

Place-based Dynamic Management of Large-Scale Ocean Places: Papahānaumokuākea and the Sargasso Sea

David Freestone,^A Ole Varmer,^B Meredith
Bennett,^C T. ‘Aulani Wilhelm,^D Theodore M.
Beuttler,^E Jeff Ardron,^F Sara Maxwell,^G and Kate
Killerlain Morrison^H

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^A Executive Director, Sargasso Sea Alliance; Visiting Scholar, George Washington University Law School, Washington, D.C.

^B Attorney-Advisor, International Section Office of General Counsel, NOAA, Silver Spring, MD.

^C Center for Ocean Solutions, Stanford Woods Institute for the Environment, Stanford University, Stanford, CA.

^D Superintendent, NOAA Office of National Marine Sanctuaries, Papahānaumokuākea Marine National Monument; Sloan Fellow, Graduate School of Business, Stanford University, Honolulu, HI.

^E Attorney-Advisor, Office of General Counsel, Oceans and Coasts Section, NOAA, Silver Spring, MD.

^F Senior Fellow, Institute for Advanced Sustainability Studies, Potsdam, Germany.

^G Postdoctoral Scholar, Hopkins Marine Station, Stanford University, Pacific Grove, CA.

^H Deputy Executive Director, Sargasso Sea Alliance, Washington, D.C.

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I. INTRODUCTION

The oceans cover sixty-seven percent of the planet and nearly fifty percent of this area is beyond national jurisdiction, outside the exclusive economic zones and continental shelves of coastal states. There is now overwhelming evidence that the designation of protected areas in the oceans increases biomass, biodiversity, and vital ecosystem services,¹ yet the proportion of protected areas in the ocean, when compared with the proportion of terrestrial areas protected, is tiny.² It is also interesting that while we accept without question that the designation of huge terrestrial ecosystems such as Yellowstone National Park or the Serengeti provides values beyond biodiversity protection and enhancement, such as major cultural values, similar arguments are difficult to mount for ocean areas despite the fact that many are equally iconic.

This paper looks at two such iconic large-scale, marine-based ecosystems. The first is solely within the national waters of the United States (U.S.): the Papahānaumokuākea Marine National Monument (PMNM). The other is principally on the high seas: the Sargasso Sea. Comparing the establishment of the PMNM and its protection under U.S. and international law with the efforts of the Sargasso Sea Alliance (SSA) to develop international protection measures for the Sargasso Sea reveals the opportunities and challenges of protecting and managing important large ocean ecosystems.

Regardless of whether large-scale marine areas occur in national or international waters, their protection provides a unique set of challenges. These areas often encompass large, pelagic processes and are also likely to encompass highly migratory species or dynamic oceanographic features that move in and out of an area's (typically) stationary legal boundaries. The animals or habitats may also be exposed to threats beyond the area's boundaries, and the threats they face outside must be accounted for in the development of protection measures and later in the creation of management plans and targets that will be effective as well as realistic and feasible. In addition, the Law of the Sea, reflected in the 1982 United Nations Law of the Sea Convention,

1. MILLENNIUM ECOSYSTEM ASSESSMENT, ECOSYSTEMS AND HUMAN WELL-BEING: BIODIVERSITY SYNTHESIS 69 (2005); ECOSYSTEM-BASED MANAGEMENT FOR THE OCEANS (Karen McLeod & Heather Leslie eds., 2009).

2. BASTIAN BERTZKY ET AL., PROTECTED PLANET REPORT 2012: TRACKING PROGRESS TOWARDS GLOBAL TARGETS FOR PROTECTED AREAS iv (2012) ("Today protected areas cover 12.7% of the world's terrestrial area and 1.6% of the global ocean area.").

recognizes significant differences in the regimes of national and international waters.³ A coastal state has full sovereignty in its internal waters and territorial sea out to twelve nautical miles from its coast.⁴ But beyond that in its exclusive economic zone (EEZ) and on its Continental Shelf, a coastal state only has sovereign rights over the resources of the water column and the seabed, and it must respect the rights of navigation and of other states.⁵ Moreover, in areas beyond national jurisdiction there are systemic problems highlighted by lacunae in the current regime of the Law of the Sea Convention itself.⁶

After introducing each of these special marine areas and their resources and ecosystems, this paper discusses the challenges of protecting and managing, or attempting to manage, important large ocean ecosystems. It contrasts the suite of measures available under U.S. national laws with those available under international treaty regimes. Whereas the Papahānaumokuākea Marine National Monument has developed a sophisticated protection and management regime that incorporates protections afforded by international law as well as national law, the work of the SSA, led by the government of Bermuda, is still very much a “work in progress.” The SSA is attempting to put protection measures in place for this high seas ecosystem, using the existing international sectoral treaty regimes governing issues such as maritime transport and vessel discharges, fishing, seabed mining, and others.

The paper then focuses on the important role of international cooperation, particularly through the international regimes available to protect ocean areas from the impacts of shipping and vessel source pollution through the International Maritime Organization (IMO) and the UNESCO World Heritage Convention. It contrasts the applicability of these regimes to national areas and areas beyond national jurisdiction. It also compares the capacities and management powers available under the national governance structure of PMNM with those available to

3. United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter LOSC].

4. *Id.* at 400 (LOSC article 3).

5. *Id.* at 502, 429-30 (LOSC articles 257, 77, and 78).

6. David Freestone, *Can We Protect High Seas Ecosystems Under Current International Law? Lessons from the Sargasso Sea Project*, in PROC. OF THE INT’L CONF. 30 YEARS OF SIGNATURE OF THE U.N. CONVENTION ON THE LAW OF THE SEA: THE PROTECTION OF ENVIRONMENT AND THE FUTURE OF THE LAW OF THE SEA 383, 392 (Marta Ribeiro, ed., 2014); David Freestone, *Problems of High Seas Governance*, in THE WORLD OCEAN IN GLOBALISATION: CHALLENGES AND RESPONSES 99, 102 (Davor Vidas & Peter Johan Schei eds., 2011).

a proposed Sargasso Sea Commission. Because dynamic ocean ecosystems also face evolving threats from climate change and ocean acidification, those special challenges are discussed toward the end of the paper.

A. *Two Important Marine Ecosystems, Two Very Different Legal Regimes*

1. *Introduction to the establishment of the Papahānaumokuākea Marine National Monument, including its dynamic nature, geography, and importance to our natural and cultural heritage*

The northwestern portion of the Hawaiian Islands contains a vast and isolated linear cluster of small, low-lying islands and atolls. These islands and atolls, along with their surrounding ocean and submerged lands, are known as Papahānaumokuākea. Papahānaumokuākea is roughly 250 kilometers northwest of the populated, southeastern Hawaiian Islands and extends over some 1,931 kilometers.⁷ It is the single largest conservation area under the U.S. flag and the country's first designated marine national monument.⁸ With a total area of around 362,075 square kilometers, it is one of the largest marine protected areas (MPAs) in the world.⁹

An ancestral environment, the vast ocean domain has deep cosmological and traditional significance. These seemingly peripheral islands played a central role in the formation of ancient Hawaiian religion and traditional society. Crossing the Tropic of Cancer, Papahānaumokuākea contains the physical intersection between pō (realm of the gods; darkness, where the sun does not reach a zenith overhead) and ao, (realm of life; light, where the sun reaches a zenith point overhead).¹⁰ Heiau (shrines) built on

7. These islands and atolls within Papahānaumokuākea are also known as the Northwestern Hawaiian Islands (NWHI), including Nihoa Island, Necker Island, French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan Island, Lisianski Island, Pearl and Hermes Reef, Midway Atoll, and Kure Island.

8. See *Antiquities Act 1906-2006: Monuments List*, NAT'L PARK SERV., U.S. DEP'T OF THE INTERIOR, <http://www.cr.nps.gov/archeology/sites/antiquities/MonumentsList.htm> (last visited Feb. 27, 2014) (listing National Monuments); see also MARINE MAMMAL COMM'N, ANNUAL REPORT TO CONGRESS 9 (2009), <http://www.mmc.gov/reports/annual/pdf/2009annualreport.pdf>; *The Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, 10 Years of Ocean Protection: Calendar Events*, PMNM, http://www.papahanaumokuakea.gov/tenth/history_lecture.html (last visited Feb. 27, 2014).

9. *Papahānaumokuākea Marine National Monument*, HAW. DIV. AQUATIC RES., state.hi.us/dlnr/dar/monument.html (last visited Apr. 7, 2014).

10. Kekuwa Kikiloi, *Rebirth of an Archipelago: Sustaining a Hawaiian Cultural Identity for People and Homeland*, 6 HŪLILI 73, 89-102 (2010).

Mokumanamana commemorate the birth of the first man, *iKi* born out of darkness at the intersection of *pō* and *ao* and are connected to a ritual system of temple sites built throughout the main Hawaiian Islands that follow the movement of the sun across the entire Hawaiian Islands.¹¹ As the westernmost place in the Hawaiian universe, many believe these islands and seas are the pathway upon which Native Hawaiians travel after death, returning to the realm of *pō*. Over the course of a four hundred year period from 1415 to 1815, the island of Mokumanamana became a ritual center of power which Hawaiian chiefly elites voyaged to and occupied to hold annual ceremonies reaffirming the west as a primary pathway of power and *whéire ali* (chiefly) status, authority and power once originated from.¹²

Significant cultural sites found on the islands of Nihoa and Mokumanamana are listed on the National and State Register for Historic Places.¹³ Papahānaumokuākea is also home to a variety of post-Western-contact historic resources, such as those associated with the Battle of Midway and nineteenth century commercial whaling.

Papahānaumokuākea also has deep biological and geological significance. Comprised of less than six square miles of land, the islands provide breeding and nesting habitat for over fourteen million seabirds of twenty-two species. These species include four species of bird found nowhere else in the world, including the world's most endangered duck, the Laysan teal.¹⁴ Along with their surrounding shallow water environments, these islands also provide important habitat for rare species including the endangered Hawaiian monk seal and threatened green sea turtle.¹⁵ The area includes a significant portion of the Hawai'i-Emperor hotspot trail, which constitutes an outstanding example of island

11. Kekewua Kikiloi, *Kūkulu Manamana: Ritual Power and Religious Expansion in Hawai'i: The Ethnohistorical and Archaeological Study of Mokumanamana and Nihoa Islands*, 313-327 (Dec. 2012) (unpublished Ph.D. dissertation, University of Hawai'i at Mānoa) (on file with author).

12. *Id.*

13. *Papahānaumokuākea's Archaeological Resources*, PMNM, www.papahanaumokuakea.gov/wheritage/archaeology.html (last updated Apr. 14 2014).

14. Press Release, United States Geological Survey, Most Endangered Duck Finds Refuge on Midway Atoll (Dec. 21, 2007), *available at* www.usgs.gov/newsroom/article.asp?ID=1843#UOMsdk1dUhw.

15. *About Us*, PMNM, <http://www.papahanaumokuakea.gov/about/> (last visited Nov. 30, 2013).

hotspot progression.¹⁶ Much of the area is made up of pelagic and deepwater habitats, with notable features such as seamounts and submerged banks, extensive coral reefs, lagoons, and fourteen square kilometers of emergent lands distributed between a number of eroded high islands, pinnacles, atoll islands, and shoals. The geomorphological history and isolation of the archipelago have led to the development of an extraordinary range of habitats and features, including an extremely high degree of endemism.

Largely as a result of its isolation, its marine ecosystems and ecological processes are virtually intact, leading to exceptional biomass accumulated in large apex predators, an increasingly rare phenomenon in the world's oceans.¹⁷ Large, predatory fish such as sharks, Giant Trevally, and groupers that are heavily depleted by fishing and therefore rarely seen in populated areas of the world are abundant in the waters of Papahānaumokuākea.¹⁸ With no fishing pressure and physical isolation from human impacts, the average biomass of fish in Papahānaumokuākea is more than 260% greater than in the main Hawaiian Islands.¹⁹ More than fifty-four percent of the total biomass consists of apex predators such as large jacks or trevally, sharks, and other species.²⁰ The reefs in the Papahānaumokuākea are among the few remaining large-scale, intact, predator-dominated reef ecosystems left in the world and offer an opportunity to understand how unaltered ecosystems are structured, how they function, and how they can most effectively be preserved.²¹

The terrestrial area of Papahānaumokuākea is a geographically diminutive, but critically important component of the overall marine ecosystem. Ninety-nine percent of the world's Laysan Albatrosses (listed as vulnerable by the International Union for Conservation of Nature (IUCN)) and ninety-eight percent of the world's Black-footed Albatrosses (listed as endangered by IUCN) nest, rest, and breed on the tiny islets in the chain.²² From an

16. *The Geology of Papahānaumokuākea*, PMNM, www.papahanaumokuakea.gov/wheritage/geology.html (last updated Apr. 11, 2014).

17. *Papahānaumokuākea as a Top Predator Dominated Ecosystem*, PMNM <http://www.papahanaumokuakea.gov/wheritage/predator.html> (last updated Apr. 11, 2014).

18. *Id.*

19. Alan Friedlander & Edward DeMartini, *Contrasts in Density, Size and Biomass of Reef Fishes Between the Northwestern and the Main Hawaiian Islands: The Effects of Fishing Down Apex Predators*, 230 MAR. ECOL. PROG. SER. 253, 260 (2002).

20. *Id.* at 257.

21. *Id.* at 258.

22. UNESCO World Heritage Inscription, PMNM,

evolutionary perspective, three Hawaiian honeycreepers—the extinct Laysan Honeycreeper and the extant Nihoa Finch and Laysan Finch—all members of the family Drepanididae, underwent one of the world’s most spectacular avian radiations from a single ancestral species.²³ This remarkable proliferation of species from a single ancestral type is often compared to the evolutionary radiation of Darwin’s finches on the Galapagos Islands.²⁴ This adaptive radiation occurred in other plants, insects and animals found in Papahānaumokuākea, including *Pritchardia remota*, an endangered fan palm found only on the island of Nihoa.²⁵ The island and atoll environments have, however, been altered through human use, and although some change is irreversible, there are also examples of successful restoration. In all, the area is host to numerous endangered and threatened species, both terrestrial and marine, some of which depend solely on Papahānaumokuākea for their survival.

2. *Introduction to the Sargasso Sea and the Sargasso Sea Alliance, including the Sea’s background, geography, importance, and dynamic nature*

The Sargasso Sea is a unique, four million square kilometer ecosystem located in the North Atlantic Ocean.²⁶ Its uniqueness derives in part from the fact that it is the world’s only sea without coasts.²⁷ Instead of land, it is bounded on all sides by major ocean currents.²⁸ These encircling currents trap water in the Sea for estimated periods of up to fifty years, which in turn concentrates *Sargassum*, the algae for which the Sea is known, as well as plastics and other pollutants in the ecosystem.²⁹

The surface layer of *Sargassum* is one of the most distinctive

<http://www.papahanaumokuakea.gov/wheritage/terrestrial.html> (last visited Nov. 30, 2013).

23. *Terrestrial Endemism in Papahānaumokuākea Marine National Monument*, PMNM <http://www.papahanaumokuakea.gov/wheritage/predator.html> (last updated Apr. 11, 2014).

24. *Id.*

25. STATE OF HAWAII ET AL., THE UNITED STATES OF AMERICA’S NOMINATION OF PAPAHAĀNAUMOKUĀKEA MARINE NATIONAL MONUMENT FOR INSCRIPTION ON THE WORLD HERITAGE LIST 4 (2009), *available at* http://www.papahanaumokuakea.gov/management/wh_docs/wh_full_app.pdf.

26. SARGASSO SEA ALLIANCE, PROTECTING THE SARGASSO SEA 2 (2011), *available at* www.sargassoalliance.org/storage/documents/SargassoBrochure.FIN.pdf.

27. *Id.*

28. *Id.*

29. *Id.* at 1.

characteristics of the Sargasso Sea. *Sargassum* is composed of two species of holopelagic algae, *Sargassum natans* and *Sargassum fluitans*, that accumulate and form large mats and windrows.³⁰ Many historical figures have commented on the distinctive nature of *Sargassum* mats.³¹ On his first voyage in 1492, Christopher Columbus recorded that on Friday, September 21, “at dawn they saw so much weed that the sea appeared to be covered with it, and it came from the west.”³² These days it is rare to find mats as thick as the ones that Christopher Columbus saw, likely due to the increase in passage of large vessels, but the mats still provide vital habitat for a number of species. Many, such as flying fish, white and blue marlins,³³ and albacore tuna use the *Sargassum* as nursery or feeding grounds,³⁴ while other commercially important tunas³⁵ and billfish migrate through the Sea, with swordfish rising from depths of 800 meters to feed on the surface at night.³⁶ The Sea is the only known place where the economically and culturally valuable American (*Anguilla rostrata*) and European (*Anguilla Anguilla*) eels spawn.³⁷ Flying fish lay bubble nests in the mats, and their eggs use long filaments to entangle the weed.³⁸ Juvenile turtles spend their “lost years” hiding and feeding amongst

30. DAN LAFFOLEY ET AL., THE PROTECTION AND MANAGEMENT OF THE SARGASSO SEA: THE GOLDEN FLOATING RAINFOREST OF THE ATLANTIC OCEAN 12 (2011), available at <http://www.sargassoalliance.org/storage/documents/Sargasso.Report.9.12.pdf>.

31. *Id.* at 10.

32. *Journal of the First Voyage of Columbus*, Entry for Friday, 21st of September, in THE NORTHMEN, COLUMBUS AND CABOT, 985-1503: ORIGINAL NARRATIVES OF EARLY AMERICAN HISTORY (Julius E. Olson & Edward Gaylord Bourne, eds. 1906), available at http://mith.umd.edu/eada/html/display.php?docs=columbus_journal.xml.

33. LAFFOLEY ET AL., *supra* note 30, at 14.

34. *Id.* at 15.

35. *Id.*

36. *Id.* at 16. See also Joshua Loefer et al., *Nocturnal Depth Distribution of Western North Atlantic Swordfish (Xiphias Gladius, Linnaeus, 1758) in Relation to Lunar Illumination*, 19 GULF & CARIBBEAN RESEARCH 83, 85 (2007).

37. The IUCN classifies the European eel as “‘critically endangered’ and at increasing risk of global extinction.” LAFFOLEY ET AL., *supra* note 30, at 22. The European Council established measures for its recovery in 2007. Council Regulation 100/2007, 2007 O.J. (L 248) 17. See also MATTHEW GOLLOCK, EUROPEAN EEL BRIEFING NOTE FOR SARGASSO SEA ALLIANCE (2011), available at http://www.sargassoalliance.org/storage/documents/No3_EuropeanEel_LO.pdf; MICHAEL MILLER & REINHOLD HANEL, THE SARGASSO SEA SUBTROPICAL GYRE: THE SPAWNING AND LARVAL DEVELOPMENT AREA OF BOTH FRESHWATER AND MARINE EELS (2011), available at http://www.sargassoalliance.org/storage/documents/No7_GyreEel_LO.pdf.

38. James K. Dooley, *Fishes Associated with the Pelagic Sargassum Complex, with a Discussion of the Sargassum Community*, 16 CONTRIBUTIONS TO MARINE SCI., 1, 9 (1972-73).

*Sargassum*³⁹ and the endangered endemic Bermuda petrel, the cahow, travels throughout the Sargasso Sea and beyond to feed on squid and fish.⁴⁰ White-tailed tropic birds (*Phaethon lepturus*), masked boobies (*Sula dactylatra*), and bridled terns (*Sterna anaethetus*) are reported to concentrate near *Sargassum* patches, which provide a focus for food and which can be dense enough for some birds, notably bridled and sooty terns (*Sterna anaethetus* and *Sterna fuscata*) to roost upon.⁴¹ It also appears that female porbeagle sharks migrate some 2,000 kilometers at depths of 500 meters from Canadian waters to give birth to their young in the Sargasso Sea.⁴² In total, it is estimated that the Sea provides habitat for over 145 invertebrate and 127 fish species.⁴³ These numbers include at least ten that are endemic to the *Sargassum* habitat, as well as many that are threatened, endangered, or critically endangered.

The Sargasso Sea is also of vital importance to global scale processes of oxygen production and carbon sequestration due to a combination of abundant photosynthetic bacteria, deep sunlit waters, and physical mixing processes. As a gyre ecosystem, the Sargasso Sea is conventionally regarded as being oligotrophic, but the annual net primary production is estimated to be three times higher than in the Barents Sea.⁴⁴

Although the location of the Sargasso Sea is to some extent variable with the movement of ocean currents, it surrounds Bermuda, which is an Overseas Territory of the United Kingdom.

39. Archie Carr & Anne Barkau Meylan, *Evidence of Passive Migration of Green Turtle Hatchlings in Sargassum*, 2 COPEIA 366, 366 (1980); Archie Carr, *Perspective on the Pelagic Stage of Sea Turtle Development*, 1 CONSERVATION BIOLOGY 103, 104 (1987); Frank J. Schwartz, *Aggregations of Young Hatchling Loggerhead Sea Turtles in the Sargassum Off North Carolina*, 42 MARINE TURTLE NEWS. 9, 9-10 (1988); Paolo Luschi et. al., *A Review of Long-Distance Movements by Marine Turtles and the Possible Role of Ocean Currents*, 103 OIKOS 293, 294 (2003).

40. JESSIE HALLETT, THE IMPORTANCE OF THE SARGASSO SEA AND THE OFFSHORE WATERS OF THE BERMUDIAN EXCLUSIVE ECONOMIC ZONE TO BERMUDA AND ITS PEOPLE 6 (2011), [available at http://www.sargassoalliance.org/storage/documents/No4_Importance_HI.pdf](http://www.sargassoalliance.org/storage/documents/No4_Importance_HI.pdf).

41. J. Christopher Haney, *Seabird Patchiness in Tropical Ocean Waters: The Influence of Sargassum "Reefs"*, 103 AUK 141, 146-49 (1986).

42. Steven E. Campana et al., *Subtropical Pupping Ground for a Cold-Water Shark*, 67 CAN. J. OF FISHERIES & AQUATIC SCI. 769, 771-73 (2010); see also Nicholas K. Dulvy et al., *You Can Swim But You Can't Hide: The Global Status and Conservation of Oceanic Pelagic Sharks and Rays*, 18 AQUATIC CONSERVATION: MAR. & FRESHWATER ECOSYSTEMS 459, 470 (2008).

43. LAFFOLEY ET AL., *supra* note 30, at 13.

44. Deborah K. Steinberg et al., *Overview of the US JGOFS Bermuda Atlantic Time-Series Study (BATS): A Decade-Scale Look at Ocean Biology and Biochemistry*, 48 DEEP-SEA RES. II 1405, 1447 (2001).

Bermuda claims an EEZ⁴⁵ of 200 nautical miles that totals approximately 464,940 square kilometers or 179,514 square miles. The remainder of the Sargasso Sea beyond the Bermuda EEZ is largely an Area Beyond National Jurisdiction (ABNJ). Under international law, ABNJ “are open to all States, whether coastal or landlocked” and are not subject to sovereign control.⁴⁶ In some areas of the world, regional environmental treaties (such as OSPAR, the 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic) or regional fisheries agreements (such as the Northeast Atlantic Fisheries Commission (NEAFC)) are in place to govern areas of importance that are beyond national jurisdiction like the Sargasso Sea, but there are no regional frameworks of this kind for this part of the Atlantic.⁴⁷ However, there are several sectoral treaties applicable to the Sea that govern a variety of ocean uses. These treaties are discussed in detail below.

In 2010, the Government of Bermuda, recognizing the importance of the Sargasso Sea, led the formation of a partnership of government, conservation, and marine science organizations and individuals.⁴⁸ The SSA has three primary objectives:

- build an international partnership that will secure recognition of the ecological significance of the Sargasso Sea and the threats that it faces;
- use existing regional, sectoral, and international organizations to secure a range of protective measures for all or parts of the Sargasso Sea to address key threats; and
- use the process as an example of what can and cannot be delivered through existing institutions in areas beyond national jurisdiction.⁴⁹

45. “The exclusive economic zone is an area beyond and adjacent to the territorial sea, subject to the specific legal regime established in this Part, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of [the U.N. Convention on the Law of the Sea].” LOSC, *supra* note 3, at 418.

46. *Id.* at 432.

47. *See generally* NE. ATLANTIC FISHERIES COMM’N & OSPAR, MEMORANDUM OF UNDERSTANDING BETWEEN THE NORTHEAST ATLANTIC FISHERIES COMMISSION (NEAFC) AND THE OSPAR COMMISSION (2008), *available at* www.ospar.org/html_documents/ospar/html/mou_neafc_ospar.pdf.

48. LAFFOLEY ET AL., *supra* note 30, at iv. Members include the government of Bermuda, the IUCN, Woods Hole Oceanographic Institution, World Wildlife Fund International, Marine Conservation Institute, Mission Blue/Sylvia Earle Alliance, the Bermuda Underwater Exploration Institute, Atlantic Conservation Partnership, and the Bermuda Institute for Ocean Sciences.

49. *About the Alliance, SARGASSO SEA ALLIANCE*, <http://www.sargassoalliance.org/about-the-alliance> (last visited Oct. 8, 2013).

In sum, the SSA aims to address the threats to the health of the Sargasso Sea through existing international and regional sectoral organizations. In particular, it may address threats from shipping and vessel source pollution through the International Maritime Organization (IMO); from fishing through the International Commission for the Conservation of Atlantic Tunas (ICCAT); and for the portion of the Sargasso Sea above 35°N, the North-Atlantic Fisheries Organization (NAFO). The SSA is the first organization to attempt to conserve an ABNJ through sectoral measures and thus could operate as a prototype to conserve other ABNJs in the future.

II. MANAGEMENT FRAMEWORKS AND CHALLENGES

A. *Papahānaumokuākea Marine National Monument*

1. *Definition of Papahānaumokuākea*

Papahānaumokuākea—which is the name Native Hawaiians selected for the monument⁵⁰—combines the names of two sacred Hawaiian deities: Papahānaumoku, the goddess of the earth, and Wākea, her husband and god of the sky. In Hawaiian tradition, these two figures are responsible for the creation of the entire Hawaiian archipelago, and they are the most recognized ancestors of the Native Hawaiian people. The name recognizes the great spiritual and cultural importance of the Northwestern Hawaiian Islands (NWHI) to Hawaii’s indigenous people and also reflects the holistic protection afforded to the area’s natural and cultural resources.⁵¹

2. *Frameworks and challenges in cooperative management by federal and state agencies*

Papahānaumokuākea is protected by a layer of state, federal, and international legal regimes. Federal protection of the area has been afforded primarily through the exercise of presidential authority, formally beginning in 1909 when President Theodore Roosevelt designated the Hawaiian Islands Reservation to preserve the islets and reefs.⁵² Although originally intended to protect seabirds, the reservation was designated as the Hawaiian Islands

50. Proclamation No. 8031, 71 Fed. Reg. 36,443 (June 26, 2006); Proclamation No. 8112, 72 Fed. Reg. 10,031 (Mar. 6, 2007).

51. STATE OF HAWAII ET AL., *supra* note 25, at 28.

52. Exec. Order No. 1019 (1909).

National Wildlife Refuge in 1940 by a proclamation of President Franklin D. Roosevelt.⁵³ The islands and waters surrounding Midway Atoll were not part of the reservation (or subsequent refuge) but received significant protection when President Theodore Roosevelt placed jurisdiction and control of the area under the Navy in 1903.⁵⁴ President Clinton transferred the area to the Department of the Interior in 1996, converting it into the Midway Atoll National Wildlife Refuge.⁵⁵

After the Clinton Administration considered various options for protecting the federal and EEZ waters around the NWHI, Congress authorized the creation of a coral reef ecosystem reserve that would be managed by the Secretary of Commerce (through the National Oceanic and Atmospheric Administration (NOAA)) “in a manner consistent with the purposes and policies of [the National Marine Sanctuaries Act].”⁵⁶ Using this authority, President Clinton established the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.⁵⁷ At the same time, Congress directed the Secretary to initiate the process to designate the reserve as a National Marine Sanctuary, following the procedures set forth in the NMSA.⁵⁸

In June of 2006, President Bush abandoned the sanctuary designation process, choosing instead to designate the area as a Marine National Monument pursuant to his authority under the Antiquities Act.⁵⁹ With the stroke of a pen, President Bush extended protection to all federally owned or controlled lands and waters surrounding the islands, out to a distance of fifty miles.⁶⁰ By designating the area as a National Monument, President Bush eliminated the need for further rulemaking and environmental review that would have been required to establish a National Marine Sanctuary.⁶¹ The new national monument overlaid the existing National Wildlife Refuges and the Coral Reef Ecosystem Reserve, extending seaward to roughly the same outer boundary as

53. Proclamation No. 2416, 5 Fed. Reg. 2,677 (July 25, 1940).

54. Exec. Order No. 199-A (1903).

55. Exec. Order No. 13,022, 61 Fed. Reg. 56,875 (Nov. 4, 1996).

56. National Marine Sanctuaries Amendments Act of 2000, Pub. L. No. 106-513 § 6(g), 114 Stat. 2383 (2000).

57. Exec. Order No. 13,178, 65 Fed. Reg. 76,903 (Dec 7, 2000).

58. National Marine Sanctuaries Act, 16 U.S.C. § 1434 (2012) (outlining the process required to designate a National Marine Sanctuary).

59. Antiquities Act, 16 U.S.C. §§ 431-433 (2012).

60. Proclamation No. 8031, 71 Fed. Reg. at 36,443.

61. 16 U.S.C. § 1434.

the Reserve.⁶²

The terms of President Bush's Proclamation No. 8031 borrowed heavily from draft regulations and management concepts that had been prepared for the planned National Marine Sanctuary. It directs the Secretaries of the Departments of Interior and Commerce to prohibit activities that could damage or injure natural or cultural resources, including fishing.⁶³ Access into the Monument is restricted to the extent consistent with the international Law of the Sea, and all activities require a permit, with the exception of law enforcement, activities and exercises of the Armed Forces, passage without interruption, and emergency response.⁶⁴ The Secretaries collaborated to promulgate federal regulations that would implement the terms of the proclamation.⁶⁵ With limited exceptions, they prohibit removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving resources, or attempting any of these actions.⁶⁶ There is no commercial fishing in the Monument,⁶⁷ and limited recreational fishing and taking of resources for cultural purposes or research can be conducted only pursuant to permits issued by the Monument Co-Trustees (U.S. Fish and Wildlife Service (FWS), NOAA, and the State of Hawaii).⁶⁸ Domestic vessels passing through the Monument without interruption must provide notification not less than seventy-two hours prior to entering and within twelve hours of leaving, and must be equipped with an approved vessel monitoring system.⁶⁹

62. Proclamation No. 8031, 71 Fed. Reg. at 36,443.

63. *Id.* at 36,446.

64. *Id.*

65. 50 C.F.R. § 404.1 (2006).

66. *Id.* §§ 404.6, 407(a).

67. *Id.* § 404.10(b)(3).

68. *Id.* § 404.11.

69. *Id.* §§ 404.4(f)(1), 404.5. In addition to the reporting requirements under these Monument regulations, as part of the IMO's Particularly Sensitive Sea Area (PSSA) designation process, on October 8, 2007, the IMO's Maritime Safety Committee adopted U.S. proposals for two associated protective measures designed to prevent damage to this fragile and integrated coral reef ecosystem from international shipping activities. First, the IMO approved the expansion and amendment of the six existing recommended Areas to be Avoided (ATBAs) in the area, enlarging the class of vessels to which they apply and augmenting the geographic scope of these areas as well as adding new ATBAs around Kure and Midway atolls. The ATBAs will appear on domestic and international nautical charts to direct vessels away from coral reefs, shipwrecks, and other ecologically sensitive or culturally significant areas in the PSSA that may also be hazardous to navigation. Second, the IMO approved a ship reporting system for vessels transiting the Monument, which is mandatory for ships entering or departing a U.S. port or place and recommended for other ships. The ship reporting system will provide critical alerts and other information

As the Antiquities Act applies only to federally owned or controlled lands, the proclamation does not impact state lands and waters in the Monument.⁷⁰ The proclamation notes that it neither diminishes nor enlarges the jurisdiction of the State of Hawaii.⁷¹ During the development of the planned National Marine Sanctuary, the State of Hawaii established the Northwestern Hawaiian Islands Marine Refuge in 2005, requiring a permit for access to state lands and waters within the NWHI, such as the wildlife/seabird sanctuary at Kure Atoll.⁷² It is the combination of federal laws (particularly the monument overlay) and state law that provide comprehensive protection to all the emergent and submerged lands, waters, and natural and cultural resources in the NWHI. Management of Papahānaumokuākea reflects these layers.

The Proclamation assigns primary management responsibility of the marine areas to NOAA on behalf of the Secretary of Commerce.⁷³ Exclusive responsibility for management of the areas of the Monument that overlay the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge is vested in the FWS for the Secretary of the Interior. Each agency is directed to consult with the other regarding the management of its respective area.⁷⁴

In December 2006, the Secretaries and the Governor of the State of Hawaii entered into a Memorandum of Agreement to cooperatively manage their respective areas in a manner that would provide comprehensive conservation and protection to the entire area.⁷⁵ The memorandum identifies FWS, NOAA, and the State of Hawaii as Co-Trustees and establishes a Senior Executive

to assist mariners in navigating safely through the area. The final rule implementing the IMO-adopted ship reporting system was published by NOAA and the U.S. Fish and Wildlife Service on December 3, 2008. Papahānaumokuākea Marine National Monument Proclamation Provisions, 73 Fed. Reg. 73,592 (Dec. 3, 2008).

70. 16 U.S.C. § 431 (President's authority only extends to lands and objects "that are situated upon the lands owned or controlled by the Government of the United States").

71. 71 Fed. Reg. at 36,444.

72. *Northwestern Hawaiian Islands Marine Refuge*, HAW. DIV. AQUATIC RES., state.hi.us/dlnr/dar/regulated_areas_nwhi.html (last visited Apr. 7, 2014).

73. Proclamation No. 8031, 71 Fed. Reg. at 36,444.

74. *Id.*

75. MEMORANDUM OF AGREEMENT (MOA) AMONG THE STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES AND THE U.S. DEPARTMENT OF THE INTERIOR U.S. FISH AND WILDLIFE SERVICE, AND THE U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION FOR PROMOTING COORDINATED MANAGEMENT OF THE NORTHWESTERN HAWAIIAN ISLANDS MARINE NATIONAL MONUMENT (2006), available at http://www.papahanaumokuakea.gov/PDFs/MOA_Dec06_Color.pdf [hereinafter MOA].

Board representing the Co-Trustees to provide policy oversight. An onsite Monument Management Board (MMB) provides day-to-day management, planning, and monitoring of activities within Papahānaumokuākea. The Board consists of seven members, two each from FWS and NOAA, and three from the State of Hawaii. They include designees from NOAA's Office of National Marine Sanctuaries and National Marine Fisheries Service; FWS's National Wildlife Refuge Program and Pacific Islands Fish and Wildlife Office; and the State of Hawaii Department of Land and Natural Resources' Division of Aquatic Resources, Division of Forestry and Wildlife, and Office of Hawaiian Affairs.⁷⁶

The MMB meets quarterly or more often as necessary. One of its key functions is to review and make decisions regarding permit applications. The Proclamation and the federal implementing regulations describe six types of permits that may be issued for access and the conduct of otherwise prohibited activities in the Monument. The MMB considers each application in light of permit issuance criteria set forth in the proclamation and determines whether a permit may be issued and, if so, under what terms and conditions. Permit applications are subject to standard terms and conditions that have been adopted by the Co-Trustees.⁷⁷

All permits for activities conducted in Papahānaumokuākea are issued as single, unified permits that are signed by representatives of all three Co-Trustees.⁷⁸ The single permit does not replace existing legal authorities but instead consolidates them and indicates that the permitting requirements of each Co-Trustee have been met and that the permitted activity may be conducted lawfully.⁷⁹

The joint management plan developed by the Co-Trustees guides the MMB in its management efforts in areas such as conservation, research, monitoring, enforcement, education, Native Hawaiian practices, cultural resources, permitting, and field operations.⁸⁰ Public input informs management decisions and permit issuance through several methods. A Reserve Advisory

76. *Id.*; STATE OF HAWAII ET AL., *supra* note 25, at 177.

77. *Permitting*, PAPAHAANAUMOKUĀKEA MARINE NATIONAL MONUMENT, <http://www.papahanaumokuakea.gov/permit/applicationpro.html> (last visited Jan. 10, 2014).

78. STATE OF HAWAII ET AL., *supra* note 25, at 193.

79. Separate permits from NOAA and the Department of the Interior are still necessary for activities involving listed species protected under the Migratory Bird Treaty Act, Endangered Species Act, and Marine Mammal Protection Act.

80. STATE OF HAWAII ET AL., *supra* note 25, at 199.

Council, established by NOAA at the direction of President Clinton in the Executive Order establishing the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve,⁸¹ continues to function and has advised NOAA concerning resources and activities in the Reserve. Since the Reserve was the precursor to the Monument and covers largely the same submerged lands and marine waters, the opinions of the Council are especially helpful to NOAA. Membership on the Council is described in the Executive Order and includes Native Hawaiians, marine scientists, NGO representatives, commercial and recreational fishing representatives, a representative of the State appointed by the Governor, and representatives of various federal agencies and management bodies.⁸² More recently, the Co-Trustees have begun the process to establish a Monument Alliance to provide input to the Co-Trustees on management activities throughout the Monument.⁸³ NOAA and FWS are currently engaged in the process that would enable the Alliance to become an advisory council consistent with the legal requirements of the Federal Advisory Committee Act (FACA).⁸⁴

The MMB also receives input from an Interagency Coordinating Committee representing other federal and state agencies.⁸⁵ The committee includes representatives of the U.S. Coast Guard, the Navy, the U.S. Environmental Protection Agency, the State of Hawaii Department of Health, and the Marine Mammal Commission, among others. The committee meets twice a year and advises the MMB regarding specific operational topics such as law enforcement and marine debris.

Public input on permit applications is provided to the Co-Trustees in various ways. Applications are posted and available for review on the Monument webpage, and environmental analyses prepared in compliance with federal and state environmental procedural laws are also subject to public comment. The State of Hawaii Board of Land and Natural Resources conducts public hearings and receives public comment as part of its review of

81. Exec. Order No. 13,178, *supra* note 57.

82. *Id.*

83. PAPAĀNAUMOKUĀKEA MARINE NAT'L MONUMENT, MANAGEMENT PLAN 273 (2008), available at http://www.papahanaumokuakea.gov/management/mp/vol1_mmp08.pdf [hereinafter PAPAĀNAUMOKUĀKEA MANAGEMENT PLAN].

84. Pub. L. No. 92-463, § 1, 86 Stat. 770 (1972), *reprinted in* 5 U.S.C. app. at 491 (2012).

85. MOA, *supra* note 75, at 8; PAPAĀNAUMOKUĀKEA MANAGEMENT PLAN, *supra* note 83, at 264.

applications for permits in State areas of the Monument. Native Hawaiian input on management, permits, and activities in the Monument is provided through the Native Hawaiian Cultural Working Group, co-facilitated by the Office of Hawaiian Affairs and NOAA's Office of National Marine Sanctuaries. The group has offered support on permit review and the continuing development of permit conditions and cultural protocols as they relate to Native Hawaiian practices in the Monument.⁸⁶

NOAA's Office of Law Enforcement and FWS's law enforcement staffs support Law enforcement operations in the Monument. The Coast Guard patrols areas of the Monument regularly with aircraft and ships. In addition to regulations promulgated specifically for the Monument, an extensive array of state and federal legal authorities predating Monument designation continue to apply to resources in Papahānaumokuākea and are enforced by the Co-Trustees.⁸⁷

B. *The Sargasso Sea*

1. *Definition of the Sargasso Sea*

The Sargasso Sea is a unique open ocean ecosystem, named after two species of holopelagic *Sargassum* weed (*Sargassum fluitans* and *S. natans*), found in mats and windrows within the gyre of the subtropical North Atlantic.⁸⁸ The clockwise flow of the currents surround the gyre: the Gulf Stream and the North Atlantic Drift to the west and north, the Canary Current to the east, and the North Equatorial Current and Antilles Current to the south.⁸⁹ Within this gyre the *Sargassum* mats move constantly, changing the boundaries of the Sargasso Sea.⁹⁰

As Laffoley reports:

To refine this general location and to ensure that the area of interest incorporates essential oceanographic and environmental characteristics [,] the Sargasso Sea Alliance commissioned a new map based on criteria such as ocean current and eddy occurrence, remote sensing of *Sargassum* weed, and seabed topography. . . . Because the Canary current is more diffuse and variable than the other currents the eastern boundary is more ill-

86. STATE OF HAWAII ET AL., *supra* note 25, at 165, 189.

87. *Id.*, at 203, 181-189.

88. LAFFOLEY ET AL., *supra* note 30, at 12.

89. *Id.* at 7.

91. *Id.*

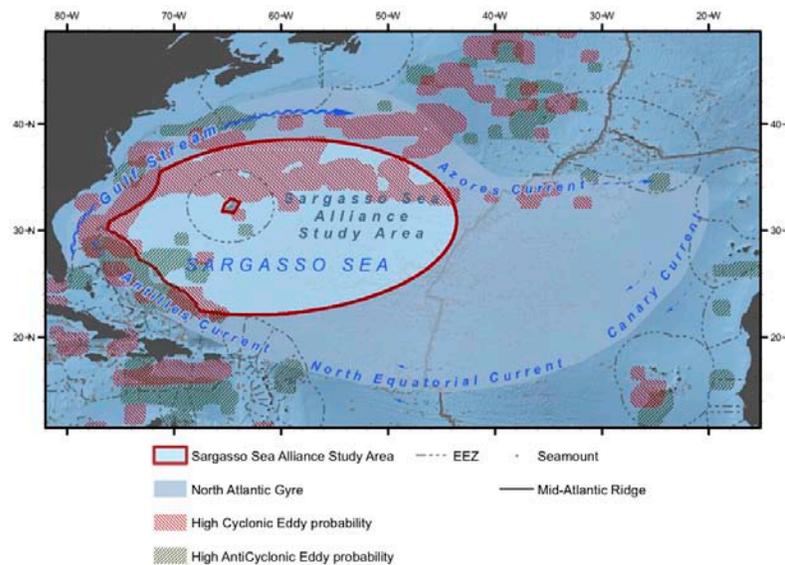
defined, so the eastern boundary of the Sargasso Sea is pragmatically considered to lie to the west of the mid-Atlantic Ridge in the western basin of the Atlantic Ocean. Again for pragmatic reasons all of these boundaries were placed outside the EEZs of all adjacent countries except for Bermuda.⁹¹

The resultant “Sargasso Sea Study Area” overlaps broadly with previous delineations and is shown in Figure 1. It occupies 4,163,499 square kilometers in an area extending between 22°-38°N, 76°-43°W and centered on 30°N and 60°W.⁹²

91. *Id.*

92. *Id.*

Figure 1: Map of the Sargasso Sea Alliance Study Area⁹³



2. Implementing the sectoral approach: Participation in international treaty regimes

The leadership of Bermuda is crucial to the success of the SSA's work. Bermuda is an overseas territory of the United Kingdom (U.K.). It is self-governing, but its head of state is Queen Elizabeth II, whose representative is the Governor.⁹⁴ Under a General Entrustment Agreement signed between Bermuda and the U.K., Bermuda has limited rights to enter into external relations arrangements with certain countries, such as the U.S. and Commonwealth countries, in relation to specific subject areas.⁹⁵ International treaties to which the U.K. is party can be extended to Bermuda at its request.⁹⁶ This can raise some interesting situations.

For example, in relation to the International Convention for

93. JEFF ARDRON ET AL., SARGASSO SEA ALLIANCE SCIENCE REPORT SERIES NO. 2, WHERE IS THE SARGASSO SEA? A REPORT SUBMITTED TO THE SARGASSO SEA ALLIANCE 4 (2011), available at http://www.sargassoalliance.org/storage/documents/No2_WhereistheSS_LO.pdf.

94. See Bermuda Constitution Order 1968, BX 182 / 1968 [made by Her Majesty-in-Council under the Bermuda Constitution Act 1967 of the United Kingdom [title 2 item 9] available at <http://www.bermudalaws.bm/Laws/Consolidated%20Laws/Bermuda%20Constitution%20Order%201968.pdf>.

95. See ANTHONY AUST, MODERN TREATY LAW AND PRACTICE 72 (2d ed. 2007).

96. *Id.*

the Conservation of Atlantic Tunas (ICCAT),⁹⁷ the U.K. is no longer a separate party to ICCAT because the European Union (E.U.) has exclusive fishery competence for its Member States and has been a member of ICCAT since 1997.⁹⁸ The U.K. retains membership only in relation to its overseas territories, including Bermuda, which have separate quota allocations from ICCAT. The U.K. is a party to the Convention on Biological Diversity, but membership has not been extended to Bermuda.⁹⁹ Bermuda is not a separate member of the International Maritime Organization.¹⁰⁰

Due to this complex relationship, the approval and support of the U.K. is fundamental to the SSA approach to conserving the Sargasso Sea through international sectoral approaches. Prior to lending its support, the U.K. Foreign and Commonwealth Office requested a scientific, peer-reviewed report documenting the importance of the Sargasso Sea. Following the release of a SSA report in 2011,¹⁰¹ the British government agreed to work with the government of Bermuda and the SSA to protect the Sargasso Sea “through the appropriate forums.”¹⁰² The following sections detail these forums and the success to date.

a. *United Nations*

The SSA led by Bermuda has seen a lot of success with outreach to United Nations bodies. It has given side events at meetings of the Ad Hoc Open-ended Informal Working Group to Study Issues Relating to the Conservation and Sustainable Use of Marine Biological Diversity beyond Areas of National Jurisdiction and the U.N. Informal Consultative Process on the Law of the Sea. In 2012, South Africa, the U.K., and the U.S. presented a joint

97. The International Convention for the Conservation of Atlantic Tunas, May 14, 1966, 20 U.S.T. 2887, 673 U.N.T.S. 63 [hereinafter ICCAT]. ICCAT currently has forty-eight parties. *Contracting Parties*, ICAAT, <http://www.iccat.int/en/contracting.htm> (last visited Feb. 27, 2014).

98. *Id.*; see RONAN LONG, MARINE RESOURCES LAW 180-254 (Thomson Round Hall ed., 2007) (explaining EU exclusive fishery competence, especially p. 207-09); see also ROBIN CHURCHILL & DANIEL OWEN, THE EEC COMMON FISHERIES POLICY 300-398 (2010) (particularly p. 363 regarding NAFO and p. 371 regarding ICCAT).

99. *List of Parties*, CONVENTION ON BIOLOGICAL DIVERSITY, <https://www.cbd.int/convention/parties/list/> (last visited Feb. 27, 2014).

100. *Member States*, INTERNATIONAL MARITIME ORGANIZATION, <http://www.imo.org/About/Membership/Pages/MemberStates.aspx> (last visited Feb. 27, 2014).

101. LAFFOLEY ET AL., *supra* note 30.

102. Owain Johnston-Barnes, *UK Supporting Efforts to Create Marine Reserve*, ROYAL GAZETTE, July 13, 2013, <http://www.royalgazette.com/article/20120713/NEWS07/707139917>.

proposal to the United Nations General Assembly supporting recognition of the SSA's work in the Annual Omnibus Resolution on Oceans and Law of the Sea. In response, the General Assembly "[t]akes note of the efforts of the Sargasso Sea Alliance, led by the Government of Bermuda, to raise awareness of the ecological significance of the Sargasso Sea."¹⁰³ In 2013, the U.K., the U.S., and The Bahamas proposed language for the 2013 Resolution, and the same wording was repeated in the 2013 Resolution.

b. United Nations Convention on Biological Diversity

The Convention on Biological Diversity (CBD) was signed at the Earth Summit held in Rio de Janeiro in 1992 and came into force on December 29, 1993.¹⁰⁴ It has a two-fold objective: (1) to conserve biological diversity and the sustainable use of its components and (2) to provide for the equitable sharing of benefits of using genetic resources.¹⁰⁵ Under the CBD, parties agreed to develop national strategies for the conservation of biological diversity, integrate conservation into sectoral or cross-sectoral plans, develop identification and monitoring schemes, and establish a system of protected areas, among other obligations.¹⁰⁶ At the tenth session of the Conference of the Parties (COP) to the CBD, the parties decided to establish a science-based process of identifying ecologically or biologically significant marine areas (EBSAs).¹⁰⁷

At the Wider Caribbean and Western Mid-Atlantic Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas, 28 February–2 March 2012, the Government of Bermuda put forward a proposal for the "description" of the Sargasso Sea as an EBSA.¹⁰⁸ After further

103. G.A. Res. 67/78, ¶ 199, U.N. Doc A/RES/67/78 (Dec. 11, 2012).

104. Convention on Biological Diversity, June 4, 1992, 1760 U.N.T.S. 79 [hereinafter CBD]; see *History of the Convention*, CONVENTION ON BIOLOGICAL DIVERSITY, <https://www.cbd.int/history/> (last visited Feb. 27, 2014).

105. *Id.* at 146 (article 1).

106. *Id.* at 148-49 (articles 6-8).

107. CBD Decision X/29, ¶ 36 (providing "[The] primary objective of this process is to facilitate the description of ecologically or biologically significant marine areas through application of scientific criteria in annex I of decision IX/20 as well as other relevant compatible and complementary nationally and intergovernmentally agreed scientific criteria, as well as the scientific guidance on the identification of marine areas beyond national jurisdiction, which meet the scientific criteria in annex I to CBD Decision IX/20.").

108. *Wider Caribbean and Western Mid-Atlantic Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas (EBSAs)*, CONVENTION ON

recommendation by the CBD Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), the Sargasso Sea was included in the list of areas officially “described” as EBSAs in accordance with decision X/29 at the 11th CBD COP in October 2012.¹⁰⁹ The “description” of an area as an EBSA does not itself carry any legal status, but rather is intended to be utilized by sectoral organizations to assist them in developing appropriate protection measures for important marine areas. The SSA and Bermuda are the first to use the EBSA description to help strengthen the scientific basis for protective measures at other sectoral entities.¹¹⁰

Conceptually, a science-driven description of certain marine areas as “ecologically or biologically significant” does in theory have the potential to act as a unifying concept that each sector could recognize and utilize in its own way. Unfortunately, in the early experience of the Sargasso Sea, although the description has certainly increased international recognition of the ecological importance of the area, the EBSAs have yet to garner tractable credibility with the sectoral organizations. Given the challenges of influencing individual organizations with an EBSA description, the SSA experience further indicates that a much longer time scale will be required to overcome the “silo effect” of fragmented governance across organizations. As the Sargasso Sea is the first EBSA description being applied in the pursuit of sectoral measures, it serves as a useful case study for others attempting to use the “description” as a justification for improved conservation or protection measures.¹¹¹

c. Fisheries organizations

Bermuda continues to pursue measures through the U.K. under ICCAT, which covers the full Atlantic Ocean, although its legal remit is limited to “tunas and tuna-like species.”¹¹² ICCAT

BIOLOGICAL DIVERSITY, <http://www.cbd.int/doc/?meeting=RWEBSA-WCAR-01> (last visited Apr. 12, 2014).

109. Conference of the Parties to the Convention on Biological Diversity, Description of areas meeting the scientific criteria for ecologically or biologically significant marine areas (EBSAs), U.N. Doc. UNEP/CBD/COP/DEC/XI/17 (Dec. 12, 2012). See also COP 11 Decision XI/17, CBD, <https://www.cbd.int/decision/cop/default.shtml?id=13178>

110. David Freestone and Kate Killerlain Morrison, *The Sargasso Sea Alliance: Seeking to Protect the Sargasso Sea*, 27 INT’L J. MARINE & COASTAL L. 647, 655 (2012).

111. *Id.*

112. ICCAT, *supra* note 96, at art. IV. (providing that

“In order to carry out the objectives of this Convention the Commission shall be

was adopted in Rio de Janeiro, Brazil in 1966 and came into force in 1969. ICCAT is an intergovernmental organization that works to conserve tuna and tuna-like species in the Atlantic Ocean and bordering seas.¹¹³

The Sargasso Sea is not a new topic for ICCAT. In 2005, prior to the formation of the SSA, the United States proposed a resolution (Resolution 05-11) concerning *Sargassum* in a November ICCAT Commission meeting. The Resolution requested Contracting Parties to provide ICCAT's Scientific Body, the Standing Committee on Research and Statistics (SCRS), with information and data on activities impacting *Sargassum* directly or indirectly throughout the Convention area, and particularly in the Sargasso Sea. In 2006, the SCRS Sub-Committee on Ecosystems requested that scientists from the Contracting Parties provide the relevant information. However, the request appears to have been unproductive because there was no further progress on the Resolution. Nevertheless, in 2011, Bermuda attended a meeting of the Sub-Committee on Ecosystems in May of 2011 and made a presentation on the importance of the Sargasso Sea ecosystem on behalf of the SSA, and the Sub-Committee renewed its request for information. Following this meeting, Bermuda also introduced the SSA's objectives at a meeting of the full ICCAT Commission in Istanbul in November 2011.

The next year, Bermuda again attended a full ICCAT Commission meeting and proposed a recommendation that the SCRS "examine the data compiled on the Sargasso Sea and the impacts of fishing activity on tuna and tuna-like species and on the ecosystem in the area, and that it consider the viability of establishing special conservation and management measures within the Sargasso Sea."¹¹⁴ The recommendation highlighted the conservation measures and ecosystem considerations mandated by the 1982 Law of the Sea Convention and the 1995 U.N. Fish Stocks Agreement, and also emphasized that many states are starting to consider ecosystem principles in managing their fisheries. Several

responsible for the study of the populations of tuna and tuna-like fishes (the Scombriformes with the exception of the families Trichiuridae and Gempylidae and the genus Scomber) and such other species of fishes exploited in tuna fishing in the Convention area as are not under investigation by another international fishery organization.").

113. *Id.*

114. David Freestone & Kate Killerlain Morrison, *Sargasso Sea Alliance: Leveraging an EBSA Description for High Seas Protection*, GLOBAL OCEAN BIODIVERSITY INITIATIVE NEWSL., October 2013, at 5.

delegations, including the E.U. and the U.S., supported the proposed recommendation, but it did not have universal support. Nevertheless, the Commission did request the SCRS to examine the available data concerning the Sargasso Sea. Specifically, the ICCAT Commission resolved:

1. The SCRS will examine the available data and information concerning the Sargasso Sea and its ecological importance to tuna and tuna-like species and ecologically associated species.
2. The SCRS will provide an update on the progress of this work in 2014 and report back to the Commission with its findings in 2015.¹¹⁵

Bermuda again participated in the July 2013 ICCAT Ecosystems Subcommittee meeting. It presented on an inventory report and explanation of the significance of the Sargasso Sea for tuna and tuna-like species.¹¹⁶ The ICCAT Ecosystem Subcommittee report states that discussions noted:

The Group recommends continuing the contact with Sargasso Sea research teams and the U.K.-Bermuda scientists to develop a scientific collaborative plan to accomplish objective 2 of Res [12-12]. Additionally, the Group recognized that the above work is providing a useful foundation for adopting this region as a basis for a case study in implementing the Ecosystem Based Fisheries Management (EBFM) approach within ICCAT and this collaboration should continue to be supported.¹¹⁷

In September 2012, at the Northwest Atlantic Fisheries Organization (NAFO) Fisheries Commission, on a proposal from the U.K., the E.U., with the strong support of the U.S., put forward a proposal for special conservation measures for the areas of the Sargasso Sea EBSA north of 35°N, and thus inside the NAFO Regulatory Area. After a vigorous discussion, this was referred to the NAFO Scientific Council to be considered at its June 2013

115. Int'l Convention for the Conservation of Atlantic Tunas, *Resolution by ICATT on the Sargasso Sea*, Res. 12-12, (2012) in ICCAT, REPORT FOR BIENNIAL PERIOD 2012-13, PT. I (2012) - VOL. 1 AT 215, available at http://www.iccat.es/Documents/BienRep/REP_EN_12-13_I_1.pdf.

116. INT'L CONVENTION FOR THE CONSERVATION OF ATLANTIC TUNAS SECRETARIAT, SUB-COMMITTEE ON ECOSYSTEMS, REPORT FROM THE 2013 INTER-SESSIONAL MEETING OF THE SUB-COMMITTEE ON ECOSYSTEMS 2 (2013), available at http://www.iccat.int/Documents/Meetings/Docs/2013_SC-ECO_REPORT_ENG.pdf.

117. *Id.*

meeting,¹¹⁸ then deferred to September 2013, at which point the proposals were sent for consideration by the joint Fishery Commission/Science Council Working Group on Ecosystem Approach Framework to Fisheries management.¹¹⁹

d. Seabed mining and work with the international seabed authority

The Law of the Sea Convention and the 1994 Agreement Relating to the Implementation of Part IX of the Law of the Sea Convention created the International Seabed Authority (ISA), which has jurisdiction over mineral resource extraction in the seabed of ABNJ, known legally as the “Area.”¹²⁰ Although interest in deep-sea mining has increased over the past few years, it has not yet reached the SSA Study Area.

The geological context of the region suggests that mineral resources may be found in the Sargasso Sea Study Area. While some resources like aggregates or phosphates are likely not viable for exploitation,¹²¹ hydrocarbons, gas hydrates, manganese nodules, and polymetallic sulphides (PMS) are likely to occur and be of potential commercial interest in the Study Area.

Manganese nodules and cobalt-rich manganese crusts are likely the most commonly occurring mineral resource in the Study Area. Despite their relatively low value, the high local abundance and grade of these resources means that they are likely to be extracted in the long run. In 2010, the Russian Federation requested an exploration license in the Mid-Atlantic Ridge, adjacent to the Study Area,¹²² signaling the growing interest in PMS as an economically viable ore deposit likely for rare earth and trace metal deposits used in computers and mobile phones. The French institution IFREMER also has an exploration license for an area

118. NW. ATLANTIC FISHERIES ORG., NAFO/FC DOC. 12/24, FISHERIES COMMISSION’S REQUEST FOR SCIENTIFIC ADVICE ON MANAGEMENT IN 2014, AND BEYOND OF CERTAIN STOCKS IN SUBAREAS 2, 3 AND 4 AND OTHER MATTERS (Sept. 2012).

119. *Northwest Atlantic Fisheries Organization (NAFO)*. SARGASSO ALLIANCE, <http://www.sargassoalliance.org/management-and-enforcement/competent-authorities-and-collaborating-institutions/nafo> (last visited Jan. 25, 2014).

120. LOSC, *supra* note 3, at 399, 457.

121. This is partially due to the availability of plentiful non-marine sources for phosphates. See LINDSAY PARSON & ROSEMARY EDWARDS, SARGASSO SEA ALLIANCE SCIENCE REPORT SERIES NO. 8, THE GEOLOGY OF THE SARGASSO SEA ALLIANCE STUDY AREA: POTENTIAL NON-LIVING MARINE RESOURCES AND AN OVERVIEW OF THE CURRENT TERRITORIAL CLAIMS AND COASTAL STATES INTERESTS 8 (2011), *available at* http://www.sargassoalliance.org/storage/documents/No8_Geology_LO.pdf.

122. The Russian Federation proposal is specifically on the Mid-Atlantic Ridge itself, south of 10°S. *Id.*

north of the Russian area also on the Mid-Atlantic Ridge. While unlikely in the near future, it is possible that deep seabed mining for PMS could be contemplated in the eastern part of the Study Area.

Accordingly, it appears that mining is not an imminent threat to the Sargasso Sea ecosystem, compared to other human activities. However, the ISA Secretariat serves on the Steering Committee, it has participated in SSA scientific and other meetings. The Secretariats of the ISA and the SSA are currently developing a Collaboration Arrangement to promote further discussion and information sharing between the two entities. While the parties are still drafting at the time of writing, this arrangement may support the encouragement of marine scientific research, including environmental impact studies. This agreement would help make available the best scientific information for environmental assessments for the management of risk in accordance with the precautionary and ecosystem approaches, of:

- a. the distribution, abundance, and condition of habitats;
- b. the status of populations of marine species;
- c. the effectiveness of measures aimed at the conservation of marine biological diversity.

Furthermore, the draft text calls for cooperation in the collection and exchange of environmental data and information.¹²³

e. Other relevant international regimes

i. Western Central Atlantic Fishery Commission

Although there are no general fisheries management regimes for the Sargasso Sea, it is within the jurisdiction of an FAO fisheries advisory body, the Western Central Atlantic Fishery Commission (WECAFC). As an advisory body established by FAO, WECAFC has no regulatory powers. Instead, it advises on the conservation of marine life in the Western Central Atlantic. It also promotes use of the precautionary approach and ecosystem-based management. Recently, WECAFC issued a resolution noting “the need to preserve biodiversity, minimize the risks of long-term or irreversible effects of fishing operations, avoid adverse impacts on the marine environment, maintain the integrity of marine ecosystems including vulnerable deep-sea marine ecosystems, and

123. Draft Text of Collaboration Arrangement between the Secretariats of the International Seabed Authority and the Sargasso Sea Alliance (Oct. 15, 2013) (on file with Sargasso Sea Alliance Secretariat).

effectively apply the precautionary and ecosystem approaches to fisheries management.”¹²⁴ They also resolved to “take actions and measures to strengthen the implementation of existing international fisheries instruments and those that may be developed in the future.”¹²⁵ WECAFC is also helping prepare a billfish management and conservation plan for the Western Central Atlantic.

ii. *Convention on the Conservation of Migratory Species (Bonn Convention)*

The Bonn Convention, which came into force in 1983, aims to protect migratory species throughout their ranges by encouraging contracting parties to enter into global or regional agreements or memoranda of understanding. Well-known examples include the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS),¹²⁶ and the Memorandum of Understanding on the Conservation of Migratory Sharks,¹²⁷ the latter of which is open to a broader number of governments who may not be party to the Bonn Convention, including the U.S.

The Bonn Convention is potentially a significant tool for Sargasso Sea conservation because many animal species, including the commercially important American and European eels,¹²⁸ and several cetacean (whale and dolphin) species, migrate through the Sargasso Sea.¹²⁹ The UK has extended the application of the Bonn Convention to Bermuda.¹³⁰ Currently, the SSA is exploring how to further protect these species, particularly the endangered European Eel (*Anguilla anguilla*), under the Bonn Convention.

124. W. Atlantic Fishery Comm’n, *Draft Resolution of the Members of the Western Central Atlantic Fishery Commission on Strengthening the Implementation of International Fisheries Instruments*, WECAFC/XIV/2012/7, at 2 (Feb. 2012), available at <http://www.fao.org/docrep/meeting/024/am121e.pdf>.

125. *Id.*

126. *Summary Sheet, Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (ACCOBAMS)*, CONVENTION ON MIGRATORY SPECIES, http://www.cms.int/pdf/en/summary_sheets/accobams.pdf (last visited Jan. 25, 2014).

127. *Summary Sheet, Memorandum of Understanding on the Conservation of Migratory Sharks*, CONVENTION ON MIGRATORY SPECIES, http://www.cms.int/pdf/en/summary_sheets/sharks.pdf (last visited Jan. 25, 2014).

128. LAFFOLEY ET AL., *supra* note 30, at 22.

129. *Id.* at 18.

130. *See List of Territories and Reservations*, CONVENTION ON MIGRATORY SPECIES, http://www.cms.int/about/territories_reservations.pdf (last visited Feb/ 27, 2014).

iii. *Inter-American Convention for the Protection and Conservation of Sea Turtles*

The Inter-American Convention for the Protection and Conservation of Sea Turtles came into force in 2001 and promotes the protection and recovery of sea turtle populations and their habitats. Several endangered or critically endangered species of turtle, including green turtles (*Chelonia mydas*), hawksbill turtles (*Eretmochelys imbricate*), loggerhead turtles (*Caretta caretta*), and Kemp's Ridley turtles (*Lepidochelys kempi*), use *Sargassum* weed for hiding, feeding, and nursery habitat.¹³¹ Although neither the U.K. nor Bermuda are parties to the Convention, the SSA Secretariat has initiated the development of an informal Collaboration Arrangement with the Convention Secretariat in order to support the conservation of the Sargasso Sea and the turtle species within the Sea.

iv. *Regional sea treaties*

There is no regional seas agreement that applies to the Sargasso Sea. There are, however, nearby regimes that provide examples of management of ABNJ. The OSPAR Convention is an agreement among fifteen European governments that requires the parties to cooperate to protect the marine environment of the North-East Atlantic.¹³² Significantly, the Convention has created a marine protected area network in ABNJ (though management plans have yet to be established). In 2012, the SSA Secretariat signed a Collaboration Arrangement with the OSPAR Secretariat to "maximize opportunities for the sharing of research, expertise and practical experience in seeking to protect and manage the marine environment of the North Atlantic, particularly in Areas Beyond National Jurisdiction."¹³³ The comparison between the OSPAR processes in developing Marine Protected Areas in the Northeast Atlantic Ocean and the processes of the SSA provides an enlightening contrast between an area covered by a regional seas agreement and an area that is not.¹³⁴

131. LAFFOLEY ET AL., *supra* note 30, at 16.

132. NE. ATLANTIC FISHERIES COMM'N & OSPAR, *supra* note 47.

133. OSPAR COMM'N & SARGASSO SEA ALLIANCE, COLLABORATION ARRANGEMENT BETWEEN THE SECRETARIATS OF THE OSPAR COMMISSION AND THE SARGASSO SEA ALLIANCE 1 (2012), *available at* http://www.sargassoalliance.org/storage/documents/Collaboration_Arrangement_-_OSPAR_Sargasso_Sea.pdf.

134. David Freestone et al., *Can Existing Institutions Protect Biodiversity in Areas Beyond National Jurisdiction? Experiences From Two On-Going Processes*, 42 MARINE POL. (forthcoming

The Sargasso Sea is also adjacent to areas covered by two U.N. Environment Programme Regional Seas Agreements, the Abidjan Convention for Co-operation in the Protection and Development of the Marine Coastal Environment of the West and Central African Region and the 1983 Cartagena Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region. The SSA Secretariat is currently pursuing an ongoing collaboration with both programs.

3. *Proposed 2014 Hamilton Declaration and establishment of the Sargasso Sea Commission*

Moving forward, the Government of Bermuda is planning to convene in March 2014 an Inter-Ministerial meeting of high-level representatives from the governments of those countries that surround the Sargasso Sea or which have an interest in its conservation, whether as range states of its species, or for other reasons. The government representatives attending the meeting in Hamilton, Bermuda intend to sign a political Declaration on Collaboration for the Conservation of the Sargasso Sea (the Hamilton Declaration). Drafted in the spirit of Article 197 of the U.N. Convention on the Law of the Sea regarding global and/or regional cooperation,¹³⁵ this declaration would be a nonbinding political statement setting up both an intergovernmental process, though a Meeting of Signatories, which would meet virtually as well as in person, and a Bermuda-based Sargasso Sea Commission.

Both the structure and mandate of the Commission have now been finalized in the text of the Declaration.¹³⁶ The initial structure of the arrangement may include a Meeting of Signatories comprised of representatives of the governments that sign the Declaration.¹³⁷ The Sargasso Sea Commission would be composed

2014).

135. See generally LOSC, *supra* note 3, at 479 (providing that “Cooperation on a global or regional basis: States shall cooperate on a global basis, and as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features.”).

136. *Hamilton Declaration on Collaboration for the Conservation of the Sargasso Sea*, http://www.sargassoalliance.org/storage/documents/Hamilton_Declaration_on_the_Conservation_of_the_Sargasso_Sea_11_March_2014.pdf (last visited Mar. 9, 2014).

137. The Declaration uses the term “governments” deliberately, rather than “States,” so as to allow Bermuda, an overseas territory of the U.K., as well as other territories, like the Azores, to sign.

of distinguished scientists from diverse disciplines and other persons of international repute committed to the conservation of high seas ecosystems, serving in their personal capacity. A Secretariat would serve both bodies.

The Commission would serve in a stewardship role for the Sargasso Sea and would work with the signatories to the Declaration to develop proposals that signatory governments may submit for consideration by regional or international organizations with relevant competences. In summary, the Commission will:

- Develop a work program and action plans for the Sargasso Sea ecosystem;
- Serve as a repository of information and scientific data relating to ecosystem condition;
- Promote outreach, public awareness, and scientific research;
- Monitor the effects of any anthropogenic activities; and
- Liaise with the government and appropriate regional and international organizations with relevant competences both inside and adjacent to the Sargasso Sea.¹³⁸

The final structure and mandate of the Sargasso Sea Commission will be agreed to by the Signatories to the Hamilton Declaration on March 11, 2014.

The Declaration is the result of an ongoing collaborative process. In December of 2012, the Government of Bermuda invited representatives of a number of countries surrounding, or interested in, the Sargasso Sea together with a number of relevant international organizations to a preliminary meeting to discuss a first draft of the Declaration.¹³⁹ After a series of bilateral discussions, including a presentation of the aims and objectives of the SSA and the Declaration to the E.U. Council Committee on Law of the Sea (COMAR) in March of 2013, a second meeting was held in November 2013 in New York (at the Rockefeller Brothers Fund Pocantico Center) to finalize the draft.¹⁴⁰ In all, some

138. The initial mandate of the Sargasso Sea Commission is in Annex II of the Hamilton Declaration. *Hamilton Declaration*, *supra* note 135, at Annex 8.

139. Representatives attended from the U.K., the U.S., Dominican Republic, Portugal, The Azores, Belgium, Sweden, South Africa, Trinidad and Tobago, and the E.U. Commission. Also representatives attended from the U.N. Office for Ocean Affairs and Law of the Sea (DOALOS), the Secretariats of the CBD, the Caribbean Community (CARICOM), the Abidjan Convention (West Africa), and the Cartagena Convention (Wider Caribbean).

140. At the November 2013 meeting representatives attended from the U.K., the U.S., The Bahamas, Dominican Republic, Portugal, The Azores, Belgium, The

fourteen governments have been actively involved in the process with representatives from seven relevant international organizations.

III. PROTECTING MARINE ECOSYSTEMS THROUGH IMO FROM SHIPPING AND VESSEL SOURCE POLLUTION THREATS, INCLUDING CRITERIA FOR PSSA AND MARPOL SPECIAL AREAS

The first international agreement on commercial shipping was the Safety of Life at Sea (SOLAS) adopted at a conference of nations in 1914 that was focused on the safety of navigation.¹⁴¹ The catalyst for this conference can be traced to the catastrophic sinking of the *Titanic* on April 14, 1912 that resulted in the loss of over 1500 lives. The calls for a permanent international organization to focus on maritime safety were subsequently realized with the establishment of the United Nations and particularly the Inter-Governmental Maritime Consultative Organization (IMCO), which was established in 1948. The name of the organization was changed to the International Maritime Organization (IMO) in 1982.¹⁴²

A. *IMO Measures to Address Threats to the Marine Environment from Shipping*

IMO measures to address threats to the marine environment can be traced to the Torrey Canyon disaster in the English Channel in 1967, in which 120,000 tons of oil was spilled into the sea.¹⁴³ As a result, a number of measures were agreed to at the IMO in order to try and prevent pollution from international

Netherlands, Monaco, the Canadian Senate, and the E.U. Commission. Also the International Seabed Authority was represented. Apologies were received from Ireland, Sweden, South Africa, Trinidad and Tobago, the OSPAR Secretariat, IMO, and DOALOS.

141. The Conference, which was attended by representatives of thirteen countries, introduced new international requirements dealing with safety of navigation for all merchant ships, the provision of watertight and fire-resistant bulkheads, life-saving appliances, fire prevention, and firefighting appliances on passenger ships. Other requirements dealt with the carriage of radiotelegraph equipment for ships carrying more than fifty persons. The Conference also agreed on the establishment of a North Atlantic ice patrol. *See History of the IIP*, NAVIGATION CTR., U.S. COAST GUARD, <http://www.navcen.uscg.gov/?pageName=IIPHistory> (last visited Jan. 25, 2014). *See also History of SOLAS*, IMO, <http://www.imo.org/KnowledgeCentre/ReferencesAndArchives/HistoryofSOLAS/Pages/default.aspx> (last visited Jan. 25, 2014).

142. *A Brief History of the IMO*, IMO, <http://www.imo.org/About/HistoryOfIMO/Pages/Default.aspx> (last visited Jan. 25, 2014).

143. *Id.*

shipping. The most important of these measures was the International Convention for the Prevention of Pollution from Ships (MARPOL),¹⁴⁴ which provided support for the sea in general and the establishment of special areas where an even a higher level of protection would be applied in discrete areas of the marine environment.¹⁴⁵

1. *Special areas under MARPOL*

Under the MARPOL Convention, a “Special Area” is a discrete area of the sea recognized for its ecological significance and where particular threats of pollution from international shipping call for the adoption of special mandatory restrictions on discharges from vessels to prevent pollution of the sea.¹⁴⁶ These Special Areas concern discharges of oil or oily wastes under Annex I,¹⁴⁷ noxious liquid substances under Annex II,¹⁴⁸ sewage under Annex IV,¹⁴⁹ and garbage under Annex V.¹⁵⁰ While those Annexes use the term “Special Area,” Annex VI (which relates to atmospheric pollution) terms such areas “Emission Control Areas.”¹⁵¹ The process of designating such areas involves approval of proposed amendments to the relevant MARPOL Annexes by the IMO Marine Environment Protection Committee (MEPC).

144. *Id.*

145. *Special Areas Under MARPOL*, IMO, <http://www.imo.org/OurWork/Environment/PollutionPrevention/SpecialAreasUnderMARPOL/PPage/Default.aspx> (last visited Jan. 25, 2014).

146. *Id.*

147. There are currently ten Special Areas under Annex I: the Antarctic area (south of 60° latitude), the Baltic Sea area, the Black Sea area, the Red Sea area, “Gulfs” area, Gulf of Aden area, the North West European Waters area, the Oman area of the Arabian Sea, the Mediterranean Sea area, and the Southern South African waters. INT’L MAR. ORG., MEPC.1/CIRC.778, LIST OF SPECIAL AREAS UNDER MARPOL AND PARTICULARLY SENSITIVE SEA AREAS (2012), *available at* http://www.imo.org/blast/blastDataHelper.asp?data_id=30979&filename=778.pdf.

148. The Antarctic area is the only Special Area under Annex II. It was adopted October 30, 1991. It entered into force and effect on July 1, 1994. *Id.*

149. The Baltic Sea area is the only Special Area under Annex III. It was adopted July 15, 2011 and entered into force on January 1, 2013. *Id.*

150. Under Annex IV, there are eight Special Areas: Antarctic area (south of latitude 60°S), the Baltic Sea area, the Black Sea area, the Red Sea area, “Gulfs” area, the Mediterranean Sea area, the North Sea area, and the Wider Caribbean region including the Gulf of Mexico and the Caribbean Sea. *Id.*

151. There are four of these areas: the Baltic Sea (sulfur oxides), North Sea (sulfur oxides), North American (sulfur oxides, nitrogen oxides, and particulate matter), and United States Caribbean Sea (sulfur oxides, nitrogen oxides, and particulate matter). *Id.*

2. *Particularly sensitive sea areas*

As a result of Resolution 9 of the 1978 International Conference on Tanker Safety and Pollution Prevention, the IMO MEPC began its study of the issue of Particularly Sensitive Sea Areas (PSSAs). Recognizing the importance of this issue, it defined a PSSA as a sea area that needs special protection through action by IMO MEPC because of its significance for recognized ecological, socioeconomic, or scientific attributes, where such attributes may be vulnerable to damage by international shipping activities.¹⁵² The IMO has developed a process for the designation of a PSSA that the parties agree needs special protection because of its significance for recognized ecological, socioeconomic, or scientific reasons and which may be vulnerable to damage by international maritime activities.¹⁵³ In many cases, a PSSA may be identified within a Special Area and vice versa. As set forth in the IMO Guidelines, a proposal to designate a PSSA must also include associated protective measures (APMs) that are designed to address the identified threat to the area from international shipping.

The standards and criteria for the IMO designating a “particularly sensitive sea area” (PSSA) are contained in resolution A.982(24), Revised *guidelines for the identification and designation of Particularly Sensitive Sea Areas (PSSAs)*.¹⁵⁴ The IMO MEPC must agree that a party’s submission for designation of an area to be a PSSA has met the standards and criteria set forth in these guidelines. The ecological criteria include whether the area is a unique or rare ecosystem, has a biologically diverse ecosystem, and has some vulnerability to degradation by natural events or human activities such as international shipping. The social, cultural, and economic criteria include the significance of the area for recreation or tourism. The scientific and educational criteria include the area’s value for historical or biological research. As indicated above, the proposal for a PSSA must have a specific

152. See David Freestone & Kristina Gjerde (eds.), *Particularly Sensitive Sea Areas: An Important Environmental Concept at a Turning Point*, 9 INT’L J. MARINE & COASTAL L. 431, 431 (1994).

153. *Particularly Sensitive Sea Areas*, IMO, <http://www.imo.org/OurWork/Environment/PollutionPrevention/PSSAs/Pages/Default.aspx> (last visited Jan. 25, 2014).

154. Int’l Mar. Org., *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, Assembly Res. A.982(24), (Dec. 1, 2005) (updating IMO, *Guidelines for the Identification of Special Areas and the Identification of Particularly Sensitive Sea Areas*, Assembly Res. A.720(17), (Nov. 6, 1991)).

measure or APM that will be used to address the identified threat to the area from existing international shipping activities, including routing measures,¹⁵⁵ strict application of MARPOL discharge and equipment requirements for ships such as oil tankers, and installation of Vessel Traffic Services (VTS). Examples of APM routing measures include an area to be avoided (ATBA), which is an area with defined limits where navigation is particularly hazardous and should be avoided by all ships or avoided by certain classes of ships. Of course, this must all be done in a manner that is consistent with the 1982 U.N. Law of the Sea Convention. The IMO MEPC has assessed and designated fourteen PSSAs in accordance with the PSSA Guidelines adopted by the IMO Assembly, including PMNM, which was the thirteenth such designation.¹⁵⁶

B. Papahānaumokuākea's Response to Threats from International Shipping Through IMO and Designation of PMNM as PSSA

One potential threat to the natural and cultural heritage of Papahānaumokuākea is from vessel traffic. International and domestic measures have been agreed upon to address this potential threat, including protective measures authorized by the IMO.¹⁵⁷ Papahānaumokuākea's boundary extends out fifty nautical

155. The IMO first adopted general provisions on ships' routing in 1973. Subsequent amendments aimed at standardizing the design, development, charted presentation, and use of routing measures adopted by IMO. *Ships' Routing*, IMO, <http://www.imo.org/OurWork/Safety/Navigation/Pages/ShipsRouteing.aspx> (last visited Mar. 9, 2014).

156. The following PSSAs have been designated: the Great Barrier Reef, Australia (designated a PSSA in 1990); the Sabana-Camagüey Archipelago in Cuba (1997); Malpelo Island, Colombia (2002); the sea around the Florida Keys, United States, which corresponds to the boundary of the Florida Keys National Marine Sanctuary (2002); The Wadden Sea, Denmark, Germany, Netherlands (2002); Paracas National Reserve, Peru (2003); Western European Waters (2004); extension of the existing Great Barrier Reef PSSA to include the Torres Strait (proposed by Australia and Papua New Guinea) (2005); Canary Islands, Spain (2005); the Galapagos Archipelago, Ecuador (2005); the Baltic Sea area, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, and Sweden (2005); the Papahānaumokuākea Marine National Monument, United States (2007); the Strait of Bonifacio, France and Italy (2011); and the Saba Bank, in the North-eastern Caribbean area of the Kingdom of the Netherlands (2012). See *Explore the World of PSSAs*, IMO, <http://www.pssa.imo.org> (last visited Jan. 22, 2014).

157. *IMO Confirms Environmental Credentials as MEPC Makes Major Progress*, 2 IMO NEWS, Mar. 31 - Apr. 4, 2008, at 17-18, available at http://www.imo.org/mediacentre/newsmagazine/documents/2008/imonewsno208_web.pdf#page=. See also *Heritage: Papahānaumokuākea Marine National Monument*, NOAA, http://www.gc.noaa.gov/gcil_papahanaumokuakea.html (last visited Feb. 18, 2014); Press Release, NOAA, Papahānaumokuākea Marine National Monument Designated a Particularly Sensitive Sea Area (Apr. 4, 2008), available at

miles from the islands. The IMO has adopted six Areas to Be Avoided (ATBA) to protect eight of the coral reef areas of the NWHI from ship traffic. Each of the ATBAs extends out fifty nautical miles (92.6 kilometers) from the center of the islands or atolls, to keep ships well away from the coral reef ecosystem and resources.

Additionally, the IMO has designated Papahānaumokuākea Marine National Monument as a Particularly Sensitive Sea Area (PSSA). The PSSA boundary coincides exactly with the boundary of the Monument. The IMO has also established and authorized a recommended ship reporting area that is a band about ten nautical miles (18.5 kilometers) wide, surrounding the PSSA-Papahānaumokuākea Marine National Monument boundary.¹⁵⁸ This reporting requirement reminds vessels of the existence of this area and its navigational hazards well before they enter the boundary of Papahānaumokuākea and the PSSA. It is mandatory for ships 300 gross tons and greater, fishing vessels, and for all vessels in the event of a developing emergency situation, that are in transit through the reporting area. In practice, the vessels have been reporting to NOAA and the United States Coast Guard (USCG). NOAA's Superintendent has indicated that the reporting system is perhaps the best measure to come out of the PSSA designation process enabling the collection of important and previously unknown data that can be used to inform management.

In addition, Papahānaumokuākea's boundary, management plan, and regulations were originally developed to protect monk seals, sea turtles, and seabirds from fishing operations, so it is also closed to fishing.¹⁵⁹ The proclamation originally planned a phase-out of commercial fishing by 2011; however, there was a "buy-out" of remaining commercial permits in 2009 that ended commercial fishing. Limited recreational fishing and take for cultural and research purposes is allowed, but only pursuant to permits. In sum, the establishment of the PSSA for Papahānaumokuākea and associated protective measures of ATBAs and ship reporting under the IMO regime and process have addressed the potential threat from vessel traffic without unduly impacting the freedom of

http://www.gc.noaa.gov/documents/040408-noaa-pssa_designation.doc.

158. Int'l Mar. Org., Mar. Safety Comm., *Adoption of a New Ship Reporting System "The Papahānaumokuākea Marine National Monument" Particularly Sensitive Sea Area*, Res. MSC.248(83), (Oct. 8, 2007), available at http://www.imo.org/blast/blastDataHelper.asp?data_id=20465&filename=248%2883%29.pdf.

159. See discussion *supra* Part I.A.1.

navigation and corresponding international commerce.¹⁶⁰

C. Sargasso Sea Response to Threats from International Shipping through IMO

The SSA has given several well-received side events at meetings of the IMO Marine Environmental Protection Committee, the IMO primary committee that deals with marine pollution matters.

The Sargasso Sea might be thought to be a prime candidate for PSSA designation. However to date, the IMO has not designated any PSSAs in ABNJ.¹⁶¹ Nor has it assigned this designation to any other areas as big as the Sargasso Sea. So such designation is unlikely in the short term. In 2011, the SSA commissioned a study of vessel traffic through the Sargasso Sea, which verified that traffic is a concern.¹⁶² However, Bermuda does not have independent status under the IMO and would, thus, have to present a proposal regarding shipping measures through the U.K. Bermuda and the U.K. are discussing appropriate steps to take in the future.

In 2013, the SSA commissioned an independent consultant to identify the various threats posed to the Sargasso Sea by shipping and also some of the options that might be available as protection measures against these identified threats.¹⁶³ The list identified by the consultant's report includes: consideration of a Ballast Water Regional Management Plan for the Sargasso Sea developed by neighboring States, a consensus statement or Memorandum of

160. It should be noted, however, that the size and scope of this PSSA are still considered to be controversial and of great concern as a precedent. The U.S. Department of Defense strenuously objected to the U.S. proposing this PSSA. Raul Pedrozzi, *Encroachment of Navigational Freedoms*, 84 INT'L L. STUD. 85, 87-88 (2008) (noting,

"In my opinion, the US proposal fails to demonstrate that international shipping poses a threat of damage to the area, demonstrate that additional protective measures are necessary, establish that the size of the area is commensurate with that necessary to address the identified need, and address how these measures will be monitored and enforced.").

Others supported it. Alison Rieser, *The Papahānaumokuākea Precedent: Ecosystem-scale Marine Protected Areas in the EEZ*, 13 ASIAN-PAC. L. & POL'Y J. 210, 214 (2012) (describing the PSSA and the associated protective measures as "a relatively modest set of regulations").

161. See Julian Roberts et al., *Area-based Management on the High Seas: Possible Application of the IMO's Particularly Sensitive Sea Area Concept*, 25 INT'L J. OF MARINE & COASTAL L. 483, 483-522 (2010).

162. JULIAN ROBERTS, SARGASSO SEA ALLIANCE SCIENCE REPORT SERIES NO. 9, MARITIME TRAFFIC IN THE SARGASSO SEA: AN ANALYSIS OF INTERNATIONAL SHIPPING ACTIVITIES AND THEIR POTENTIAL ENVIRONMENTAL IMPACTS 45 (2011), available at http://www.sargassoalliance.org/storage/documents/No.9.MaritimeTraffic_LO.pdf.

163. Sian Prior, Sargasso Sea Shipping Risk Assessment: Addressing the Threat from Invasive Species and Nutrient Inputs (Oct. 2013) (unpublished report) (on file with the Sargasso Sea Alliance).

Understanding with sector leaders among the neighboring states on the application of the IMO Biofouling Guidelines, consideration of making application of the IMO Biofouling Guidelines a condition of port entry for vessels operating between the U.S. and Bermuda, development of a zero discharge requirement for cruise vessels (and other vessels e.g. roll on and roll off (Ro-Ro) and general cargo vessels) as a condition of port entry for vessels operating between the U.S. and Bermuda (or discharge in accordance with Special Area Status effluent standards for nitrogen and phosphorus), developing a new Regional Measure or Regional Guidelines among the regional states banning grey water discharge within twelve nautical miles of the Sargasso Sea or establishing discharge standards for nitrogen and phosphorus from grey water, and seeking a grey water discharge ban or discharge standard as a port entry requirement for vessels operating between the U.S. and Bermuda.

These are ambitious ideas that would require a great deal of cooperation between the states of the region and the private sector. Perhaps more prosaic would be the consideration of applying for MARPOL Special Area status for the Sargasso Sea, using possibly Annex I on oil and oily wastes, which would require reception facilities to be available at the ports of the region. Given the fact that garbage discharged into the gyre remains there for a long time, an Annex V Special Area for garbage might also be an option—if Bermuda has adequate reception facilities. Bermuda is also considering an informal arrangement with cruise lines that visit the island. These cruise lines pride themselves on meeting the highest MARPOL standards in their operations.

IV. THE WORLD HERITAGE CONVENTION

Over the past few decades, the 1972 World Heritage Convention (WHC) has become the mechanism for international cooperation on the conservation of the cultural and natural heritage of international significance by its Parties through their domestic laws and management plans.¹⁶⁴ One hundred and ninety countries or States are Parties to the Convention, making it an almost universally accepted set of principles and framework of action.¹⁶⁵ Over the years, the WHC has increasingly recognized

164. Convention Concerning the Protection of the World Cultural and Natural Heritage, Nov. 16, 1972, 15 U.N.T.S. 511 [hereinafter World Heritage Convention].

165. See *State Parties: Ratification Status*, UNESCO WORLD HERITAGE CENTRE, <http://whc.unesco.org/pg.cfm?cid=246> (last visited Feb. 16, 2014) (190 parties as of

marine heritage, including Papahānaumokuākea in 2010. There is currently some interest in the Convention's applicability in ABNJ. The following sections will explore the Convention's history and framework, as well as Papahānaumokuākea's path to designation as a World Heritage site in order to explore how similar sites may be designated under the Convention and how the Convention may relate to ABNJ.

A. *Convention History and Framework*

Enactment of international and domestic environmental and historic preservation laws can often be traced to a harm or threat to resources that raises concern sufficient for action by governments. In the case of The World Heritage Convention, the catalyst was the impending loss of ancient Egyptian temples at Abu Simbel from flooding caused by the construction of the Aswan Dam.¹⁶⁶ In response, fifty nations acting in conjunction with the U.N. Educational, Scientific and Cultural Organization (UNESCO) came together to assist in an eighty million dollar project that included disassembling and relocating the temples to higher ground. The project was a recognition of the international cultural significance of the Abu Simbel temples and helped lead to the development of the World Heritage Convention as an agreement between parties to use their national sovereignty and authority to protect and manage cultural resources of outstanding value to the world. With the help of the International Council on Monuments and Sites (ICOMOS), parties to UNESCO began preparation of a draft convention on the protection of cultural heritage. During this same period, as a result of the developing environmental movement, there was also interest in protecting natural resources.

The United States played a significant, leading role in the development of the 1972 World Heritage Convention and particularly in proposing that its scope include natural as well as cultural heritage. At a White House conference in Washington, D.C., in 1965, the United States called for a "World Heritage Trust" that would stimulate international cooperation to protect "the world's superb natural and scenic areas and historic sites for the present and the future of the entire world citizenry."¹⁶⁷ In

September 19, 2012).

166. *The World Heritage Convention*, UNESCO WORLD HERITAGE CENTRE, <http://whc.unesco.org/en/convention> (last visited Feb. 16, 2014).

167. *Id.*

1968, the International Union for Conservation of Nature (IUCN) developed similar proposals for its members. These proposals were presented to the 1972 United Nations Conference on the Human Environment in Stockholm. The General Conference of UNESCO adopted the Convention Concerning the Protection of World Cultural and Natural Heritage on November 16, 1972. By regarding heritage as both cultural and natural, the Convention underscores the ways in which people interact with nature and of the fundamental need to preserve the balance between the two.¹⁶⁸

The Convention entered into force on December 17, 1975. Parties to the Convention are obliged to “ensur[e] the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage . . . situated on its territory” and take “effective and active measures” to protect this heritage.¹⁶⁹ The Convention calls on all State Parties to “recognize that such heritage constitutes a world heritage for whose protection it is the duty of the international community as a whole to co-operate,” but does so while “fully respecting the sovereignty of the States on whose territory the cultural and natural heritage . . . is situated, and without prejudice to property right provided by national legislation.”¹⁷⁰ The listing of a site does not in any way result in the loss of sovereignty, rights, or authority over the site. To the contrary, listing reflects a promise by the Party to protect and manage a particular site in a manner consistent with its own laws and management plans as described in the nomination package. If a listed site subsequently is included on the list of World Heritage Sites in Danger,¹⁷¹ the Party is obligated to undertake appropriate measures to enhance or fulfill the protection and management promised when it was inscribed or risk having the site delisted.

Under the Convention, the World Heritage Committee determines and maintains the list of sites. The Committee is composed of twenty-one elected representatives of nations that are parties to the Convention. The IUCN, the International Centre for the Study of the Preservation and Restoration of Cultural Properties (ICCROM), and the ICOMOS make recommendations to the Committee as to whether sites meet the stringent standards for listing under the Convention and its implementing guidelines.

168. *Id.*

169. World Heritage Convention, *supra* note 163, at 136-37.

170. *Id.* at 137.

171. *Id.* at 139.

In general, the Committee adds about twenty-five to thirty sites per year to the list. Today, 982 sites are inscribed on the World Heritage List of which about twenty percent are “natural” sites. Of these, forty-six sites in thirty-five countries are inscribed specifically for their marine values.¹⁷²

B. Marine Sites Within the Exclusive Economic Zone and Continental Shelf

The 1982 U.N. Convention on the Law of the Sea recognized the right of coastal States to extend their jurisdiction and control in the marine environment to a twelve nautical mile territorial sea and a 200 nautical mile exclusive economic zone (EEZ).¹⁷³ Reflecting this jurisdictional change, sites farther out in the marine environment are beginning to be considered and listed, providing international recognition of the heritage beyond a State’s land territory and well into its EEZ.

In addition to Papahānaumokuākea, another significant addition to the list of World Heritage sites in 2010 was the Phoenix Islands Protected Area (PIPA), an expanse of over 400,000 square kilometers, in the waters of Kiribati. At the time this comprised the largest marine protected area in the world. With outer boundaries reaching as far as 200 nautical miles from the Kiribati coastline, PIPA is the first World Heritage site to extend to the outer limit of a State’s EEZ. Just as the 1982 Law of the Sea Convention recognizes that a coastal state continental shelf may extend beyond the 200 nautical mile EEZ under the detailed requirements of Article 76, it is reasonable to conclude that the World Heritage Committee could expand the recognition of heritage of outstanding universal value that may be located on this extended portion of the continental shelf.

Perhaps the best candidate may be the wreck site of RMS Titanic, which is already the subject of protection under an international agreement¹⁷⁴ and various orders under the maritime

172. See *World Heritage List*, UNESCO WORLD HERITAGE CENTRE, <http://whc.unesco.org/en/list/> (providing an official list of sites) (last visited Feb. 16, 2014).

173. LOSC, *supra* note 3, at 400, 419.

174. Although the Agreement has been signed by the U.K. and U.S., it has not yet entered into force because of the failure of Congress to enact implementing legislation. For more information about the Agreement and a copy of the document, see *R.M.S. Titanic International Agreement*, NOAA, OFFICE OF GENERAL COUNSEL, http://www.gc.noaa.gov/gcil_titanic-intl.html (last visited Feb. 16, 2014).

law of salvage.¹⁷⁵ On April 14-15, 2012, the 100th anniversary of the *Titanic*'s sinking, the *Titanic* site became an "underwater cultural heritage" and thus protected by the laws of the States that are parties to the 2001 UNESCO Convention on the Protection of Underwater Cultural Heritage.

In nominating Papahānaumokuākea for inscription on the list of World Heritage sites, it has been suggested that "the United States has acknowledged the need for international acceptance and set a high bar for future marine sites."¹⁷⁶

1. Inscription of Papahānaumokuākea as a mixed natural and cultural world heritage site

Pursuant to its authority under federal law, the National Park Service completed the process to identify sites to be nominated by the United States to the World Heritage Committee and announced the decision in early 2009.¹⁷⁷ Papahānaumokuākea was among the sites the United States nominated and submitted to the World Heritage Committee.¹⁷⁸ On July 30, 2010, it was designated as the first mixed site in the United States, which is the term for an area recognized under the World Heritage Convention as a place of "outstanding universal value" for both its natural and cultural heritage.¹⁷⁹ The inscription on the World Heritage list was the culmination of an extraordinary coalition of governments and private parties working together for international recognition of their efforts to protect this large special place in the marine environment. Papahānaumokuākea is also the world's first cultural seascape recognized for its continuing connections to living indigenous people.

175. For more information about the salvage case and copies of certain orders, covenants, and conditions protecting the *Titanic*, see *R.M.S. Titanic Salvage*, NOAA, OFFICE OF GENERAL COUNSEL, http://www.gc.noaa.gov/gcil_titanic-salvage.html (last visited Feb. 16, 2014).

176. Rieser, *supra* note 159, at 215. The inscription of Papahānaumokuākea is a potential precedent for listings based on fulfilling the duty of stewardship or trusteeship consistent with the rights and jurisdiction of coastal States under the law of the sea rather than any proprietary right under the property laws of a sovereign nation. *Id.*

177. 16 U.S.C. §§ 470a-1, 470a-2, 470d; World Trade Heritage Convention, 36 C.F.R. § 73 (2014); Submission of U.S. Nominations to the World Heritage List, 74 Fed. Reg. 5677, 5677 (Nat'l Park Serv. Jan. 30, 2009).

178. 74 Fed. Reg. at 5677.

179. Ole Varmer & Theodore M. Beuttler, *Papahānaumokuākea Inscribed as World Heritage Site*, 14 ABA MARINE RES. COMM. NEWSL. 3 (May 2011), available at http://www.americanbar.org/content/dam/aba/publications/nr_newsletters/mr/201105_mr.authcheckdam.pdf.

Papahānaumokuākea's long historical and cultural significance underpinned its designation. As stated previously, the islands and their significant archaeological sites have deep cosmological and traditional significance for living Native Hawaiian culture. They are an ancestral environment, an embodiment of the Hawaiian concept of kinship between people and the natural world, and an intersection of the realms of pō (realm of the gods; darkness) and ao (realm of life; light). Natural and cultural heritage are inseparably linked at Papahānaumokuākea, embodying a traditional understanding of 'āina momona (literally "fat land" or abundance) and serving as a reminder of what the productivity of the world's oceans was once like.

Papahānaumokuākea also reflects the rich maritime history of the Hawaiian Islands. Sixty shipwreck sites have been identified, the earliest dating back to 1822. Combined with known American and Japanese aircraft losses that occurred during the Battle of Midway, there are a total of 127 potential maritime resources, giving the area a significant and relatively undisturbed marine archaeological legacy.

In terms of natural heritage, Papahānaumokuākea's nearly pristine environment represents a complete, holistic cross section of a Pacific archipelagic ecosystem and supports a large number of species found nowhere else, including twenty-three species that are listed as threatened or endangered. The marine waters are described as a top-predator-dominated ecosystem and include a large number of species found nowhere else in the world.¹⁸⁰

When a State nominates an area for inclusion on the world heritage list, the World Heritage Committee must determine whether the site meets one of the Convention's eleven criteria. In order to qualify as a "mixed" natural and cultural heritage site, the area need only meet one natural heritage criteria and one cultural heritage criteria. In the case of Papahānaumokuākea, the Committee found that it met five of the criteria, two of which related to Papahānaumokuākea cultural significance and three of which concerned its natural heritage. These were: criterion iii, "to bear a unique or at least exceptional testimony to cultural tradition or to a civilization which is living or which has disappeared;" criterion vi, "to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary

180. STATE OF HAWAII ET AL., *supra* note 25; Submission of U.S. Nominations to the World Heritage List, 74 Fed. Reg. 5677; PAPAĀNAUMOKUĀKEA, MANAGEMENT PLAN, *supra* note 83, at 9.

works of outstanding universal significance;” criterion viii, “to be outstanding examples representing major stages of earth’s history, including the record of life, significant ongoing geological processes in the development of landforms, or significant geomorphic or physiographic features;” criterion ix, “to be outstanding examples representing significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals;” and criterion x, “to contain the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.”¹⁸¹

The addition of Papahānaumokuākea to the list of World Heritage Convention sites is an acknowledgement of more than a century of domestic efforts designed to protect the rich cultural and natural resources of the NWHI. This remote chain of atolls and surrounding waters represent the first U.S. site to be added to the World Heritage list in over fifteen years and the nation’s first on the list of “mixed sites” designated for their outstanding value for both their natural heritage and their cultural heritage. It is perhaps one of the first sites in the United States, if not the world, in which the very restrictive measures on activities for protecting the natural heritage also help preserve the cultural heritage that is inextricably linked to the indigenous people of Hawaii.

2. Issues with inscription of ABNJ sites such as the Sargasso Sea under the World Heritage Convention

The recent and growing interest in protecting ABNJ likely reflects the evolution of humanity’s awareness regarding the values of the ocean in general, no longer confined to just near-shore areas, reefs, or beaches. U.N. General Assembly resolutions, as well as political agreements reached at global summits such as the 2012 U.N. Conference on Environment and Development (Rio plus 20), make it clear that the duty to protect biodiversity within ABNJ is a shared responsibility of States and competent authorities.¹⁸²

Natural features and processes know no jurisdictional

181. *The Criteria for Selection*, UNESCO WORLD HERITAGE CENTRE, <http://whc.unesco.org/en/criteria/> (last visited Mar. 9, 2014).

182. *E.g.*, The Future We Want, G.A. Res. 66/288, ¶¶ 158, 162, 163, 169, 170, 172 U.N. Doc. A/RES/66/288 (Sept. 11, 2012), available at http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/66/288&Lang=E.

boundaries. Therefore, from a natural science perspective, the four World Heritage natural criteria, and their related conditions of integrity, protection, and management requirements may be applied to ABNJ in the same manner that they have been to land and waters subject to national jurisdiction. There are places in ABNJ that both capture the spirit of and correspond to the definition of outstanding universal value (OUV) in the same way that marine areas within national jurisdiction have already done so.¹⁸³ For example, there are calls for listing Antarctica as a World Heritage site despite the fact that it is an ABNJ.¹⁸⁴ While some deep-water areas fall within national jurisdiction, most are in ABNJ. Because deep-sea and open-ocean ecology both differ significantly from that of near-shore, recognizing that most of the world is an ABNJ, the full range of the world's heritage would include the vast amount of marine areas and Antarctica that are all areas beyond national jurisdiction.

Legally, the text of the World Heritage Convention makes no reference to ABNJ. While Article 3 states that "it is for each State Party to . . . identify and delineate the different properties situated on its territory mentioned in Articles 1 [cultural heritage] and 2 [natural heritage]."¹⁸⁵ Articles 1 and 2 do not exclude ABNJ; rather, they simply set forth the types of properties that may be considered as cultural and natural heritage. Article 6.1 goes on to recognize that such heritage (as set forth in Articles 1 & 2) "constitutes a world heritage for whose protection it is the duty of the international community as a whole to co-operate."¹⁸⁶ This duty of the international community is "without prejudice to

183. AMEER AWAD ABDULLA ET AL., IUCN, MARINE NATURAL HERITAGE AND THE WORLD HERITAGE LIST 45-47 (2013), available at https://cmsdata.iucn.org/downloads/marine_natural_heritage_and_the_world_heritage_list.pdf.

184. Andrew Darby, *Antarctica Must Go on Heritage List – Coalition*, SYDNEY MORNING HERALD, June 18, 2012, <http://www.smh.com.au/environment/conservation/antarctica-must-go-on-heritage-list-coalition-20120617-20i5r.html>.

185. World Heritage Convention, *supra* note 163, at 136. A narrow interpretation of the WHC would limit the list to sites within the territory and territorial sea and would not extend to sites in the EEZ. In 1972 the territorial sea was recognized to extend out three nautical miles from the coast or baseline from which the territorial sea is measured. Under a narrow view, the vast majority of the area of Papahānaumokuākea that extends out fifty nautical miles would not be eligible for listing under the WHC. However, as the parties have agreed to apply the WHC process to sites outside the territory and territorial sea but within the EEZ and continental shelf without amending the WHC, perhaps they can agree to apply the criteria and process for a new list of ABNJ sites.

186. *Id.* at 137.

property rights provided by national legislation.”¹⁸⁷ Moreover, although the World Heritage Convention establishes a procedure for the nomination and protection of world heritage in areas under national jurisdiction, there is nothing in the Convention preventing the parties from using the same criteria for a new list that recognizes certain ABNJ that meet those criteria for a new list of sites.¹⁸⁸ The Convention is merely silent on the procedures for nomination and protection in respect of areas beyond national jurisdiction. Arguably, if the international community is to meet its obligations under Article 6, then new policies or procedures need to be developed so as to be able to include sites in ABNJ, particularly marine sites in ABNJ, which constitutes nearly half the surface of the planet.

In 2009, the World Heritage Committee of the International Union for the Conservation of Nature (IUCN-WHC) Bahrain expert meeting on Marine World Heritage recommended establishing a list of sites in the High Seas that fulfilled the Outstanding Universal Value criteria. The purpose of this was to give impetus to progress through the framework of the Law of the Sea Convention or the Convention on Migratory Species to better argue an eventual extension of the World Heritage Convention. In 2011, the Eighteenth General Assembly of States Parties to the World Heritage Convention endorsed the audit of the Convention’s global strategy. Recommendation Five of the audit suggests that Parties “reflect upon appropriate means to preserve sites that correspond to conditions of outstanding universal value, which are not dependent on the sovereignty of States Parties.”¹⁸⁹

If these initiatives continue, it is clear that the Sargasso Sea would be a prime candidate for consideration for inscription in the list of World Heritage Sites.

V. THREATS FROM CLIMATE CHANGE AND ECOSYSTEM CHANGES

Like ocean areas throughout the world, the two ocean ecosystems discussed here also face evolving threats from climate change and ocean acidification. This final section looks briefly at

187. *Id.*

188. There is a process under the WHC for parties to nominate properties that are subject to territorial disputes that parties may wish to consider extending to Antarctica and other ABNJ.

189. U.N. Educ., Scientific, & Cultural Org., World Heritage Comm., *Evaluation of the Global Strategy and the PACT Initiative*, 24, WHC-11/35.COM/INF.9A (June 2011), available at <http://whc.unesco.org/archive/2011/whc11-35com-INF9Ae.pdf>.

the special challenges these threats pose.

A. *Papahānaumokuākea*

Global climate change is responsible for an increase in average temperatures, sea level rise, and changes in the chemical composition of the oceans. The three factors identified as causing climate change are increased atmospheric levels of carbon dioxide and other greenhouse gasses, changes in the biogeochemistry of the global nitrogen cycle, and land use and land cover changes. In the NWHI, coral bleaching, oceanic chemical change, sea level rise, and weather changes are regarded as the most significant areas of potential impact.¹⁹⁰ Climate change is one of several major, external threats to Papahānaumokuākea. Other threats include marine debris—primarily in the form of derelict fishing nets and gear, plastics, and other ocean-borne debris—and invasive species.¹⁹¹

Coral bleaching may result from various stresses including elevated temperature or changes in salinity or turbidity. In response to such stress, the coral may expel the tiny symbiotic algae (*zooxanthellae*) that live inside their tissue and provide energy, leaving the coral energy-depleted and vulnerable to disease and overgrowth by turf algae. Bleaching and mortality in corals have resulted from above-normal sea surface temperatures, low wind velocity, clear skies, calm seas, low or high rainfall, changes in salinity, high turbidity, and acute pollution.¹⁹²

It is believed that climate-induced changes in sea surface temperatures cause coral bleaching in the NWHI. Mass bleaching was first observed in 2002 and again in 2004. Although the NWHI were considered to be less vulnerable to coral bleaching because of the area's relatively high latitude, the three most northern atolls (Pearl and Hermes, Midway, and Kure) experienced more severe bleaching than other reef areas of the Monument. Less severe bleaching was observed at Lisianski Island and reefs farther south.¹⁹³

Record increases in carbon dioxide levels linked to human

190. PAPAHAANAUMOKUĀKEA MARINE NAT'L MONUMENT, NATURAL RESOURCES SCIENCE PLAN 2011—2015 at 51 (Apr. 2011), *available at* http://www.papahanaumokuakea.gov/pdf/nrsc_plan.pdf [hereinafter PAPAHAANAUMOKUĀKEA SCIENCE PLAN].

191. *Id.* at 51; STATE OF HAWAII ET AL., *supra* note 25, at 166-168.

192. PAPAHAANAUMOKUĀKEA SCIENCE PLAN, *supra* note 189, at 52-54.

193. *Id.* at 52.

activity have a direct effect on the amount of carbon dioxide in the ocean. Carbon dioxide in the atmosphere reacts with surface waters, resulting in chain reactions that increase the acidity of seawater. Commonly known as ocean acidification, the process reduces the amount of a form of calcium carbonate called aragonite that reef-building corals and other calcifying marine organisms require to remain in solid form. As the oceans become more acidic, these organisms are more subject to dissolution. Growth and accretion of new reef structure may be inhibited. “[C]urrent research suggests that ocean acidification may drastically reduce a coral reef’s ability to overcome the balance of erosion and depositional forces leaving them and their associated ecosystems . . . susceptible to the additional threats of sea level rise and increased storm activity.”¹⁹⁴ It is believed that ocean acidification will also result in metabolic disruptions to deep ocean animals.

It is estimated that sea level rise caused by thermal expansion of ocean water and the melting of ice sheets could range from 0.18 to 0.59 meters (0.6 to 1.9 feet) by 2090. A rise of 0.48 meters (1.6 feet) may cause the loss of up to sixty-five percent of the terrestrial habitat in the Monument.¹⁹⁵ Reduced beach areas in the NWHI will impact all organisms that rely on beach habitat, including the Hawaiian monk seal and green turtle.¹⁹⁶

Plant communities and the insects and land birds that depend on them may be affected by reduced amounts of rain and changes in soil moisture and temperature. Increases in the frequency and intensity of storms will directly damage corals by breakage and smothering as sand is moved around.¹⁹⁷

1. *Papahānaumokuākea Marine National Monument management response*

The Monument Management Board (MMB) has recognized that effective management decisions related to Monument resource use and protection need to be “based on reliable information on the biological characteristics of the organisms and habitats, their ecological relationships, [and] an understanding of the natural temporal variations that characterize their

194. *Id.* at 66.

195. *Id.* at 65.

196. *Id.* at 15.

197. *Id.* at 65.

ecosystems.”¹⁹⁸

The MMB developed a Natural Resources Science Plan in 2011 to facilitate the Management Plan’s goal for understanding and interpreting the NWHI and to provide information to support management actions, such as managing threats, permitting activities, and evaluating the effectiveness of management efforts.¹⁹⁹ The Science Plan establishes a research and monitoring framework and a prioritized list of research activities to inform management of the Monument’s natural resources.²⁰⁰ The plan was developed by a science planning team composed of Monument managers, scientists, and other designated Co-Trustee representatives through a process that included identification of research and monitoring gaps and needs, prioritization of research and monitoring activities by management needs, and a public review of the plan.²⁰¹ The broad nature of proposed research activities is intended to address knowledge gaps at a basic level and to provide managers with baseline information to make informed decisions in the face of future threats, including climate change. The plan is designed as a first step toward guiding research activities in the Monument.²⁰² It characterizes research needs and activities to facilitate management goals over the next fifteen years and outlines priorities for the five-year period from 2011-2015 coincident with the Management Plan.²⁰³

Understanding the impacts of climate change and evaluating options for adaptation have been identified by the MMB as high research priorities. It is believed that five impacts of global climate change will have the greatest potential impact on the ecosystem of the NWHI: “more extreme weather events, changes in sea temperature, rising sea levels, alternations in oceanic chemistry, and shifts in precipitation patterns.”²⁰⁴

The plan includes a prioritized list of research activities that are needed to further understand climate change in the NWHI. Among these activities are: determining how climate change affects the distribution and populations of species in the NWHI to identify sensitive areas and species; forecasting areas or species

198. PAPAĀNAUMOKUĀKEA MANAGEMENT PLAN, *supra* note 83, at 121.

199. PAPAĀNAUMOKUĀKEA SCIENCE PLAN, *supra* note 189, at 1.

200. *Id.*

201. *Id.* at 6.

202. *Id.* at 10.

203. *Id.* at 4.

204. *Id.* at 51.

groups that may be particularly sensitive and determining plans for mitigation in advance; and forecasting areas or species assemblages that may be particularly sensitive to increasing sea surface temperatures or to ocean acidification and determining plans for mitigation in advance.²⁰⁵

B. *Sargasso Sea*

Laffoley and Roe have pointed out that for well over a century the Sargasso Sea has been the venue for many pivotal moments in ocean exploration and discovery.²⁰⁶ The beginning of modern oceanography was the voyage of *HMS Challenger*, 1872–1876. It was during this voyage that some of the earliest quantitative investigations into Bermuda’s marine environment, including observations on *Sargassum*, were made.²⁰⁷

In 1932 William Beebe and Otis Barton made the first in situ observations of deep-sea animals from their bathysphere off Bermuda and also made the first live radio broadcasts from the deep ocean.²⁰⁸ Between 1959 and 1960, John Swallow deployed his neutrally buoyant floats (the forerunner to the current ARGO float program) to discover ocean eddies, the “weather” of the ocean. Eddy dynamics and their effects remain an active research field in the Sargasso Sea as they are so characteristic of the area, and understanding ocean variability at the mesoscale is essential for developing realistic models of the ways the ocean works. More recently, in the late 1980s, Chisholm revolutionized our concept of the global oxygen cycle with her discovery of the tiny (100 times smaller than the thickness of a human hair) chlorophyll-containing bacteria *Prochlorococcus*—the most abundant photosynthetic organism on earth, which accounts for an estimated twenty percent of oxygen in the atmosphere.²⁰⁹

Alongside these discoveries, and of huge and continuing significance to oceanography and global science, is the time series of ocean measurements started in 1954 at “Hydrostation S” by Henry Stommel, then at Woods Hole Oceanographic Institution,

205. *Id.* at 53.

206. See LAFFOLEY ET AL., *supra* note 30, at 28.

207. JOHN MURRAY, A SUMMARY OF THE SCIENTIFIC RESULTS OBTAINED AT THE SOUNDING, DREDGING AND TRAWLING STATIONS OF H.M.S. CHALLENGER (1965).

208. KATHERINE CULLEN, MARINE SCIENCE: THE PEOPLE BEHIND THE SCIENCE 39-47 (2005).

209. Sallie W. Chisholm et al., *A Novel Free-Living Prochlorophyte Abundant in the Oceanic Euphotic Zone*, 334 NATURE 340 (1988).

and continued to this day by scientists at the Bermuda Institute of Ocean Sciences. Station S and the subsequent associated measuring arrays provide the world's longest time series of measurements in the deep ocean which in turn have delivered vital understanding of the changes that have occurred in the subtropical oceans and the response of the ocean to global change. Over the past fifty-seven years, observations at Hydrostation S have shown significant warming of the surface ocean ($\sim 0.1^\circ\text{C}$ decade $^{-1}$) and reorganization of the global hydrological cycle shown by an increase in ocean salinity (~ 0.02 psu decade $^{-1}$) in the upper 300 meters.²¹⁰ Such measurements taken over a long time are critical to our understanding of global change.

The discoveries of *Prochlorococcus*, the importance of the biological pump, the surprising results of overall productivity in the Sargasso Sea, and its role as a carbon sink have all come from data derived from the longest time series of measurements of ocean biogeochemistry, microbial oceanography, ocean optics, and carbon export to the deep ocean that we have.²¹¹ Collectively these time series provide critical data needed to understand the time varying fluxes and sequestration of carbon by the ocean over the last few decades. Given the changes now occurring to the global climate, such long time series are critical for our understanding of such planetary processes and for demonstrating the key role of the Sargasso Sea in these processes.

Only four carbon dioxide time series are of sufficient duration to unequivocally show that ocean acidification is a reality, and three of these are in the Sargasso Sea. Two are in the northwestern

210. Anthony Michaels, *Ocean Time Series Research Near Bermuda: The Hydrostation S Time Series and the Bermuda Atlantic Time-Series Study (BATS) Program*, in *ECOLOGICAL TIME SERIES* 181–208 (Thomas Powell & John Steele, eds., 1995).

211. Maureen Conte, Nate Ralph & Edith Ross, *Seasonal and Interannual Variability in the Deep Ocean Particle Fluxes at the Oceanic Flux Program (OFP)/Bermuda Atlantic Time-series (BATS) Site in the Western Sargasso Sea near Bermuda*, 48 *DEEP SEA RESEARCH II* 1471–1505 (2001); T. Dickey et al., *Physical and Biogeochemical Variability from Hours to Years at the Bermuda Testbed Mooring: June 1994–March 1998*, 48 *DEEP SEA RESEARCH II* 2105–2140 (2001); D.A. Siegel et al., *Bio-optical Modeling of Primary Production on Regional Scales: The Bermuda Bio-optics Project (BBOP)*, 48 *DEEP SEA RESEARCH II* 1865–1896 (2001); Robert M. Morris et al., *Temporal and Spatial Response of Bacterioplankton Lineages to Annual Convective Overturn at the Bermuda Atlantic Time-series Study Site*, 50(5) *LIMNOLOGY & OCEANOGRAPHY* 1687–1696 (2005); Jeffrey Krause, Michael Lomas, & David Nelson, *Biogenic Silica at the Bermuda Atlantic Time-Series Study Site in the Sargasso Sea: Temporal Changes and Their Inferred Controls Based on a 15-year Record*, 23 *GLOBAL BIOGEOCHEMICAL CYCLES* (2009); Michael Lomas et al., *Increased Ocean Carbon Export in the Sargasso Sea is Countered by its Enhanced Mesopelagic Attenuation*, 7 *BIOGEOSCIENCES* 57–70 (2010).

Sargasso Sea. BATS (Bermuda Atlantic Time-series Study) is at 31°40'N, 64°10'W and was initiated in 1988. Hydrostation S is at 31°50'N, 64°10'W and was first sampled in 1974. The third is in the Canary Current region of the northeastern Sargasso Sea. ESTOC (European Station for Time-series in the Ocean Canary Islands) at 29°10'N, 15°30'W was initiated in 1994. The Intergovernmental Panel on Climate Change (IPCC) models²¹² estimate that surface ocean pH will decrease by a further 0.3-0.5 units over the next century and beyond;²¹³ a projected three- to five-fold increase in ocean acidity. These time series make the Sargasso Sea one of the most critical locations for understanding global ocean acidification and the its far-reaching consequences.

To support these various Sargasso time series and complementary research, U.S. government bodies including the National Science Foundation, NOAA, the National Atmospheric and Space Administration, the U.S. Department of Energy, as well as other research foundations, have spent nearly 100 million dollars over the last fifty years. Taken together with earlier studies of marine biology, this research effort makes the Sargasso Sea one of the best-studied ocean regions in the world, providing unparalleled information on a changing ocean and its responses to global issues such as climate change.

VI. CONCLUSION

A. *Key Differences Between National and International Processes and Management Options*

Differences between the physical and biological processes that occur on the high seas in ABNJ versus areas under national jurisdiction are likely to occur and provide challenges for management. For example, high-seas habitats are likely to be more dynamic in space and time because high-seas areas are associated with dynamic oceanographic processes. High-seas habitats are less likely to be tied to physical, stationary features such as coral reefs than those in national waters. Instead, currents and fronts may play

212. I.C. Prentice, I.C., et al., *The Carbon Cycle and Atmospheric Carbon Dioxide*, in CLIMATE CHANGE 2001: THE SCIENTIFIC BASIS, CONTRIBUTION OF WORKING GROUP I TO THE THIRD ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (J.T. HOUGHTON ET AL. EDS, 2001).

213. Ken Caldeira & Michael E. Wickett, *Anthropogenic Carbon and Ocean pH*, 425 NATURE 365 (2003); Ken Caldeira & Michael E. Wickett, *Ocean Model Predictions of Chemistry Changes from Carbon Dioxide Emissions to the Atmosphere and Ocean*, 110 J. OF GEOPHYSICAL RES.: OCEANS 1-12 (2005).

larger roles, and these may move in time, adding an additional layer of challenges. The Sargasso Sea is one clear example of an ecosystem the boundaries of which change throughout the year depending on the location of major currents, while management of habitats in Papahānaumokuākea focus on coral reefs and similar stationary features.

Areas within national jurisdiction usually have a less ambiguous management structure than the high seas. Agencies responsible for management are clear, although there may be multiple agencies with jurisdiction over the same or adjacent areas, requiring cooperation and coordination among agencies, as is the case in PMNM. In contrast, high-seas areas may lack the same level of jurisdictional competence. Although international agreements and international sectoral bodies such as IMO and fisheries bodies such as ICCAT play a crucial role, these roles are restricted because of the international legal framework within which they operate. The SSA has made considerable progress to date in drawing attention to the importance of the Sargasso Sea ecosystem in a wide variety of forums by seeking to work in collaboration with a range of sectoral bodies, including Regional Fishery Management Organizations (RFMOs)²¹⁴ and the ISA. Furthermore, the planned international Declaration on Collaboration for the Conservation of the Sargasso Sea will bring together governments as well as international organizations that can play a major role in the development of international protection measures within the relevant sectoral organizations. While the initial role of the proposed Sargasso Sea Commission is primarily research, monitoring, and outreach, the day may come when those same countries that sign the Declaration will recognize the need for it, or for them, to take on more of a management function. Using the Sargasso Sea as a model, international declarations in other regions may serve a similar purpose in relation to other high-seas areas in need of protection.

In both national and international areas, IMO is likely to serve

214. An RFMO is an international body made up of countries that share a practical and/or financial interest in managing and conserving fish stocks in a particular region. These include coastal States, whose waters are home to at least part of an identified fish stock and “distant water fishing nations” (DWFN), whose fleets travel to areas where a fish stock is found. RFMOs are established by international agreements or treaties and can take different forms. Some focus on regulating fishing for a particular species or group of species. Others have a broader mandate that includes responsibility to ensure that the fishery does not negatively affect the wider marine ecosystem and the species within it. See David Freestone, *International Fisheries Commissions and Organizations*, in MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW (Rüdiger Wolfrum ed., 2010).

as an important international body for reducing impacts from shipping, one of the largest human industries in pelagic areas. In Papahānaumokuākea, the PSSA designation by IMO has served as an important protective element. As we saw, there has yet to be a PSSA designation in an ABNJ, or a designation of an area as large as the Sargasso Sea. Still unclear also is the possible role for the World Heritage Convention. Its World Heritage sites are of course the *crème de la crème*. As attention is focused more and more on the absence of proper protection measures for ABNJ, both these regimes may develop.

B. Role of National Areas in International Processes

The Sargasso Sea provides an important case study in highlighting the importance of national areas in international processes. While there are a relatively large number of sectoral organizations with at least some responsibility for regulating activities in ABNJ, the challenges of developing protection measures is still considerable, as the Sargasso Sea project shows. The EBSA descriptions developed by the science-driven process of the Convention of Biological Diversity may over time develop a higher degree of credibility in the other sectoral bodies' decisionmaking processes. In the meantime, the unique feature of the Sargasso Sea has been the willingness of the Government of Bermuda to assume the role of champion. The Hamilton Declaration will, it is hoped, gather a number of other governments around the table to help in developing and supporting future proposals for protection measures to these same organizations.

C. Challenges of Managing Large-Scale Areas

Managing large-scale areas results in unique challenges, both in national and international waters. These areas encompass a diverse set of mobile species and oceanographic features, such as eddies or frontal systems, and highly migratory species such as whales, sea turtles, or tunas that rely on these dynamic oceanographic features for important aspects of their life histories, such as feeding or breeding. Animals may use such features intermittently, moving between features, as well as in and out of the boundaries of large-scale protected areas. As a result, such mobile species are likely to be exposed to threats beyond protected area boundaries, and threats beyond boundaries must be taken into account for management in terms of creating management

plans and designating targets that are realistic and feasible. Such mobile species and threats also highlight the importance of coordinating with other national and international sectoral bodies to make sure that protections within boundaries are not defeated by activities beyond protected area boundaries.

It is for this reason that the effective management of large marine areas requires cooperative and noncooperative enforcement and surveillance technologies.²¹⁵ Cooperative systems are those in which only participating vessels are monitored (e.g., VMS), and these may be critical for monitoring human activities, as has been applied in PMNM. Non-cooperative technologies include aerial flights, gliders, or buoy-based sound monitoring for human presence or threats and will be particularly important for monitoring activities of participating vessels, as well as monitoring for illegal activities.

Such large areas also pose challenges for surveillance, enforcement, and compliance. Education of users, surveillance, and enforcement of areas over such a large scale is costly and challenging. Collective enforcement and surveillance between multiple countries that magnifies capabilities (e.g. through “ship-rider agreements”) will be necessary to have a large enough presence in areas.²¹⁶ Peer and participatory enforcement and surveillance where, for example, vessels are required to report the presence and activities of other vessels while in an area, may further increase on-the-water capabilities. Additional challenges will exist with biological monitoring in such large-scale areas, and cooperation between sectoral bodies, agencies, and scientific partners will be critical, along with well-defined priorities for applying biological monitoring funds.²¹⁷

Such issues are important for the enforcement of protection measures in areas within national jurisdiction. However, in ABNJ there are systemic problems highlighted by lacunae in the current regime of the Law of the Sea Convention itself.²¹⁸ At the present

215. SANDRA BROOKE ET AL., MARINE CONSERVATION BIOLOGY INST., SURVEILLANCE AND ENFORCEMENT OF REMOTE MARITIME AREAS, PAPER 1: SURVEILLANCE TECHNICAL OPTIONS 1 (2010), available at http://mcbi.marine-conservation.org/publications/pub_pdfs/SERMA.pdf; MARK RICHARDSON, MARINE CONSERVATION INST., PROTECTING AMERICA'S PACIFIC MARINE MONUMENTS: A REVIEW OF THREATS AND LAW ENFORCEMENT ISSUES 41 (2012), available at http://www.marine-conservation.org/media/filer_public/2012/11/08/pacific_islands_enforcement_final_case_studyfull_version.pdf.

216. See Richardson, *supra* note 214, at 43-44.

217. *Id.*

218. Freestone, *Can We Protect High Seas Ecosystems?*, *supra* note 6, at 383-418;

there is no real mechanism, beyond a purposefully designed regional treaty structure to assume the sort of management powers in ABNJ equivalent to the national powers—at the state and especially at the federal level—that the U.S. has been able to deploy for the protection of Papahānaumokuākea. Even a regional treaty arrangement—such as the OSPAR treaty in the Northeast Atlantic—does not necessarily solve the problem. As a comparison between the work of OSPAR and the SSA has demonstrated,²¹⁹ although the OSPAR treaty regime provides a clear marine environmental mandate, it has no management authority over a number of the activities that take place within its region, notably shipping and fishing. So the requirements of coordination faced by the Sargasso Sea project remain for a regional treaty regime. It is also worth reflecting from a wider perspective that the establishment of the Marine Protected Areas designated by the parties to the OSPAR Convention is a process that only binds the OSPAR Parties. Other states are not legally bound to respect these areas. For the MPAs to acquire an objective status—so as to be binding on all states—there would need to be a global mechanism, such as global treaty, or else the establishment of such areas would need to be widely recognized as having become part of customary international law.

This fragmentation of authority between various sectors and between various regions, as well as the fact that significant lacunae do exist in the regime established by 1982 U.N. Convention on the Law of the Sea,²²⁰ is the reason that the U.N. General Assembly has spent the last decade discussing whether there is a need for some form of global instrument, perhaps an Implementing Agreement to the 1982 Convention. In May 2011 the body set up by the U.N. General Assembly which was termed 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 (known as the U.N. or BBNJ Working Group),²²¹ recommended that:

Freestone, *Problems of High Seas Governance*, *supra* note 6, at 90-103.

219. Freestone, *Problems of High Seas Governance*, *supra* note 6, at 90-103.

220. KRISTINA M. GJERDE ET AL., IUCN, REGULATORY AND GOVERNANCE GAPS IN THE INTERNATIONAL REGIME FOR THE CONSERVATION AND SUSTAINABLE USE OF MARINE BIODIVERSITY IN AREAS BEYOND NATIONAL JURISDICTION (2008), *available at* http://cmsdata.iucn.org/downloads/iucn_marine_paper_1_2.pdf.

221. *See 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*, U.N. DIV. FOR OCEAN AFFAIRES & THE LAW OF THE SEA, <http://www.un.org/Depts/los/biodiversityworkinggroup/biodiversityworkinggroup.htm>

(a) A process be initiated, by the General Assembly, with a view to ensuring that the legal framework for the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction effectively addresses those issues by identifying gaps and ways forward, including through the implementation of existing instruments and the possible development of a multilateral agreement under the United Nations Convention on the Law of the Sea;

(b) This process would address the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction, in particular, together and as a whole, marine genetic resources, including questions on the sharing of benefits, measures such as area-based management tools, including marine protected areas, and environmental impact assessments, capacity-building, and the transfer of marine technology.²²²

This was discussed further at the 2012 BBNJ Working Group meeting,²²³ and as expected was also discussed at the U.N. Conference on Sustainable Development (Rio plus 20). The Outcome Document of the Rio Conference, entitled “The Future We Want,” contained the following commitment:

We recognize the importance of the conservation and sustainable use of marine biodiversity beyond areas of national jurisdiction. We note the ongoing work under the auspices of the General Assembly of the Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction. Building on the work of the Ad Hoc Open-ended Working Group and before the end of the sixty-ninth session of the General Assembly, we commit to address, on an urgent basis, the issue of the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, including by taking a decision on the development of an international instrument under the Convention on the Law of the Sea.²²⁴

This comparative study of two large marine ecosystems, one at

(last visited Feb. 16, 2014).

222. Letter from the Co-Chairs of the Ad Hoc Open-ended Informal Working Group to the President of the General Assembly at 2, U.N. Doc. A/66/119 (Jun. 30, 2011), available at http://www.un.org/en/ga/search/view_doc.asp?symbol=A/66/119.

223. See Ad Hoc Open-ended Informal Working Group, Draft Format and Annotated Provisional Agenda and Organization Of Work, U.N. Doc. A/AC.276/L.8 (Apr. 7, 2012), available at http://www.un.org/depts/los/biodiversityworkinggroup/A_AC-276_L-8.pdf.

224. The Future We Want, *supra* note 181, at ¶ 162.

national level and the other in an area beyond national jurisdiction very clearly demonstrates the need for more effective regulation and management of important areas beyond national jurisdiction. The Papahānaumokuākea case study probably represents the very best that can be done using national law in coordination with international law requirements to protect a large ocean space. The Sargasso Sea is still a work in progress, but the expectation of a similarly regulated and managed area is not realistic given the current state of international law.