committee regarding an MPA framework and MPAs before this time), followed by MPA framework creation by the regional body, State proposals for a Ross Sea MPA, and MPA selection and designation by the regional body. The Sargasso Sea started with NGO influence/support for the Sargasso Sea, then State sponsorship, though there has been no accepted MPA designation or MPA framework, as there is no regional body for the area. The Costa Rica Dome has had NGO influence/support for protections, yet lacks real State support; and therefore, there is no MPA framework or designation.

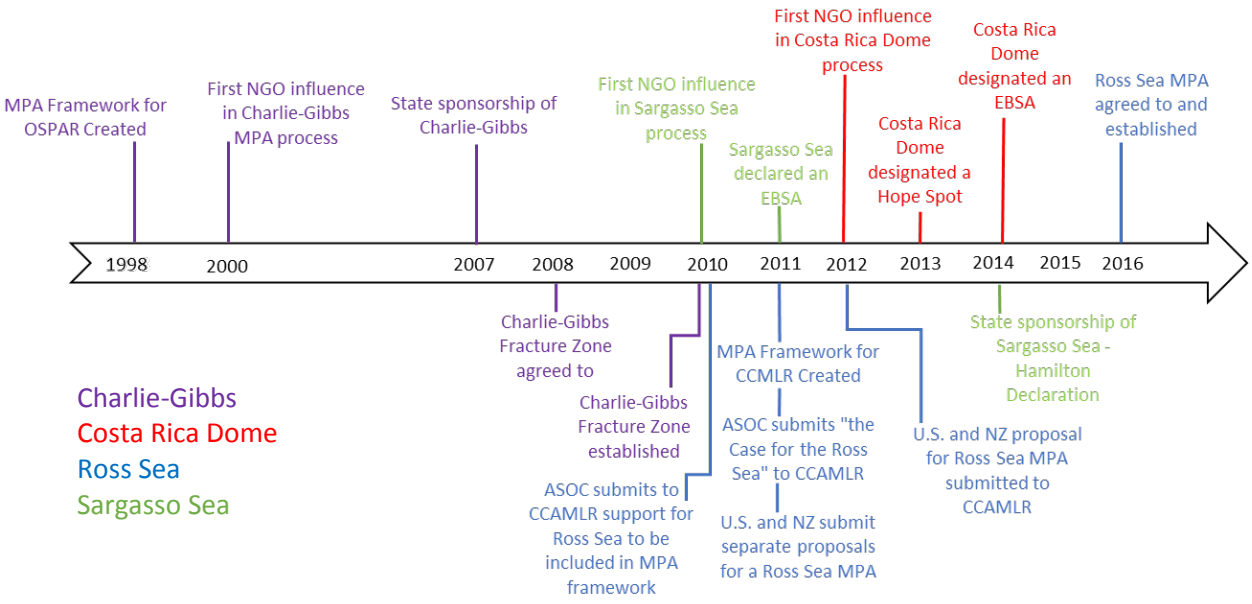


Figure 29: Timeline of MPA Establishment and NGO Influence.

All interviewees agreed that NGOs should be involved in global governance. The main reasons given were to balance or represent stakeholders (three responses), followed by provide information or education and influence decisions/the process

(two responses each). States having the legal responsibility to include NGOs was also a response made by one interviewee. Interestingly, one interviewee, while supportive of NGO involvement in ABNJ, said the participation can sometimes be viewed as equal participation to that of a government, when in reality it is not.

All interviewees said State reaction to NGO involvement in global governance varied, and five interviewees said some States accept NGO participation while others do not. NGOs bring scientific views or ideas (two responses) and bring capacity for working on the issues (one response). However, some NGOs have vested interests (one response), which could lead to State reluctance to involve NGOs.

Positive factors of NGO involvement in global governance include increasing transparency (four responses), representing a wide constituency/reflect public concerns (four responses), networking/ability to talk to people or ask questions governments cannot (two responses), educating/ synthesizing information/ generating ideas (three responses), and bridging differences/pushing progress (three responses). Negatives of NGO involvement in global governance include deflecting or lengthening the process (three responses), holding different agendas than States (three responses), using poor science/information (one response), and gives the illusion of equal participation/weight of viewpoint (one response).

Roles of NGOs in global governance, according to interviewees, are to generate pressure for government action (five responses), generate public support/raise awareness (four responses), facilitate discussion/follow procedures (three responses), and build capacity for participation (one response). According to

interviewees, NGO influence in the selected cases were to advocate/pressure governments to act (five responses) and influence the process or facilitate discussions (one response).

When asked what other roles NGOs could play in ABNJ, interviewees said a role for NGOs could be to draw attention or participate in process (three responses), monitor or gather data (two responses), and provide scientific and technical help (one response). In contrast, some interviewees felt that management or governance of ABNJ is a State role or responsibility (three responses).

Lessons learned from NGO involvement, according to interviewees, include change is slow (two responses), governments/States have the responsibility in ABNJ (two responses), a treaty is needed for MPAs in ABNJ (one response), there are not many MPAs in ABNJ so it is hard to know (one response), and there is a need to set an MPA precedent and not expect high-level individuals to become involved each time (one response).

2. Charlie-Gibbs Fracture Zone

NGOs were involved in the efforts to establish the Charlie-Gibbs MPA from the beginning, as WWF originated the case for the MPA. Due to rules of procedure, an NGO proposal must be supported by an OSPAR State. According to an interviewee, WWF "sought contracting parties and brought other NGOs on board as observers during the designation process" and "asked questions the States wouldn't ask." This shows the compulsory power NGOs used to rally support for the Charlie-Gibbs Fracture Zone and to find their "champion" (the Netherlands) to bring the idea for an MPA to OSPAR. When asked if a non-NGO entity had a

strong impact on establishment of the MPA, an interviewee responded that the Dutch had a key staff member working on the idea, the Executive Secretary of OSPAR was keen on MPAs, and the Ministerial Meeting in 2010 was advantageous timing for establishing an MPA since it allowed for more pomp and circumstance than a regular Commission meeting. However, WWF was important to this process and the interviewee responded that "no one was more important than others." For the Charlie-Gibbs Fracture Zone, one interviewee responded key turning points were when juris linguists looked at the OSPAR mandate and determined MPAs could be designated under OSPAR as well as when the biodiversity committee accepted the case for MPAs.

3. Ross Sea

According to two interviewees, the idea to establish a Ross Sea MPA was brought up to CCAMLR as a potential MPA because of the special nature of the area. During these initial discussions and debates in CCAMLR about the MPA, NGOs contacted people to judge interest and support, using productive power by successfully submitting papers that showed the value of the Ross Sea marine habitat in terms of biodiversity, climate change, and scientific research (see https://www.ccamlr.org/en/ccamlr-xxix/bg/26-ccamlr-xxix/bg/26) to CCAMLR and compulsory power to get States to buy into the idea of Ross Sea MPA. According to an interviewee, "ASOC and Pew were involved from the very beginning" and helped the U.S. and New Zealand with their Ross Sea MPA proposals. According to another interviewee, NGOs "influenced the process, put pressure on the U.S., and facilitated the discussions." Two interviews felt the

NGO influence in the Ross Sea MPA process was advocacy (found celebrity support and created media events with photo exhibits and a movie). One interviewee stated NGOs made a public case and campaigned both within CCAMLR and to the broader community, which created urgency. One interviewee felt there was some direct influence, while another stated NGOs built a political case. According to an interviewee, NGOs "pursued Russia to be a champion while chairing CCAMLR" so they could take credit for establishment of the MPA.

Regarding turning points for the Ross Sea, one identified the joint U.S. and New Zealand proposal and when the Russians agreed to the designation. Two interviewees stated getting agreement from the Chinese, which isolated Russia in its disagreement over the designation of the Ross Sea, was important. Another interviewee responded that fishing was a main concern for China and Russia, but political diplomacy led both nations to come onboard. Two interviewees felt that getting high-level people involved (ex. the U.S. Secretary of State) involved was key.

4. Costa Rica Dome

According to an interviewee, efforts for getting the Costa Rica Dome protections began with an individual's interest in the Dome, which then led to the individual seeking funding to compile information, publish documents, talk about management and protections, etc. The Dome was linked to UN efforts for a new Implementing Agreement under the Law of the Sea, which then elevated the awareness of the importance of the Dome. According to the interviewee,

governments, including those in Central America, are interested in protections for the Dome, but the focus right now is on linking the importance of the Dome to fishing and a strong economy. The interviewee further noted that there have been discussions about governance, marine spatial planning, management plans, etc., but those items will wait until the UN process is complete and there is a potential framework for MPAs in ABNJ. While the Costa Rica Dome efforts have to date not been as successful as the other case studies, MarViva has shown some productive power by publishing the *Atlas of the Costa Rica Dome* (Ross Salazar et al., 2019), which summarizes the science behind this oceanographic feature and its importance. MarViva has also been successful in getting some Central American States to agree to more research for the area. Since this process is still in infancy and has been less successful than the other cases, it is difficult to say if a true turning point has been reached. It may, in time, turn out to be the linking of the Dome with the UN process, but it appears that the Dome needs more time to evolve.

Interviewees were asked why efforts in the Costa Rica Dome are stalled. Interviewees responded the Dome moves in and out of national jurisdiction, but there is no regional organization to support efforts for the Dome. When asked what could help move these efforts forward, interviewees responded the United Nations Environment and Regional Seas Programs need more funding to cover ABNJ and communication between State government departments needs to be better coordinated (i.e., environment ministries do not have as much weight as defense or fisheries). One interviewee also questioned who would take the

responsibility of management in ABNJ if sites were designated under the United Nations Educational, Scientific, and Cultural Organization (UNESCO), as some are trying to do.

When asked if the Sargasso Sea model (NGO began efforts for protections of an area in ABNJ and then sought State support) would work for the Costa Rica Dome, one interviewee responded yes, if a commission were to be set up with the agreement of the Central American countries and longer-term funding obtained. Another participant responded "elements could be incorporated"; however, this interviewee also noted the area is a fishing ground, unlike the Sargasso Sea, and thus countries not near the Dome also have interests. Further, the interviewee noted that the area is more complicated and needs a legal framework (though specifics on what form this may take were not provided).

5. Sargasso Sea

Efforts to establish protections for the Sargasso Sea began with NGOs. The Sargasso Sea Alliance was established first in 2010, and it was one of the first Hope Spots under Mission Blue (Sargasso Sea's Hope Spot number is 4 out of now more than 120). According to an interviewee, the IUCN produced a film about the Sargasso Sea, which prompted the Government of Bermuda to become involved in the efforts. According to this same interviewee, individuals played a large role in starting efforts. Richard Rockefeller played a role in bringing people on board, and private funding from individuals helped the Alliance get its start. The Sargasso Sea Commission used productive power to bring a coalition of States together work towards protections for the Sargasso Sea, which resulted in

the Hamilton Declaration, a key turning point according to an interviewee. This turning point, while more political than legal in nature (according to this interviewee), brought governments together and allowed them to bring up issues central to the Sargasso Sea in other fora. For example, the Commission, via Monaco, was successful in getting the European eel (*Anguilla anguilla*) listed under the Convention on the Conservation of Migratory Species (CMS) in 2014.

When asked if the Sargasso Sea model could be used in other ABNJ areas, as a model for action, 50% of respondents said yes and 50% said possibly or some elements could be incorporated (only four interviewees were asked this question since one was not familiar with the efforts). The interviewee most familiar with the Sargasso Sea responded that measures from a regional organization like OSPAR are only binding on those parties to the convention and they "want it to be a model to bring countries together, not just the States around an area."

Interviewees were asked how efforts to establish the MPA they were most familiar with compared to other MPA efforts, mainly how the Sargasso Sea efforts compare to other efforts. Of the four interviewees who were able to answer the question (since two interviewees were not familiar with the Sargasso Sea), all stressed the need for a formal measure (more than voluntary participation) and two stressed the importance of funding. One interviewee suggested the Sargasso Sea could establish a body like the Arctic Council, which is more formal than the Sargasso Sea setup and has official State participation, more permanent funding, and working groups. One interviewee responded that the idea for the Sargasso Sea was to flip the normal method of protection. Instead of having a body to create

measures (i.e., OSPAR and CCAMLR have State members to designate MPAs), the Sargasso Sea Alliance started by wanting to have measures in place that served as *de facto* protections. One interviewee compared the Sargasso Sea efforts with Costa Rica Dome efforts and noted the Sargasso Sea has a more robust governance proposal - the Hamilton Declaration, which is voluntary, but more formal than a 2019 agreement between the environment ministries of several Central American governments to conduct more research. This agreement, while informal, shows cooperation among the States which may bear fruit in the form of a more formal agreement if given enough time.

4.4 Discussion

It is interesting to note the different paths each case has taken. Efforts to create the Charlie-Gibbs Fracture Zone MPA began with OSPAR's MPA framework, then an NGO originated the case for an MPA. While efforts in the Ross Sea began with NGO influence/support for an MPA before CCAMLR established the MPA framework. Both were successful in getting an MPA established via a regional body. The Sargasso Sea Commission has charted a path for potential MPAs in areas with no regional environmental body and began with NGO influence. While no MPA has been established, they have been successful in getting State support via the Hamilton Declaration, getting protections for species within the MPA (e.g., protections for the European eel via the CMS), and increasing the awareness of the importance of the Sargasso Sea. The Commission is an observer to the International Seabed Authority, works through the International Commission for Conservation of Atlantic Tunas (ICCAT) to examine the Sargasso Sea and the

ecological importance to tuna, and organizes efforts in other relevant ABNJ organizations such as the International Maritime Organization, OSPAR, etc. So, while no MPA is established since there is no regional body to establish one, they are attempting to create a *de facto* MPA by establishing protections under the relevant regional and global organizations. The Costa Rica Dome is following a similar path as the Sargasso Sea (at least in terms of trying to get protections for an area in ABNJ that is not covered by a regional environmental organization), yet has not had the same support as the Sargasso Sea, thus no formal State support for an agreement such as the Hamilton Declaration.

Interviewees agree that NGOs should have a role in global governance (100% of interviewees held this view). NGOs are important for education/science, representation, transparency, and influencing the process. As one interviewee stated, NGOs "make people see what is at stake, not just the legal or diplomatic game." As seen from the productive power NGOs wield, the role NGOs play in providing science and information to States is incredibly important. This can either come during negotiations and during meetings, but also in external workshops NGOs facilitate. This builds capacity and the information passed on to States helps inform decision-makers of why certain areas should be protected.

The issue of representation is especially intriguing in the discussions on MPAs in ABNJ. Unlike coastal MPAs or MPAs within national jurisdiction, the link between stakeholders and an area to be considered for protection is not always as clear. For example, there is likely few indigenous populations that traditionally hunt in ABNJ. However, what happens in ABNJ may impact their ability to

traditionally hunt closer to shore or onshore. Thus, it is important to consider the impact of what goes on in ABNJ on those types of activities. NGOs also represent industries, like fishing, that operate in ABNJ and may be impacted by the establishment of an MPA. It is important that NGOs be involved in discussions regarding ABNJ to represent a wide variety of stakeholder views. NGOs can influence the process by organizing events where States can talk informally as well as approach States individually regarding actions the NGO feels the State should or should not take.

However, as seen from the interviews, NGOs may have vested interests, present bad science, or deflect process. Indeed, some would argue that NGOs have a "democratic deficit – that [they] also lack democracy, transparency, and accountability" (Chandhoke, 2002, p 48). These factors may cause States to react poorly to NGO involvement. One interviewee stated NGOs are sometimes met with skepticism or hostility. This can potentially force NGOs out of the discussions and decisions. That said, NGO oversight comes in the form of donations and social media. If an NGO missteps, donations may dry up. With the rise of social media, holding NGOs accountable is increasingly easier. Considering NGOs play a large role in increasing transparency of government actions and representing various stakeholders, NGOs must walk a fine line of being useful to States (for example, by providing science or facilitating dialogue) but still carry out their own agenda/represent their members. While sometimes State and NGO agendas align, a lesson learned according to a couple of the

interviewees is that change is slow, and practicality often wins over NGO aspirations.

While NGOs can advocate, apply pressure, and help with science/education, interviewees felt it is ultimately up to the States to enter into legal agreements to carry out management and governance measures that are more than voluntary measures (three of interviewees held this view). While NGOs can ask the hard questions that States cannot and can push the process in ways States cannot always do, sometimes getting agreement is in the end dependent on diplomacy, as in the case of the Ross Sea. NGOs pushed States to near agreement on establishing a Ross Sea MPA, but China and Russia held out. It took diplomacy by States to bring them on board. Meetings between Heads of State gained Chinese support for the Ross Sea MPA. This isolated Russia. Coincidently, Russia became the Chair of 35th Meeting of CCAMLR, the meeting that ultimately adopted the conservation measure establishing the Ross Sea MPA. Being the lone holdout for the MPA while holding the Chairmanship of the meeting did not look good politically, so Russia, New Zealand, and the U.S. worked to resolve differences. These events allowed the MPA to move forward and Russia to take some political credit for getting it done. So, while NGOs can play a vital role in pushing the process along, State diplomacy also plays a key role and relationships between States cannot be discounted.

While the Sargasso Sea and Costa Rica Dome processes are still underway, they share commonalities of no regional environmental body to support an MPA designation or management. There are discussions at the international level

regarding the designations of MPAs in ABNJ. Should a new agreement be reached at the United Nations regarding ABNJ MPAs, it could present an opportunity for MPA designation for these areas. However, this presents lingering questions of how would these MPAs be integrated into a network of MPAs and larger management scheme or framework for MPAs? How would enforcement work for these areas? These questions are large and speak to State responsibility of management of ABNJ. While NGOs can help answer these questions, it is up to the States to manage and govern ABNJ.

While three interviewees said management and governance are State responsibilities in ABNJ, two held the opinion that NGOs could help in monitoring and research. Efforts, such as Global Fishing Watch which uses AIS (automatic identification system) data to track global fishing activity, can help take the burden of monitoring off States. However, States must still be the enforcers and have strict penalties should management or governance measures be violated. Other NGOs, such as Tara Ocean Foundation, can help in research efforts. One recent expedition (2016-2018) researched coral reef biodiversity and was an effort of over 100 scientists. A recent expedition (May to November 2019) investigated plastic pollution in European rivers; although not in ABNJ, it shows how NGOs might be useful in a variety of marine research. These types of NGO efforts (productive power) could help provide capacity to States, increase baseline data available upon which to base management and governance decisions, identify potential areas that may need attention, and help with monitoring programs established by States.

NGOs can and should continue their well-established roles as advocates, educators, and facilitators as MPAs are being discussed and established. The attention to a cause and pressure NGOs can put on States to act are vital in areas that do not always get the attention needed. NGOs provision of sound science and education of policy-makers would help to ensure decision-makers are informed. Facilitating dialogue and asking the tough questions that States may not be able to or do not want to ask is another role NGOs are well placed to do. After an MPA is set up, NGOs may be useful in providing capacity to States through their research and monitoring capacities. Outside of these specified roles, it will likely be difficult for NGOs to assume a role. As interviewees stressed, ABNJ management and governance is at end a State responsibility. NGOs cannot establish or manage MPAs on their own.

The MPAs that have been established in ABNJ are under the jurisdiction of regional organizations, which is made up of State members. Efforts by NGOs to obtain MPA designations for areas with no regional organizations have to date been unsuccessful. Interviewees acknowledge the challenges of attempting to create an MPA in such areas and recognize the need for a formal treaty that binds States to take actions. If, for example, the Sargasso Sea Commission was successful in getting a formal treaty ratified by States, this could result in a regional organization, similar to OSPAR, that takes on environmental issues like MPAs. In this case, the SSC might cease to be an NGO/hybrid-IGO, with the main goal of advocating for protections and working to get State support, and shift to an IGO tasked with the management of the MPA. However, this has not

happened to date, and it is unknown if this will occur. If it does, however, the Commission would have to shift from an NGO educating and advocating, to the current hybrid-IGO with a stewardship role, and ultimately to an IGO with a management role. This would be a shift in how MPAs are currently designated (i.e., an already established regional organization designates and establishes the MPA) and could be a model for other areas in need of protection but without a regional organization. However, still at the heart of this effort is the need for State members. NGOs can play a role in advocating for an MPA in ABNJ; however, States are still the ones that need to designate the MPA, as well as manage and govern the area.

Several lessons can be learned regarding NGOs in ABNJ. First, long-term and sustained funding is key for NGO participation in global processes. It takes considerable funds to put on workshops and events to raise awareness or to attend international negotiations/conferences/meetings where MPAs in ABNJ are being discussed. While ABNJ is becoming an area that is being talked about more and more globally, pressures within national jurisdiction become more of a priority for States. However, this is the exact space where NGOs can be useful. NGOs can conduct research, help States raise awareness of ABNJ issues, etc., but funding must be more sustainable than a one-off event. Second, while NGOs have high aspirations for MPA coverage in ABNJ, practically may win out. Environmental NGOs will push the scientific case for increased MPA coverage around the world; however, in a world of balancing stakeholder interests, those aspirations are not always able to be realized. That is not to say NGOs should not push for lofty

goals and aim to reach those aspirations. NGOs pushing the envelope can drive action and help accountability. However, actual progress regarding MPA designations in ABNJ is a balancing act of interests among many States.

Third, areas without fishing interests are likely to be easier areas to create MPAs and/or establish no take restrictions. The Costa Rica dome struggles to get protections due to a large fishing area present. In contrast, the Sargasso Sea has been successful in getting some measures in place/support as it does not have to contend with a fishing ground. Even areas in the Charlie-Gibbs MPA are still open for fishing while areas in the Ross Sea MPA proposal were cut out due to fishing concerns. The apparent conflict between fishing and MPAs is one that will need to be carefully considered for future ABNJ MPAs and should be an area of further research. NGOs may be able to help facilitate these discussions and bridge differences. Fourth, a legal measure among States is needed to gain real protection for ABNJ MPAs. While NGOs can help make the case for protection, rally support, and even help with research and monitoring, it will be up to States to establish, manage, and protect these MPAs. NGOs, while vital for the process of creating MPAs, have no authority to establish MPAs in ABNJ. However, their science, research, and monitoring may become vital pieces in the State management and enforcement of the MPAs.

Finally, the research revealed important common elements for success in designating MPAs. First, a legal framework is needed, especially for complicated areas such as those with high fishing interests, complex regional issues or lack of regional environmental organizations. Second, it is important to have some sort of

formal regional organization or mechanism of communication (even if this mechanism is informal). Third, partnerships and coalition building are important. NGOs can band together to strengthen their voice and leverage resources. NGOs and governments can partner to achieve common goals. Fourth, "champion" States are necessary. Rules of procedure for regional and international organizations often only allow States to propose MPA designations, meaning that NGOs cannot officially propose MPA designations, though they can make suggestions to States to propose MPAs via official channels. It is important for a State or States to take up the cause in order to push a proposal for an MPA through to designation. Finally, NGOs can push hard for States to accept proposals and designate MPAs, but sometimes political opportunity or diplomacy also play a role in these designations (e.g., the OSPAR Ministerial Meeting in 2010 or the political diplomacy needed to gain China's acceptance for the Ross Sea MPA and isolate Russia). These opportune moments and the role of diplomacy should not be overlooked, as they often work in parallel to NGO advocacy.

4.5 Conclusion

As seen in other areas where NGOs have participated, NGOs advocating for MPAs in ABNJ have altered State behavior through compulsory and productive power. NGOs have raised awareness of biologically and ecologically important marine ecosystems in need of protections, rallied support for MPA designations, and used their scientific knowledge to make the scientific case for designation of MPAs or protection of important marine areas. NGOs have shaped and altered

State behavior by putting pressure on States to designate MPAs, worked with States to create proposals for MPAs, and even gotten States to advocate for protections in other global fora. However, States have remained at the center of ABNJ MPA management and governance. The two regions with ABNJ MPAs (OSPAR and CCAMLR) designated those MPAs through an already existing regional body. The other two case studies (Sargasso Sea and Costa Rica Dome) have no regional environmental ABNJ body and NGO efforts to designate an MPA have been unsuccessful to date. However, the Sargasso Sea has been successful in raising awareness, taking on a stewardship role for the area, and getting States to sign onto a voluntary agreement for protections of the Sargasso Sea. Whether the Sargasso Sea will be designated an MPA remains to be seen, but if so, the efforts the Commission took to gain those protections could be a model for other areas without regional bodies.

Because States have the responsibility for management and governance in ABNJ, NGOs may have a limited role in the management and governance of MPAs in ABNJ. However, they can make significant contributions via research and monitoring. These efforts would add capacity for States; provide much needed scientific contributions to the management and governance of MPAs in ABNJ; and help NGOs continue their important role of increasing transparency, forcing action, and holding States accountable. While States may be the ones to sign treaties, to enter into agreements, and be responsible for the management and governance of ABNJ, NGOs can still play a role alongside States and can work with States to ensure vital marine areas are effectively protected.

REFERENCES

Adler, E. and Bernstein, S. (2006). "Knowledge in power: the epistemic construction of global governance." *Power in Global Governance*. Cambridge: Cambridge University Press.

Avant, Deborah., et.al. (eds.). 2010. Who Governs the Globe? Cambridge: Cambridge University Press.

Barnett, M. and Duvall, R. (eds). (2006). Power in Global Governance. *Power in Global Governance*. Cambridge: Cambridge University Press.

Barnett, M. and Finnemore, M. (2006). "The power of liberal international organizations." *Power in Global Governance.* Cambridge: Cambridge University Press.

Betsill, M. and Corell, E. (2011). NGO Influence in International Environmental Negotiations: A Framework for Analysis. *Global Environmental Politics, 1:4, 65-85*

Blasiak, R., Duruseel, C., Pittman, J., Senit, C., Petersson, M., and Yagi, N. (2017). The role of NGOs in negotiating the use of biodiversity in marine areas beyond national jurisdiction. *Marine Policy,* 81, 1-8.

Brooks, C. (2013). Competing values on the Antarctic high seas: CCAMLR and the challenge of marine protected areas. *The Polar Journal,* 3:2, 277-300.

Castells, M., (2008). The New Public Sphere: Global Civil Society, Communication Networks, and Global Governance. *The ANNALS of the American Academy of Political and Social Science,* 616, 78-93.

CBD (Convention on Biological Diversity) (2012). Report of the Workshop of the Eastern Tropical and Temperate Pacific Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas. Galapagos Island, Ecuador, 28-31 August 2012.

Chandhoke, N. (2002). The limits of global civil society. *Global Civil Society,* 35-53.

Charlie Gibbs Marine Protected Area. (No Date) What is the Charlie Gibbs Fracture Zone? Retrieved February 18, 2018, from http://www.charlie-gibbs.org/charlie/node/14.

Codonnery, L. and Kriwoken, L. (2015). Advocating a Larger Role for Environmental Nongovernment Organizations in Developing a Network for Marine Protected Areas in the Southern Ocean. *Ocean Development & International Law,* 46, 188-207.

Food and Agriculture Organization (2020). Vulnerable Marine Ecosystem Background. Retrived February 3, 2020, from http://www.fao.org/in-action/vulnerable-marine-ecosystems/definitions/en/.

Gemmill, B. and Barnidele-Izu, A. (2002). The Role of NGOs and Civil Society in Global Environmental Governance. *Global Environmental Governance,* 1-20.

Hamilton Declaration on the Collaboration for the Conservation of the Sargasso Sea. (2014). Hamilton, Bermuda, 11 March 2014. Available: http://www.sargassoalliance.org/storage/documents/Hamilton_Declaration_on_Collaboration_for_the_Conservation_of_the_Sargasso_Sea.with_signatures.pdf

Hughes, K., and Grant, S. (2017). The spatial distribution of Antarctica's protected areas: A product of pragmatism, geopolitics, or conservation need? *Environmental Science and Policy,* 72, 41-51.

International Maritime Organization (IMO) (2020). Particularly Sensitive Sea Areas. Retrieved February 3, 2020, from: http://www.imo.org/en/OurWork/Environment/PSSAs/Pages/Default.aspx.

Jimenez, J., (2017). *The Thermal Dome of Costa Rica: An oasis of productivity at the Pacific Coast of Central America.* MarViva Foundation: San Jose, Costa Rica.

Johnson, D., Salazar, E., Gallagher, A., Rees, A., Rodriguez, C., Solano, S., Ortega G., Frojan, C. (2018). Preventing plastics pervading an oceanic oasis: Building the case for the Costa Rica Thermal Dome to become a World Heritage site in ABNJ. *Marine Policy,* 96, 235-242.

Kaldor, M. (2003). The idea of global civil society. *International Affairs,* 79:3, 583-593.

Mahama, H. and Khalifa, R. (2017). The Routeledge Companion to Qualitative Accounting Research Methods. Ed. Zahirul Hoque, et al., Routeledge.

Matz-Luck, N. and Fuchs, J. (2014). The impact of OSPAR on protected area management beyond national jurisdiction: Effective regional cooperation or a network of paper parks? *Marine Policy,* 24, 155-166.

McArthur, S. (2008). Global Governance and the Rise of NGOs. *Asian Journal of Public Affairs,* 2:1, 54-65.

O'Leary, B., Brown, R., Johnson, D., von Nordheim, H., Ardron, J., Packeiser, T., and Roberts, C. (2012). The first network of marine protected areas (MPAs) in the high seas: The process, the challenges and where next. *Marine Policy,* 36, 598-605.

OSPAR (2016). MPA Database. Retrieved February 18, 2018, from http://mpa.ospar.org/home_ospar.

Popova, E., Vousden, D., Sauer, W., Mohammed, E., Allain, V., Downey-Breedt., N., Fletcher, R., Gjerde, K., Halpin, P., Kelly, S., Obura, D., Peci, G., Roberts, M., Raitsos, D., Rogers, A., Samoilys, M., Sumalia, U., Tracey, S., and Yool, A. (2019). Ecological connectivity between the areas beyond national jurisdiction and coastal waters: Safeguarding interests of coastal communities in developing countries. *Marine Policy,* 104, 90-102.

Raustiala, K. (1997). States, NGOs, and International Environmental Institutions. *International Studies Quarterly,* 41, 719-740.

Ross Salazar, E., Jiménez Ramón, J.A., Castro Campos, M., Blanco Bolaños, M. (2019). The Thermal Dome of Costa Rica / Atlas. MarViva Foundation, San José. 108 pp. https://marviva.net/sites/default/files/documentos/atlas_domo_termico_ingles_marviva_web.pdf.

Smith, D., and Jabour, J. (2018). MPAs in ABNJ: lessons from two high seas regimes. *ICES Journal of Marine Science,* 75(1), 417-425.

United Nations Convention on the Law of the Sea (UNCLOS), December 10, 1982, 1833 U.N.T.S. 397

Yin, R. (2014). *Case Study Research: Design and Methods.* Los Angeles, CA: Sage.

Chapter 5

CONCLUSION

The latest draft text of the potential Implementing Agreement under UNCLOS was released in January 2020 (https://undocs.org/en/a/conf.232/2020/3). Encouragingly, some of the concerns uncovered in the three studies are beginning to be addressed in that draft. Regarding capacity (see Chapter 2 here), the draft text recognizes capacity building should be needs-driven and not a one-size-fits all approach, and includes language stating a needs assessment should be undertaken to determine the appropriate approaches (draft Article 44 para 4). A weakness is that the needs assessment would be self-assessed, meaning a State would need to have the capacity to effectively design and implement this assessment (which a State may or may not have), or the Conference of Parties (COP) "may" establish the needs assessment mechanism, which leaves open the possibility that the COP will not establish a mechanism at all.

NGOs may be able to play a role here, providing assistance with the design and implementation of needs assessments, thus facilitating State determination of which capacity building efforts would be most beneficial. While this was not an identified potential role for NGOs in ABNJ from Chapter 4, it may be a useful role for NGOs to perform to further capacity development and the conservation and management of ABNJ. There are also provisions in the draft text related to monitoring and review by the COP as well (draft Article 47). So, if effectively implemented, the new agreement could hit all five steps of the capacity building

process (Chapter 2 - engage stakeholders, assess capacity and needs, formulate response, implement response, and evaluate).

A big unknown is if this will occur. There have been efforts to build capacity in the past, but they have neither generally been effective nor tailored to ABNJ. However, the scope of this agreement is broader than simply marine science or technology, which may help increase effectiveness. The draft text specifically calls out capacity for decision-makers, as well as policy and governance (draft Annex II). So, while increasing scientific knowledge, capacity, and exchange is important for increasing the conservation and management of ABNJ, so too is increasing capacity for policy-makers and decision-makers, as evidenced in Chapter 2.

On MPAs, the potential new Implementing Agreement has objectives to establish a system of representative, connective, and effective MPAs. To effectively reach this objective, MPAs need to be established in more than just CCAMLR and OSPAR and the ecosystems represented need to include lesser represented ecosystems such as hydrothermal vents, carbonate mounds, and deep-water sponges and reefs (see Chapter 3). Furthermore, connectivity means MPAs within a region should be connected, allowing species to pass between the MPA units, but also that MPAs should be connected between regions, where appropriate. Mobile MPAs or MPAs that protect migratory pathways are important to ensure species are protected during all life stages. Studying the effectiveness of MPAs allows for lessons to be learned and adjustments made (adaptive management), not only making those MPAs true to their purpose but also setting up future

MPAs for success. The draft text calls on the Scientific and Technical Body to evaluate the effectiveness of area-based measures and provide advice to the COP (draft Article 49). However, this body can only make recommendations and provide advice to the COP. Meaning, the COP could very well simply ignore the science for the sake of international politics.

The draft text provides a way for stakeholders such as the scientific community and civil society to submit views, inputs, and information relevant to a proposed MPA (draft Article 18 para 2(c)). While non-States may not submit proposals for MPAs (though they may provide input to a State during the proposal formation), it is good to see that non-State parties can have a direct impact by commenting on proposals (NGOs in particular can exert productive power, as seen in Chapter 4). The draft text has language that may allow for areas without a regional organization to become MPAs (draft Article 15 para 1 (b) (ii)); however, there is alternate text for this section that would have an instrument, framework, or body established for this purpose (draft Article 15 2 Alt). While the former option may very well pave the way for important biological and ecological areas, such as the Sargasso Sea and Costa Rica Dome, to be protected even with the lack of formal mechanism, the latter option may continue to prevent protections in areas where they are needed.

While States are the ultimate deciders of what happens in ABNJ and for the potential new agreement, NGOs, as seen in Chapter 4, can play a large role in this space. NGOs can generate support for issues of concern or raise awareness of areas in need of protection, as they have done in the past. This could be a key role

for areas without a regional environmental organization that might otherwise perform the role of MPA creation in ABNJ, areas like the Sargasso Sea and Costa Rica Dome. Using their productive power and scientific expertise, NGOs can help review proposals of MPAs, work with a State to help draft a proposal and MPA, or even be members of the Scientific and Technical Body. NGOs can also increase transparency and accountability, using compulsory power when necessary, to ensure the COP is effectively implementing the potential new agreement.

The potential new agreement will establish a clearing-house mechanism (Article 49). This clearing-house mechanism has a broad scope, including marine genetic resources, environmental impact assessments, and capacity building. The mechanism has space for "opportunities for capacity-building and the transfer of marine technology, such as activities, programs and projects being conducted in" ABNJ as well as research collaboration and training opportunities (UNGA, 2020). The mechanism is envisioned to be a match-making service where requests for capacity building can be submitted and filled by a provider. Another potential role for NGOs is to help with opportunities (i.e., workshops and training programs) that may end up in the clearing-house mechanism.

ABNJ is a new frontier that is waiting to be explored. With technological advances making the deep sea within reach, now is the time to ensure states and society effectively protects vital marine ecosystems in marine protected areas; expands capacity for effective conservation, sustainable use, and management of ABNJ; and continues allowing NGOs to have an influence in ABNJ, particularly

as they can play a role in raising awareness, transparency, and increasing capacity. The potential new Implementing Agreement is a start at realizing this future; however, how effective this new agreement will be will come down to political will. This new Implementing Agreement is a package deal, meaning all the elements must be agreed upon if it is to be adopted. States must embrace these concepts and seek to leverage shared opportunities when possible. This means not only working with other States to achieve shared goals, but also using the power of NGOs. Even though ABNJ lie far from coastlines, that 64% of the ocean's surface plays a role in what happens in State jurisdiction. Without particular attention to that ocean space, resources within a State's jurisdiction may continue to decline, as will the health of the ocean as a whole.

REFERENCES

United Nations General Assembly (UNGA) (2020). Revised draft text of an agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction. A/conf.232/2020/3. Available at: https://undocs.org/en/a/conf.232/2020/3.

Appendix A

QUESTIONNAIRE ON CAPACITY NEEDS IN THE MANAGEMENT OF MARINE AREAS BEYOND NATIONAL JURISDICTION (ABNJ)

Introduction

Marine areas beyond national jurisdiction[1] (ABNJ) comprise 64% of the ocean's surface. ABNJ contain ecosystems, marine resources, and biodiversity of great ecological, socioeconomic, and cultural importance. A variety of human activities take place in ABNJ; however, lack of knowledge of marine biodiversity and ecosystems in ABNJ, difficulties in enforcement of existing conservation and management measures, and disagreements over appropriate policy responses have hindered the sustainable management of ABNJ. Additionally, there is insufficient communication and coordination between ABNJ processes at the regional and global levels and there is a need to identify and better utilize best practices in different regions and sectors.

Because of the significance of these areas, the GEF/FAO/GOF[2] have developed a project on *Strengthening Global Capacity to Effectively Manage Areas Beyond National Jurisdiction,* which is implemented at the University of Delaware's Gerard J. Mangone Center for Marine Policy (Mangone Center). This project has three parts:

1) *global and regional cross-sectoral policy dialogues and coordination;*

2) *capacity development which includes:*

   a) two targeted ABNJ communities of practice

   b) a program to strengthen the capacity of leaders at the regional and national levels to better address ABNJ resources and issues and to more effectively participate in global and regional ABNJ discussions and

3) *knowledge management and outreach which entails a public outreach network made up of journalists, practitioners, and leaders from museum/aquaria, and a web portal for the general public.*

The project desired outcomes are to strengthen and broaden dialogue and policy coordination, build the capability of decision-makers to participate in international

[1] ABNJ refers to the "Area," defined in the United Nations Convention on the Law of the Sea (UNCLOS) as "the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction," and the high seas, defined as "all parts of the sea that are not included in the exclusive economic zone, in the territorial sea or in the internal waters of a State, or in the archipelagic waters of an archipelagic state."

[2] GEF – Global Environment Facility; FAO – Food and Agriculture Organization of the United Nations; GOF – Global Ocean Forum

and regional processes for management and coordination of ABNJ activities, and develop the public's understanding of the issues and threats to ABNJ.

This questionnaire has been developed as part of the GEF/FAO/GOF project, part of the GEF/FAO Global Sustainable Fisheries Management and Biodiversity Conservation in the Areas Beyond National Jurisdiction Program (Common Oceans Program) (www.commonoceans.org). The purpose of this questionnaire is to determine existing capacity as well as the desired capacity in the management of ABNJ, especially for developing countries and small island developing States (SIDS). The target of this capacity questionnaire is decision-makers at regional and national levels serving in positions relevant to ABNJ issue areas, such as fisheries, biodiversity, ocean management, environmental management, climate change, etc. For the purposes of this questionnaire, regional will refer to the sub-global level between the global and national level.

This questionnaire will be used to assess existing awareness and skills related to ABNJ and indicate the level and scope of capacity development required. For the purposes of this questionnaire, capacity can be defined as capability or ability to perform a certain function or role.

There are 15 questions in total, with a mix of answer types (open-ended, Yes/No, ranking on a scale, as well as selecting choices). Please kindly fill out the questions in the online form and submit the questionnaire. This questionnaire is 100% voluntary and you may opt out of completing the questionnaire at any time. You do not have to provide an answer to every question. However, your participation in filling out as many questions as possible is greatly appreciated. You may also start the questionnaire and return at a later time. This survey will take approximately 15 minutes. Once the questionnaire has been completed, you will have the opportunity to comment and provide feedback on the survey.

Your collaboration in completing this questionnaire is greatly appreciated. Responses will be analyzed and disseminated in aggregate form, with no personally identifiable information released publicly. Respondents will be sent a copy of the analysis of the survey responses upon completion of the assessment. If you choose to not include your individual respondent information, you may do so; however, that information allows us to release the analysis of survey results directly to you. The results of the survey will be used to inform decisionmakers at national, regional, and global levels involved in policy-making, management, and sustainable use of marine resources in ABNJ about capacity development needs related to ABNJ and possible avenues for addressing capacity development gaps.

Please complete by: _____

1. Information on Respondent

Institutional Information

Full Name of Institution	
Region	
Country	
Position of Respondent	

Individual Respondent Information

Name of Respondent	
Telephone Number	
E-mail Address	

2. Institutional Information

This section asks questions regarding your institution to understand the role your institution plays related to the management of marine areas beyond national jurisdiction (ABNJ).

Q1. A. What types of activities, if any, does your institution carry out in or related to ABNJ?

B. What is the driving interest or responsibility of your institution regarding ABNJ (for example, fishing, minerals, defense, etc.)?

C. What types of tools and/or approaches, if any, does your institution use in or related to ABNJ?

Q2. A. What departments in your institution, if any, have a mandate and/or competence regarding ABNJ issues?

B. What is the source of the mandate/competence?

C. What positions/job levels work on ABNJ issues?

Q3. A. What *national* institutions within your region, if any, have a mandate and/or competence regarding ABNJ?

B. What *regional* institutions relevant to your country, if any, have a mandate and/or competence regarding ABNJ?

Q4. A. How often do you collaborate with other institutions while conducting activities in ABNJ?

Always	Often	Sometimes	Never

B. With which institutions do you collaborate while working on ABNJ?

C. What does this collaboration entail? Please select all that apply.

Management	Enforcement	Research	Trainings/ Seminars/ Workshops	Other (specify)	N/A

D. Are there any existing agreements/memoranda of understanding regarding ABNJ among *regional* organizations in your region? If yes, please explain.

Q5. What factors constrain the effectiveness of the collaboration and/or work of your institution in ABNJ?

3. Regional/National Interest in ABNJ

This section addresses regional and national interest in ABNJ. Questions explore the level of interest in ABNJ as well the status of any frameworks for governance or management.

Q6. A. To what extent is there *national* interest in ABNJ in your region?

High	Medium	Low	None	Do not know

B. What is the nature of this interest? Please describe.

Scientific/Technical/Technological:_____

Economic: _____

Policy/Political: _____

Security: _____

Other: _____

C. Are there *national* policy frameworks governing activities of national entities in ABNJ? If yes, please describe the frameworks.

Yes	No

D. What is the status of the framework(s)? Please describe.

Operational	Developed, but not in effect	Under development	Do not know	N/A

Q7. A. To what extent is there *regional* interest in ABNJ in the region?

High	Medium	Low	None	Do not know

B. What is the nature of this interest? Please describe.

Scientific/Technical/Technological:_____

Economic: _____

Policy/Political: _____

Security:_____

Other: _____

C. Are there *regional* policy frameworks governing activities of national entities in ABNJ? If yes, please describe the frameworks.

Yes	No

D. What is the status of the framework(s)? Please describe.

Operational	Developed, but not in effect	Under development	Do not know	N/A

4. Legal and Policy Frameworks, Tools, and Approaches in ABNJ

This section asks questions regarding the legal and policy frameworks, management approaches, tools, and techniques in ABNJ. You are asked to indicate how often you use specific legal and policy frameworks, tools, and management approaches. Additionally, you are asked on which frameworks, tools, and approaches you would like more information.

Q8. Please indicate how often you use the following frameworks, tools and approaches and for which framework, tool, or approach you would like more information:

This section asks you to rate how often you use specific legal and policy frameworks governing ABNJ and for which framework you would like more information.					
Legal/Policy Frameworks	Use to carry out essential functions of my job	Use regularly/ often	Use occasionally/ sometimes	Use rarely/never	Would like more information
Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention)/London Protocol (1972)					
The International Convention for the Prevention of Pollution from Ships (MARPOL) (1973/amended 1978)					
United Nations Convention on the Law of the Sea (UNCLOS) (1982)					
Agreement relating to the implementation of Part XI of the United Nations Convention on the Law of the Sea					

	of 10 December 1982 (1994)					
	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 (1995 UN Fish Stocks Agreement)					
Convention on Biological Diversity (CBD) (1992)						
Food and Agriculture Organization of the United Nations (FAO) Code of Conduct for Responsible Fisheries (1995)						
International Plan of Action to Prevent, Deter, and						

Eliminate Illegal, Unreported and Unregulated Fishing (2001)					
FAO International Guidelines for the Management of Deep-sea Fisheries in the High Seas (2009)					
Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (2009)					
Regional Seas Conventions and Action Plans					
Large Marine Ecosystem Programs associated frameworks					

This section asks you to rate how often you use a variety of tools and approaches that could be used for management of marine areas in ABNJ and for which tools or approaches you would like more information.

Tools and Management Approaches	Use to carry out essential functions of my job	Use regularly/ often	Use occasionally/ sometimes	Use rarely/never	Would like more information
Integrated ocean management					

approach (multi-sector)					
Ecosystem-based Approach					
Ecosystem Approach to Fisheries (under FAO)					
Sector-led Area-based Management Approaches					
Vulnerable Marine Ecosystems (under FAO)					
Particularly Sensitive Sea Areas (under the International Maritime Organization)					
Special Areas (International Maritime Organization/ MARPOL)					
Areas of Particular Environmental Interest (under the International Seabed Authority)					
Marine Protected Areas under the Regional Seas conventions					
Ecologically or Biologically Significant Marine Areas					

(under the Convention on Biological Diversity)					
Marine Spatial Planning					
Environmental Impact Assessment/ Risk Assessment/Strategic Environmental Assessment					

5. Capacity Development Regarding Areas Beyond National Jurisdiction

This section asks questions regarding capacity related to the management of ABNJ and capacity development needs.

Q9. A. Is capacity a critical constraint to the management of ABNJ at the *national* level?

Major constraint	Somewhat a constraint	Little constraint	No constraint	N/A

If capacity is a constraint, what capacity is needed? Please describe.

B. Is capacity a critical constraint to the management of ABNJ related matters at the *regional* level?

Major constraint	Somewhat a constraint	Little constraint	No constraint	N/A

If capacity is a constraint, what capacity is needed? Please describe.

Q10. A. What type of participation, if any, does your organization (national/regional) have at global negotiations regarding ABNJ (for example, 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 (BBNJ) or subsequent fora)?

Does not attend global processes	Attends but does not intervene	Intervenes	Do not know	N/A

B. To what extent, if any, is capacity a critical constraint to your organization's attendance or ability to participate in or intervene during global negotiations?

Major constraint	Somewhat a constraint	Little constraint	No constraint	N/A

Q11. A. What type of capacity development activities/programs occur *nationally* regarding ABNJ? Please select all that apply.

Academic Program	
Seminars, workshops, or training	
Demonstration activities/programs	
Conference	
Mentoring, advising, consulting	
On-line training	
Access to manuals, guidelines, documentation, and other materials	
Other (specify)	
None	

B. Is transfer of marine technology[3] included in *national* strategic planning? If yes, please describe.

Yes	No

C. How (if at all) has your institution utilized the Intergovernmental Oceanographic Commission's (IOC) *Criteria and Guidelines on the Transfer of Marine Technology* (Guidelines) for ABNJ activities on the *national* level? Select all that apply.

Submitted a Transfer of Marine Technology Application	
Received requested marine technology after submitting the Transfer of Marine Technology Application	
Donated requested marine technology after receiving the Transfer of Marine Technology Application	
Received technical training from the IOC concerning the transfer of marine technology	
Other (specify)	
Have not used the guidelines	
Would like to know more	

D. If you have received marine technology through the IOC, what type(s) of marine technology did you receive for ABNJ activities? Select all that apply.

Information/data	
Manuals, guidelines, criteria, standards, reference materials	
Sampling and methodology equipment	
Observation facilities and equipment	

[3] Marine technology, as defined in the Intergovernmental Oceanographic Organization's (IOC) *Criteria and Guidelines on the Transfer of Marine Technology*, includes: information and data; manuals, guidelines, criteria, standards, reference materials; sampling and methodology equipment; observation facilities and equipment; equipment for in situ and laboratory observations, analysis and experimentation; computer and computer software including models and modeling techniques; and expertise, knowledge, skills, technical/scientific/legal know-how and analytical methods related to marine scientific research and observation

Equipment for in situ and laboratory observations, analysis, and experimentation	
Computer and computer software, including models and modeling techniques	
Expertise, knowledge, skills, technical/ scientific/legal know-how and analytical methods related to marine scientific research and observations	
Other (specify)	

Q12. A. What type of capacity development activities/programs occur *regionally* regarding ABNJ? Please select all that apply.

Academic Program	
Seminars, workshops, or training	
Demonstration activities/programs	
Conference	
Mentoring, advising, consulting	
On-line training	
Access to manuals, guidelines, documentation, and other materials	
Other (specify)	
None	

B. Are there established *regional or sub-regional* focal points for the transfer of marine technology? If yes, please describe how these focal points have aided in the transfer of marine technology at the *regional or sub-regional* level?

Yes	No

Q13. A. What types of capacity development approaches would be useful in the further development of capacity on ABNJ at the *national* level?

B. What types of capacity development approaches would be useful in the further development of capacity on ABNJ at the *regional* level?

Q14. What specific capacity development approaches would you find useful? Please select all that apply.

A primer on ABNJ issues (including socio-economic aspects) and frameworks aimed at decision-makers	
A short course on ABNJ held at the global level with participants from various regions	
A short course on ABNJ held at the regional level	
An academic course on ABNJ	
Policy dialogue among global, regional, and national decision-makers focusing on developments at global, regional, and national levels	
Policy dialogue among different regions to compare different approaches and lessons learned from different regions working on ABNJ management	
Discussion of a code of stewardship ethics toward the ABNJ for decision-makers and the public	
Ways of involving the public in deliberations on ABNJ	
Other (Please describe)	

Q15. What is the level of financial resources that is devoted to ABNJ activities, including capacity development, in your institution?

Please indicate approximate amount in US$: _____

Thank you for your participation. Results will be shared once all surveys have been submitted and the responses analyzed.

Appendix B

SEMI-STRUCTURED INTERVIEW GUIDE TO DETERMINE THE EFFECTIVENESS OF MARINE PROTECTED AREAS IN AREAS BEYOND NATIONAL JURISDICTION

Instructions: This interview guide is designed to study the effectiveness of MPAs in ABNJ and evaluate their long-term success. You have been selected to participate in this study because of your role in an ABNJ MPA. Your participation in this research is greatly appreciated. There are 14 questions total and should take approximately 45-60 minutes to complete. Questions are divided into two sections, governance and management. The questions under the Governance category are designed to evaluate the effectiveness of the overall design, structures, and processes of the MPA. Whereas the questions in the management section are designed to evaluate the effectiveness of how the design, structures, and processes are carried out.

Your participation is voluntary and confidentiality will be maintained. Should you have any questions regarding the research, you may contact the researcher, Erica Wales, at ewales@udel.edu.

Governance

Q1: For the following statements, please indicate the extent to which you agree or disagree.

	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree
Laws and policies governing the MPA are *clear*.*[4]					
Laws and policies governing the MPA are *enabling*.*					

[4] * indicates required question

Laws and policies governing the MPA are *consistent*.*					
Norms governing the MPA are *clear*.*					
Norms governing the MPA are *enabling*.*					
Norms governing the MPA are *consistent*.*					
There are mechanisms to adapt governance (institutions, structures, and processes).*					

Q2: For the following statements, please indicate the extent to which you agree or disagree.

The MPA planning process is clearly articulated.*					
MPA managers are appointed fairly.*					
Decisions are made transparently.*					
The level of human capacity provided is sufficient to support participatory processes (processes/approaches meant to obtain stakeholders in decision-making*					
The level of financial capacity provided is sufficient to support participatory processes					

(processes/approaches meant to obtain stakeholders in decision-making)?*					

Q3: For the following statements, please indicate the extent to which you agree or disagree.

The MPA is part of a representative and connected network of MPAs.*					
The MPA is integrated within a broader scale system of management (ex. Ecosystem Based Management, Integrated Coastal Zone Management).*					
What system is it integrated into?^ [5] (open-ended)					
The MPA type (scientific research zone, general protection, species management area, seascape, IUCN category, etc.) was chosen to fit the ecological context.*					

[5] ^ indicates automatic re-route in Qualtrics.

	What is the MPA type?^					
The MPA format (no-take, certain forms of fishing prohibited, permanent, multiple use zones, etc.) was chosen to fit the ecological context.*						
Conservation targets for the MPA are clearly identified.*						
	Actions are being taken to achieve identified conservation targets.*^					
	How effective are these actions in achieving the identified conservation targets?^	Ineffective	Somewhat Ineffective	Neither Ineffective nor Effective	Somewhat Effective	Effective
	How can these actions be improved and made more effective for reaching conservation targets?^ (open-ended)					

Q4a: Are there collaborative co-management arrangements?*

Yes	No

Q4b: Do you agree or disagree with the following statements regarding collaborative co-management arrangements?^

	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree
Collaborative co-management arrangements are *contextually appropriate*.*					
Collaborative co-management arrangements are *inclusive*.*					
Collaborative co-management arrangements are *equitable*.*					
Collaborative co-management arrangements are *representative*.*					

Q5: Please rate your level of satisfaction for the following questions.

	Dissatisfied	Somewhat Dissatisfied	Neither Satisfied nor Dissatisfied	Somewhat Satisfied	Satisfied
How satisfied are you with the opportunities for networking and					

relationship building?*					
How satisfied are you with the level of coordination and cooperation with the network of organizations supporting the MPA?*					
	What could improve or make this coordination and cooperation more effective?^ (open-ended)				

Q6: Open-ended response box – Please elaborate on any answers you provided above. (optional)

Management

Q7: For the following statements, please indicate the extent to which you agree or disagree.

	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree
The MPA management plan provides objectives.*					
The MPA management plan provides specific measures to achieve the objectives.*					

	Is this management plan publicly accessible?^ Yes/no					
The zones for different uses have been clearly established.*						
The zones for different uses have been clearly marked.*						
There are site specific management strategies being taken to *mitigate* against threats within and around the MPA.*						
There are site specific management strategies being taken to *adapt* to threats within and around the MPA.*						
The MPA was implemented in a manner that was *participatory*.*						
The MPA was implemented in a manner that						

encouraged trust.*					
The MPA was implemented in a manner that encouraged *relationship building*.*					
There is a program to evaluate MPA management actions.*					
There is a process for resolving conflicts.*					

Q8a: Do you agree or disagree that the amount of baseline ecological data/knowledge of species and habitats the MPA aims to protect is sufficient?*

Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree

Q8b: What types of data/knowledge would improve baseline data needed to support the MPA?^ (open ended response)

Q9: How adequate is the program for monitoring ecological outcomes?*

Inadequate	Somewhat Inadequate	Neither Adequate nor Inadequate	Somewhat Adequate	Adequate

Q10: How adequate is the communications strategy?*

Inadequate	Somewhat Inadequate	Neither Adequate nor Inadequate	Somewhat Adequate	Adequate

Q11a: For the following statements, please indicate the extent to which you agree or disagree.

	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree
The level of *equipment* is sufficient to carry out management objectives.*					
The level of *human capacity* is sufficient to carry out management objectives.*					
The level of *capacity building* is appropriate.*					

Q11b: What could improve capacity for staff?^ (open-ended)

Q12a: What type of monitoring and surveillance is used for the MPA? (open-ended)

Q12b: How effective is the monitoring and surveillance for the MPA?*

Ineffective	Somewhat Ineffective	Neither Effective nor Ineffective	Somewhat Effective	Effective

Q13: For the following statements, please indicate the extent to which you agree or disagree.

	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree
The system of graduated, legally-supported sanctions is adequate.					
The rules and regulations are *equitably* enforced.					
The rules and regulations are *consistently* enforced.					

Q14: Open-ended response box – Please elaborate on any answers you provided above (optional).

End interview. Thank you for your participation in this research. Your time and participation is greatly appreciated.

Appendix C

CASE STUDY INTERVIEW QUESTIONS

1. Some would say NGOs have increasingly become a part of global governance or become a part of spaces that used to be occupied by States only (ex. increasingly becoming a part of UN conferences and negotiations). Is that an appropriate role for NGOs?
    a. How do States react to this increasing NGO presence?
    b. What are the positives and negatives to having NGOs working in global arenas?

2. Generally speaking, what roles have NGOs played in ABNJ? What has their influence been?

3. Specifically for the MPA (Ross Sea, Charlie Gibbs), area of collaboration (Sargasso Sea), or Costa Rica Dome, at what point did the NGO enter discussions (ex. provided a proposal to a State, entered after a proposal had been developed, worked with a State directly to create a proposal, etc.)?

4. Did NGOs influence the negotiations/creation of the MPA/area of collaboration?
    a. What was this influence or what was their role in designating the MPA/area of collaboration (ex. scientific/technical help, advocacy, etc.)?
    b. How did this influence affect the negotiations/creation of the MPA/area?
    c. Did rules of procedure affect how an NGO could influence the designation?
    d. Were there any missed opportunities for an NGO to influence or affect negotiations?
    e. Were there times where an NGO overstepped in their role?

5. Was there a critical point or key turning point for getting the designation?
    a. Did NGOs have an influence on this point? What was it?

6. Was there a non-NGO entity (organization/individual/country) that had a strong impact on the creation of the MPA/area?
    a. Did this non-NGO entity play a more significant role than the NGO in the designation?

7. Are you aware of the NGO efforts in the (Ross Sea, Charlie Gibbs Fracture Zone, and Sargasso Sea) to get the MPA designated/recognized internationally?
    a. How does this effort compare to the effort you were involved in?

8. Do you know of other cases were an NGO(s) was either successful or unsuccessful in getting an MPA designated in ABNJ?

9. Other than advocacy or scientific/technical help, do you see a role for NGOs in the governance/management of ABNJ?
    a. What is this role?
    b. Are there things that need to happen to allow for NGOs in this space?
    c. Are there any drawbacks to having NGOs in this space?

10. Looking at the Sargasso Sea, the Commission has played a role unlike other NGOs in ABNJ, in that they have taken on a hybrid-IGO role. Do you think this can be a model for future protection of the ocean? Explain yes/no.
    a. What might make this a unique case and not applicable to other areas?

11. The Costa Rica Dome is an area that is partially in national jurisdiction and partially in ABNJ. Despite efforts by NGOs to get this area protected, efforts have stalled. Why do you think this is?
    a. What might help progress these efforts?
    b. Are there any States that are pushing for this designation?
    c. Similar to the Sargasso Sea, the area does not have a Regional Seas Programme that covers the whole area. However, unlike the Sargasso Sea, there is no NGO that has been given a stewardship role for conserving this area. Would a stewardship model work in the Costa Rica Dome? Why or why not?

12. Are there any lessons learned (good or bad) from NGO involvement in designation of an MPA in ABNJ?

Appendix D

GRAPHIC REPRINT PERMISSIONS

Erica Wales <ewales@udel.edu>

RE: Official MPA MAP
1 message

protectedareas <protectedareas@unep-wcmc.org> Fri, Feb 7, 2020 at 11:13 AM
To: Erica Wales <ewales@udel.edu>

Dear Erica,

Thank you for your email and your interest in the WDPA.

Of course, you use the official MPA map for your dissertation (the topic sounds very interesting!). Just make sure you cite as per our recommendations online https://www.protectedplanet.net/c/terms-and-conditions (copied and pasted below). And make sure the monthly version of the WDPA is cited, not just the year :)

UNEP-WCMC and IUCN (year), Protected Planet: [insert name of component database; The World Database on Protected Areas (WDPA)/The Global Database on Protected Areas Management Effectiveness (GD-PAME)] [On-line], [insert month/year of the version downloaded], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

I am attaching this month's map in PNG format. Do not hesitate to contact us if you have any further questions.

Best,

Cristina

On behalf of the WDPA team

UNEP World Conservation Monitoring Centre (UNEP-WCMC)

219 Huntingdon Road, Cambridge, CB3 0DL, UK

www.protectedplanet.net

G Suite

Erica Wales <ewales@udel.edu>

RE: Permission to use graphic in dissertation

1 message

Barbara Cvrkel <[redacted]@pewtrusts.org> Thu, Feb 6, 2020 at 1:54 PM
To: Erica Wales <ewales@udel.edu>

Hi, Erica…

Thanks for reaching out and I'm super excited that you are studying MPAs!

That asset you linked to below is an outdated graphic that was published back in 2017, before the AP MPA was proposed.

Since we have created another set of graphics/maps:

https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2018/10/protections-for-the-antarctic-peninsula-are-critical-for-marine-life

if you still would like to use the 2017 graphic, let me know.

I can send it as a jpeg file.

If you would prefer some/all of the newer maps, please let me know.

Thanks!

Appendix E

IRB/HUMAN SUBJECTS APPROVAL

Institutional Review Board
210H Hullihen Hall
Newark, DE 19716
Phone: 302-831-2137
Fax: 302-831-2828

DATE:	May 28, 2019
TO:	Erica Wales, PhD
FROM:	University of Delaware IRB
STUDY TITLE:	[1433998-1] Evaluating MPA effectiveness and role of NGOs in ABNJ
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF EXEMPT STATUS
EFFECTIVE DATE:	May 28, 2019
REVIEW CATEGORY:	Exemption category # *(2)*

Thank you for your New Project submission to the University of Delaware Institutional Review Board (UD IRB). According to the pertinent regulations, the UD IRB has determined this project is EXEMPT from most federal policy requirements for the protection of human subjects. The privacy of subjects and the confidentiality of participants must be safeguarded as prescribed in the reviewed protocol form.

This exempt determination is valid for the research study as described by the documents in this submission. Proposed revisions to previously approved procedures and documents that may affect this exempt determination must be reviewed and approved by this office prior to initiation. The UD amendment form must be used to request the review of changes that may substantially change the study design or data collected.

Unanticipated problems and serious adverse events involving risk to participants must be reported to this office in a timely fashion according with the UD requirements for reportable events.

A copy of this correspondence will be kept on file by our office. If you have any questions, please contact the UD IRB Office at (302) 831-2137 or via email at hsrb-research@udel.edu. Please include the study title and reference number in all correspondence with this office.

INSTITUTIONAL REVIEW BOARD
www.udel.edu