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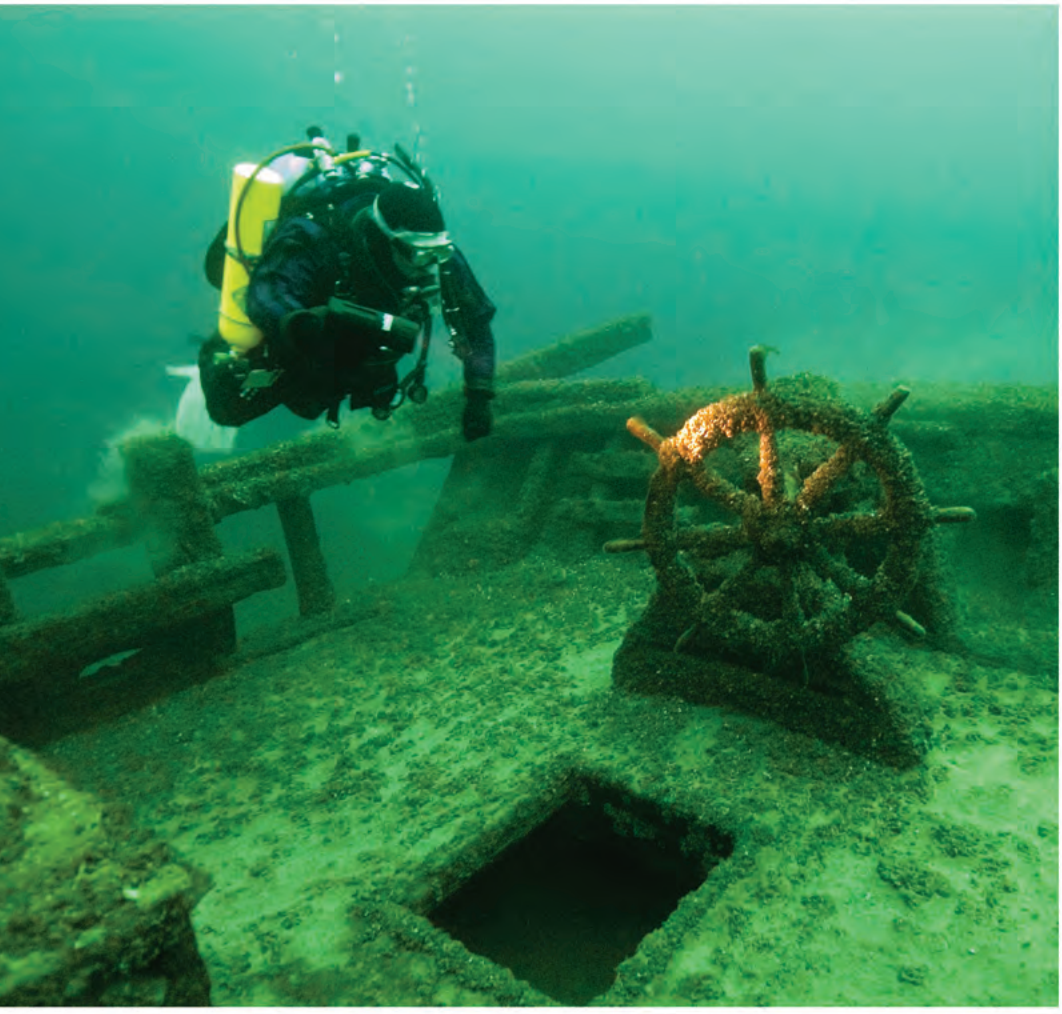
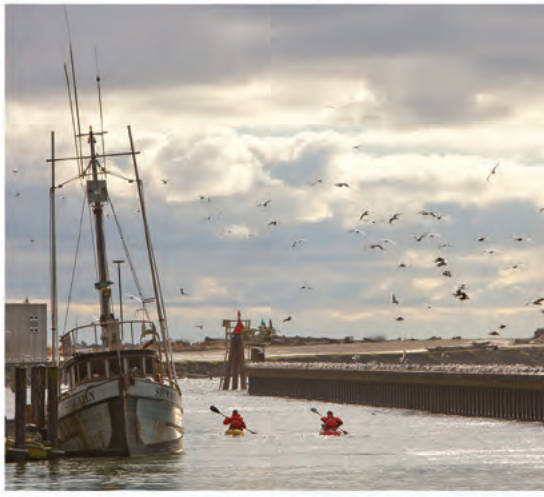
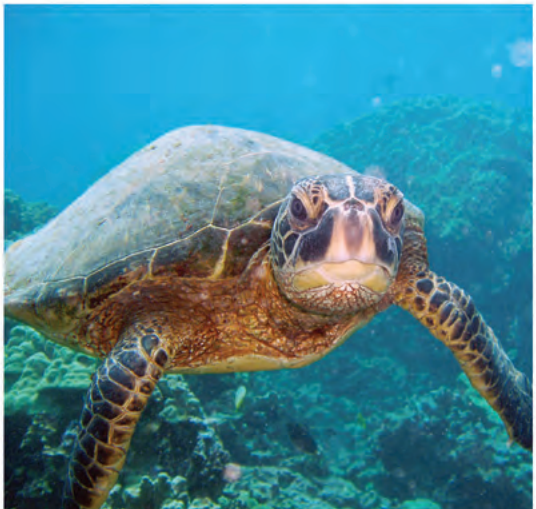
Area-Based Management of Marine Resources

A Comparative Analysis of the National Marine Sanctuaries Act and Other Federal and State Legal Authorities







Area-Based Management of Marine Resources: A Comparative Analysis of the National Marine Sanctuaries Act and Other Federal and State Legal Authorities

This report is based upon an independent work product completed by Perkins Coie LLP, upon a pro bono request by the National Marine Sanctuary Foundation.

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I. Executive Summary

The oceans face serious threats ranging from habitat degradation to declining fisheries to the effects of climate change. Analysts have concluded that ecosystem-based management tools like marine protected areas and marine reserves are important for protecting the United States' marine resources from these threats and for preserving the oceans' benefits for current and future generations. The success of spatially explicit protected areas depends on involving stakeholders in the process to site, regulate, and manage the protected areas.

While many ocean resource laws have or might be used to provide spatial protections, the National Marine Sanctuaries Act (NMSA) stands apart in offering the kind of management regime needed to preserve ocean resources.[1] Indeed, when enacting the NMSA in 1972, Congress intended to create a comprehensive management system for the entire marine environment that balanced preservation and human activities. To achieve this goal, the NMSA provides for setting aside marine areas for permanent protection and long-term management as national marine sanctuaries.

This report provides an overview of the NMSA and other domestic legal mechanisms for preserving marine ecosystems, including federal authorities, state laws, and the common law of torts. The report also identifies the primary goals of these authorities, discusses how each authority helps protect and conserve marine ecosystems, and considers their shortcomings. The authorities addressed do not constitute an exhaustive list of laws governing the marine environment; rather, they represent those that are most important today. Additionally, although international law is beyond the scope of this paper, it is important to note that there are a variety of international laws and treaties that are relevant to ocean protection, including the 1982 United Nations Convention on the Law of the Sea;[2] the 1973 International Convention for the Prevention of Pollution from Ships, as modified by the Protocol of 1978;[3] and the Convention on International Trade in Endangered Species of Wild Fauna and Flora.[4]

In comparing the NMSA to other existing laws in the United States, the NMSA deserves renewed attention as a unique and powerful ocean conservation tool. Unlike most ocean resource laws, which have a narrow focus on coastal resources, marine mammal protection, offshore mineral extraction, fisheries management, or invasive species, national marine

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[1] The NMSA also applies to the Great Lakes. For purposes of this report, references to the ocean conservation tools of the NMSA should be understood to include the Great Lakes.

[2] U.N. Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, 1833 U.N.T.S. 397, 21 I.L.M. 1261 (entered into force Nov. 16, 1994).

[3] International Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 12 I.L.M. 1319 (entered into force Oct. 2, 1983); Int'l Maritime Organization, Summary of International Convention for the Prevention of Pollution from Ships (MARPOL), http://www.imo.org/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx (last visited Nov. 25, 2012).

[4] Convention on International Trade in Endangered Species of Wild Fauna and Flora, Mar. 3, 1973, 993 U.N.T.S. 243 (entered into force July 1, 1975).

sanctuaries take a different approach: They protect our most valued ocean places, along with the natural, historical, and cultural resources that make them worth preserving.

The NMSA has several advantages over other authorities in establishing, protecting, and managing specific geographic areas. First, the NMSA creates the authority to apply a comprehensive, ecosystem-based approach to solving problems of ocean degradation and conflicting uses. In contrast, use-based authorities such as the Outer Continental Shelf Lands Act and the Magnuson-Stevens Fishery Conservation and Management Act focus primarily on offshore oil and gas development, and fisheries management, while species-based authorities such as the Endangered Species Act and the Marine Mammal Protection Act aim to protect and revive individual species. Similarly, federal authorities focused on aquatic invasive species are extremely focused and incapable of implementing comprehensive, ecosystem-based management. The NMSA's systematic approach to sanctuary designation is also preferable to state-based management plans, or coastal authorities such as the Coastal Barrier Resources Act (CBRA), the Coastal Zone Management Act, and provisions in the Clean Water Act. While these authorities aim to protect and manage the coastal environment, they by definition have limited jurisdictional authority relative to the NMSA. For their part, courts are reluctant to assert their jurisdiction and use tort law to advance broad policy goals like reversing ocean degradation.

Second, despite the NMSA's primary goal of preservation, national marine sanctuaries allow for various compatible uses, including fishing, boating, diving, and other forms of human activity. Unlike federal authorities governing other classifications of protected areas, such as national parks and wilderness areas, which generally apply significant restrictions on human activities, the NMSA facilitates lawful public and private sanctuary uses that are compatible with resource protection. The availability of this multiple-use approach engages the public and reinforces the scientific, cultural, and historic value of marine sanctuaries.

Third, the NMSA provides comprehensive law enforcement authority to the Secretary of Commerce to enforce the protections accorded to marine sanctuaries. The NMSA allows for civil penalties, enabling enforcement without involving federal prosecutors. Some other marine environment legal authorities, like Executive Order 13,158 on Marine Protected Areas, fail to establish any formal accountability—in this case, for federal agencies that fail to comply with the order. Similarly, the CBRA does not provide comprehensive oversight of the various agencies covered by the statute's prohibition on providing financial assistance to property owners in CBRA-designated areas. Other laws, like the Endangered Species Act and the Marine Mammal Protection Act, only provide enforcement authority for activities that result in injury to constituent elements of the marine environment, like the individual members of protected species. The NMSA, by contrast, extends its prohibitions and enforcement authority to all components of the sanctuary area.

Finally, the NMSA provides for significant stakeholder involvement. The statute includes extensive opportunities for public participation, from the time a sanctuary is considered for designation through its ongoing management as a protected area. This degree of

participation ensures that sanctuaries are compatible with other nearby uses and are effectively managed, and that sanctuary-specific regulations are meaningful and enforceable.

Despite these strengths, the NMSA, as currently drafted and implemented, is not without its flaws. The NMSA's requirement for extensive coordination between federal, state, and local agencies and stakeholders, all of which have competing and sometimes incompatible goals, may stall or altogether derail sanctuary designations. More importantly, over the past decade, no new sanctuary designations have been made, congressional action has had the practical effect of placing a moratorium on new designations, and the National Oceanic and Atmospheric Administration has been faced with chronic underfunding.

Even with these shortcomings, the NMSA is the most effective and comprehensive approach currently available to protect specific areas within the coastal and ocean zones, including entire marine ecosystems, and the statute is the only existing federal law structured with this end firmly in mind. Further, sanctuary management is wholly consistent with the principles of the Obama Administration's National Ocean Policy. The policy reflects recommendations made by the Interagency Ocean Task Force, including a proposed shift away from use-based laws and toward ecosystem-based management of marine resources, as well as increased stakeholder involvement to ensure that ocean management considers the needs of those impacted by new policies. As this report details, the NMSA has substantial promise to advance both of these goals and is better suited to this task than other existing authorities.

II. Importance of Marine Protected Areas, Marine Reserves, and Marine Sanctuaries

America's oceans cover almost 4.5 million square miles, an area 23 percent larger than the nation's landmass. These oceans teem with fish, sea bird, mammal, and other wildlife species; contain numerous resources; and host countless opportunities for economic and recreational activities. Despite the recognized value of sustaining our ocean ecosystems for their scientific, cultural, and economic value, current management of marine resources and habitats is insufficient. The oceans, once considered too vast to be impacted by human activity, show signs of stress. Marine species are threatened, endangered, or extinct. Fish stocks are heavily or fully exploited. Pollution-stimulated algae blooms have depleted waters of oxygen and created dead zones.

In the United States, concern about resource exhaustion, wilderness losses, and endangered species has led to the creation of wildlife refuges, protected areas, and national parks. As a result, 4.6 percent of the nation's land area is protected as wilderness.[5] In contrast, and despite the existing and growing threat to the nation's marine resources and habitats, similar protective actions have not been widely applied to American waters. Only a fraction of one percent of the nation's marine area is protected.[6]

A. Definitions

1. Marine Protected Areas

Marine protected areas are important management tools for protecting and conserving marine resources. Because there is no single international source of regulatory authority for marine protected areas, the definition of a marine protected area is not uniform. The definition generally depends on the purpose and expectations of the regulatory protection. Most definitions indicate that marine protected areas are geographically defined areas regulated to manage systems (rather than an individual resource or species) over the long term.[7] Within the United States, Executive Order 13,158 provides the working definition of a marine protected area as "any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein."[8] A more descriptive definition of a

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[5] PEW OCEANS COMM'N, AMERICA'S LIVING OCEANS: CHARTING A COURSE FOR SEA CHANGE 31 (2003) [hereinafter AMERICA'S LIVING OCEANS].

[6] *Id.*

[7] HAROLD F. UPTON & EUGENE H. BUCK, CONG. RES. SERV., NO. RL32154, CRS REPORT FOR CONGRESS: MARINE PROTECTED AREAS: AN OVERVIEW 2 (2010).

[8] Exec. Order No. 13,158, 3 C.F.R. 273, 274, 65 Fed. Reg. 34,909, 34,909 (May 26, 2000), *reprinted in* 16 U.S.C. § 1431. This definition is similar to that provided by the International Union for Conservation of Nature. The IUCN defines a marine protected area as "[a]ny area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment."

marine protected area is "a discrete geographic area that has been designated to enhance the conservation of marine and coastal resources and is managed by an integrated plan that includes [area]-wide restrictions on some activities such as oil and gas extraction and higher levels of protection on delimited zones, designated as fishery and ecological reserves within the [marine protected area]."[9]

2. Marine Reserves

Marine reserves typically are a subset or isolated area of a marine protected area "in which some or all of the biological resources are protected from removal or disturbance."[10] Marine reserves that prohibit all resource extraction are sometimes called ecological reserves.[11]

3. Marine Sanctuaries

Marine sanctuaries are another type of marine protected area.[12] Marine sanctuaries protect areas of special conservation, recreational, ecological, historical, scientific, cultural, aesthetic, or other significance.[13] Generally, regulations under the NMSA allow a wide range of consumptive and non-consumptive uses within the boundaries of a marine sanctuary, and protective measures frequently depend on a cooperative relationship with resource managers in multiple jurisdictions.[14] The NMSA is discussed in detail in Part III.

B. Purposes

By definition, marine protected areas, marine reserves, and marine sanctuaries are ecosystem-based management tools. Ecosystem-based management emphasizes the protection of functions and key processes within a system and focuses on the range of activities impacting a particular area.[15] Ecosystem-based management acknowledges the relationship between air, land, and sea and recognizes the interactions between many different species, including humans.[16] Managing an area for "ecosystem health" promotes the

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WORLD COMM'N ON PROTECTED AREAS OF IUCN—THE WORLD CONSERVATION UNION, GUIDELINES FOR MARINE PROTECTED AREAS, xviii (Graeme Kelleher ed., 1999) [hereinafter GUIDELINES FOR MARINE PROTECTED AREAS].

[9] COMM. ON THE EVALUATION, DESIGN & MONITORING OF MARINE RESERVES & PROTECTED AREAS IN THE U.S. NAT'L RES. COUNCIL, MARINE PROTECTED AREAS: TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS 12 (2003) [hereinafter TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS].

[10] *Id.*

[11] UPTON & BUCK, *supra* note 7, at 3.

[12] *Id.*

[13] National Marine Sanctuaries Act, 16 U.S.C. § 1433(a)(2).

[14] TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS, *supra* note 9, at 156-57.

[15] SCIENTIFIC CONSENSUS STATEMENT OF MARINE ECOSYSTEM-BASED MANAGEMENT 1 (2005), *available at* http://doc.nprb.org/web/BSIERP/EBM%20scientific%20statement.pdf.

[16] *See id.*; *see also* GUIDELINES FOR MARINE PROTECTED AREAS, *supra* note 8, at xviii ("One thing the definition of [marine protected areas] does not say. It does not state that [a marine protected area] should keep people out.").

"ongoing capability of an ecosystem to support a productive and resilient community of species, irrespective of the human activity permitted there."[17]

As management tools, marine protected areas and marine reserves provide benefits that serve important scientific, economic, and cultural purposes. Defining the purposes of a potential marine protected area determines the appropriate level of restrictions or regulations.[18]

1. Conservation of Biodiversity and Habitat

A central purpose of marine protected areas is to conserve biodiversity and protect the habitat of marine species. More than 20,000 acres of sensitive marine habitat disappear each year as a result of coastal development, pollution runoff, and other human activities.[19] Nutrient runoff creates algae blooms that kill seagrass, kelp beds, and coral reefs that are important fish spawning and nursery habitats.[20] Every summer, nutrient runoff draining into the Mississippi River creates a dead zone in the Gulf of Mexico the size of Massachusetts.[21] Harmful algae blooms affect nearly all coastal states.[22] Invasive marine species, frequently introduced by ship ballast or as escapees from fish farms, are crowding out native species and altering natural habitat and food chains.[23] More than one million Atlantic salmon escapees from fish farm pens on the West Coast have diluted Pacific salmon gene pools by hybridizing with native species.[24] In addition, already depleted populations of sea turtles, marine mammals, seabirds, and noncommercial fish are threatened by incidental capture in fish nets.[25]

Climate change also impacts the health of ocean ecosystems. Global mean surface temperatures have risen 0.74°C over the last century at an approximate increase per decade of 0.07°C.[26] The rate of temperature increase over the last 50 years is dramatically higher—approximately 0.13°C per decade.[27] Between 1961 and 2003, global ocean temperatures rose by 0.10°C, and sea levels increased by an average of 1.8 mm per year.[28] Temperature changes, sea level rises, ocean acidification, changes in the availability of water from precipitation and

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[17] AMERICA'S LIVING OCEANS, *supra* note 5, at 7.
[18] TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS, *supra* note 9, at 12.
[19] AMERICA'S LIVING OCEANS, *supra* note 5, at vi.
[20] *Id.*
[21] *Id.*
[22] *Id.* at 6.
[23] *Id.* at vi-vii. Between 1790 and 1999, 374 invasive species were introduced into the United States coastal zone; 150 of these species were introduced between 1970 and 1999. *Id.* at 19.
[24] *Id.* at vi-vii.
[25] *Id.* at vi.
[26] Kevin E. Trenberth et al., *Observations: Surface and Atmospheric Climate Change*, *in* CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS, CONTRIBUTION OF WORKING GROUP I TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 237 (S. Solomon et al. eds., 2007).
[27] *Id.*
[28] Nathaniel L. Bindoff et al., *Observations: Climate Change and Sea Level*, *in* CLIMATE CHANGE 2007, *supra* note 26, at 387.

runoff, wind patterns, and storminess are environmental factors attributable to climate change that affect marine ecosystems.[29]

These changes put significant stress on marine life. For example, many species are sensitive to even slight temperature increases; even where impacts are sub-lethal, an increase in temperature will influence growth and metabolism, timing of reproduction, and the rate of egg and larval development.[30] Any positive or negative impact on an ecosystem's species will affect the food chain and the system's health.[31] Temperature changes impact population abundances and organism distribution, eliminating some species from parts of their native ranges, enhancing the environment and survivability of nonnative species, and changing the mix of predators, prey, parasites, and competitors within an ecosystem.[32]

Ocean acidification, or the decrease in ocean pH due to increased absorption of the greenhouse gas carbon dioxide, presents a major threat to ocean ecosystems. The world's seas absorb roughly one third of all carbon dioxide released by human activities.[33] This "sink" reduces global warming—but it also results in ocean acidification.[34] Over the past 20 years, ocean pH has decreased at a rate of 0.02 pH units per decade.[35] Experiments show that the struggle by copepods, snails, sea urchins, and brittle stars to balance the changing pH inside their bodies impairs their ability to reproduce and grow.[36] As seawater becomes more acidic, corals and animals such as clams and mussels have trouble building their skeletons and shells.[37] Additionally, the acidity can interfere with basic bodily functions, like growth and reproduction, for all marine animals.[38] If greenhouse gases emissions continue at current rates, scientists estimate that the pH of the upper ocean could drop to 7.8 or 7.7—as much as a 150 percent increase in acidity compared with preindustrial times.[39]

Marine protected areas conserve marine biodiversity and protect the habitat of stressed, threatened, and endangered marine species. Marine habitats are impacted by bottom trawling, fish nets, pollution, dredging, and oil and gas extraction.[40] Marine protected areas and marine reserves protect native species and their habitat by limiting or prohibiting these human activities. Ecosystem-based management of a marine area promotes the recovery of overexploited species.[41] The impact can be measured almost immediately. A study of the

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[29] VICTOR S. KENNEDY ET AL., COASTAL AND MARINE ECOSYSTEMS & GLOBAL CLIMATE CHANGE: POTENTIAL EFFECTS ON U.S. RESOURCES 7 (2002).
[30] *Id.* at 8.
[31] *Id.* at 4.
[32] *Id.* at 4, 10, 12.
[33] Marah J. Hardt & Carl Safina, *How Acidification Threatens Oceans from the Inside Out*, SCIENTIFIC AMERICAN, Aug. 9, 2010, at 1, *available at* http://www.scientificamerican.com/article.cfm?id=threatening-ocean-life.
[34] *Id.*
[35] Bindoff, *supra* note 28, at 387.
[36] Hardt & Safina, *supra* note 33, at 1.
[37] *Id.*
[38] *Id.*
[39] *Id.*
[40] TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS, *supra* note 9, at 22.
[41] *Id.* at 175.

impacts of marine reserves found that reserves achieve greater population density and species diversity within as little as one year after being designated for protection.[42] Promoting biodiversity and critical habitat is crucial to protecting the health of marine ecosystems, and "[h]ealthy ecosystems are . . . more resilient to all perturbations, including climate-induced changes."[43]

2. Fishery Management

Destructive fishing methods, overfishing and unsustainable fishing practices, and other human actions threaten economically and ecologically important fish populations.[44] Although most commercially important fisheries in North America are regulated by quotas or license limitations, limited entry, or other restrictions, failure to effectively regulate fishing has resulted in overexploitation.[45] The Pew Oceans Commission reports that the United States government only ensures that 22 percent of managed fish stocks are being fished in a sustainable manner.[46] In American waters, overexploitation has depleted the stock of bluefin tuna and mixed-species groundfish.[47] By 1989, New England cod, haddock, and yellowtail flounder had reached historic population lows.[48] Atlantic halibut in American waters are "commercially extinct—too rare to justify a directed fishing effort."[49] The population of bocaccio rockfish, commonly known as Pacific red snapper, is less than 10 percent of its historic strength.[50]

Overexploitation threatens not only ecosystem health; successful fishery management is also critical to the health of commercial fishing, a multi-billion dollar industry. In the United States in 2001, the commercial seafood industry accounted for $28.6 billion of the national gross domestic product.[51] In Alaska, home to nearly half of commercial fish landings, the commercial fishing industry is the largest employer.[52] Unsustainable fishing practices threaten the economy of many coastal communities around the country.

For hundreds of years, communities in the Pacific have created marine protected areas to allow regeneration of resources.[53] Absent widespread community stewardship, regulated, ecosystem-based marine protected areas and marine reserves are an important tool to protect resources and to allow for recovery of depleted fish stocks. Marine protected areas can protect critical stages of species' life histories and reduce secondary impacts of fishing.

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[42] Kim Diana Connolly et al., *Marine Protected Areas*, *in* OCEAN AND COASTAL LAW AND POLICY 535, 537 (Donald C. Baur et al. eds., 2008).
[43] AMERICA'S LIVING OCEANS, *supra* note 5, at 87.
[44] *Id.* at vi.
[45] TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS, *supra* note 9, at 31.
[46] AMERICA'S LIVING OCEANS, *supra* note 5, at 2.
[47] TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS, *supra* note 9, at 30.
[48] AMERICA'S LIVING OCEANS, *supra* note 5, at 2.
[49] *Id.*
[50] *Id.*; *see also* NOAA Fisheries, Office of Protected Resources, Bocaccio (*Sebastes paucispinis*), http://www.nmfs.noaa.gov/pr/species/fish/bocaccio.htm (last updated Jan. 4, 2012).
[51] *Id.* at 35.
[52] *Id.*
[53] GUIDELINES FOR MARINE PROTECTED AREAS, *supra* note 8, at xxi.

Prohibiting fishing in known nursing grounds reduces the mortality of juveniles and increases the mature biomass of the adult population.[54] In marine reserves around the world, average fish biomass doubled within five years, and the larger fish within the reserves produced more eggs than fish outside the reserves.[55] Larger fish and a healthier population within a reserve may also increase the health of the fish population outside the reserve. The "biomass overflow (or spillover) hypothesis" suggests that higher population densities and larger biomass of fish within a reserve favors migration of adult fish into surrounding waters outside the reserve, thus replenishing population in unprotected waters.[56] In addition, the "larval export hypothesis" suggests that larvae will disperse outside the protected marine area or marine reserve to enhance fish stocks in open fishing areas.[57]

Marine protected areas and marine reserves that protect fish from overexploitation and enhance fish stock populations promote the health of the entire ecosystem. Managing fishing efforts in a spatial area reduces the physical impact of fishing nets and equipment, reduces wasteful bycatch of marine mammal and fish species, and helps restore the natural food chain of the ecosystem.[58] Marine protected areas, as part of a broader coastal zone regulatory scheme, can contribute to a successful marine resource management system that preserves ecosystem health and sustainable fishing.[59]

3. Scientific Knowledge

Marine reserves can provide a valuable tool for gathering baseline scientific information about marine ecosystems. "Because all factors effecting change in ecosystems operate simultaneously and at different temporal and spatial scales, it is extremely difficult to discern natural from human-induced causes."[60] Designating and regulating marine reserves provides an opportunity to collect baseline data that will help our understanding of ecosystem impacts, fish population dynamics, and natural variability. In particular, marine reserves can provide baseline data to study the effectiveness of rehabilitation projects at disturbed and stressed sites and to compare the fish resources of undisturbed ecosystems and exploited systems.[61]

Additionally, marine protected areas provide unique opportunities for the public to learn about marine ecosystems.[62] Marine protected areas can be education destinations for a wide variety of user groups, ranging from divers seeking to observe natural or recovering marine environments to students at associated onshore support centers.[63] Educating the public on the

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[54] TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS, *supra* note 9, at 22.
[55] AMERICA'S LIVING OCEANS, *supra* note 5, at 32.
[56] TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS, *supra* note 9, at 75 (emphasis omitted).
[57] *Id.* at 76 (emphasis omitted).
[58] AMERICA'S LIVING OCEANS, *supra* note 5, at 40-41.
[59] TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS, *supra* note 9, at 40.
[60] *Id.* at 27.
[61] *Id.* at 27-28, 49.
[62] *Id.* at 28.
[63] UPTON & BUCK, *supra* note 7, at 8.

impacts of human activities and natural processes can promote stewardship of marine resources.

4. Enhancement of Recreational Activities and Tourism

Coastal tourism accounts for 85 percent of the United States tourism industry.[64] Given the huge numbers of visitors to the nation's coastal areas each year, the impact of tourists on coastal development, infrastructure, and pollution is not surprising. But coastal tourism is dependent on the quality of the natural environment, whether it is a clean beach or native bird watching opportunities. Communities around the country rely on marine ecotourism as non-consumptive visitors seek opportunities for coastal bird watching, whale watching, diving, and snorkeling. In addition, an estimated 17 million recreational fishers spend approximately $25 billion per year on fishing-related activities and products.[65]

Marine protected areas and marine reserves enhance recreational activities and tourism by protecting the quality of the natural environment sought by visitors and locals alike. A marine protected area or marine reserve can promote development of an economically vibrant ecotourism industry by ensuring abundant marine life, unpolluted waters, and intact native habitats.[66] Just as marine protected areas and marine reserves can promote tourism and recreational activities, opportunities to enjoy the protected area are critical to its success. "If the public are not able to enjoy the [marine protected area], they will not support it."[67]

5. Sustainable Environmental and Economic Benefits

Healthy marine ecosystems protect marine habitat and species and their dependent economic activities. Restoring fish populations and natural ecosystems could support 64 percent more fish catches above recent yields.[68] That amounts to an additional 6.9 billion pounds of fish per year—a potential $1.3 billion boon to the American economy.[69] Coral reefs protect roughly half of all U.S.-managed commercial fish species at some point in their life cycles and provide other goods and services.[70] Early last decade, coral reefs in the Florida Keys were estimated to support $105 million in income and over 8,000 jobs.[71]

Perhaps just as importantly, robust coral reefs and other healthy marine ecosystems provide sustainable environmental benefits. Marine ecosystems provide coastal protection

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[64] AMERICA'S LIVING OCEANS, *supra* note 5, at 49.
[65] *Id.* at 35.
[66] TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS, *supra* note 9, at 28.
[67] GUIDELINES FOR MARINE PROTECTED AREAS, *supra* note 8, at xx.
[68] AMERICA'S LIVING OCEANS, *supra* note 5, at 46.
[69] *Id.*
[70] Christophe A.G. Tulou et al., *Climate Change and the Marine Environment*, *in* OCEAN AND COASTAL LAW AND POLICY, *supra* note 42, at 576; U.S. COMM'N ON OCEAN POLICY, AN OCEAN BLUEPRINT FOR THE 21ST CENTURY: FINAL REPORT 321-22 (2004), *available at* http://govinfo.library.unt.edu/oceancommission/documents/full_color_rpt/welcome.html#full.
[71] U.S. COMM'N ON OCEAN POLICY, *supra* note 70, at 321-22.

from storms and erosion, natural water purification, bioremediation of oil and chemical spills, and reduction of atmospheric carbon dioxide.[72]

6. Protection of Cultural Heritage

Marine protected areas also protect cultural sites, including shipwrecks, archeological sites, and areas of special significance to Native American tribes.[73] The first national marine sanctuary was established to protect the remains of the *USS Monitor*, a Civil War ironclad sunk off the coast of North Carolina.[74]

C. Summary

The causes of marine ecosystem degradation are numerous and include pollution, nutrient runoff, coastal and offshore development, invasive species, overfishing, habitat disruption, and climate change. As a means of restricting resource extraction, recreation activities, coastal development, and other human actions, marine protected areas and marine reserves are important management tools to promote ecosystem health. Establishing marine protected areas, however, contradicts the traditional idea of the "open seas," and their success depends on involving stakeholders in the process to site, regulate, and manage protected areas to promote conservation and economic goals. Successful ecosystem-based management schemes protect marine species' habitats and promote biodiversity while also promoting sustainable management of fisheries and enhanced recreational opportunities.

[72] TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS, *supra* note 9, at 28.
[73] *Id.*
[74] UPTON & BUCK, *supra* note 7, at 8.

III. Overview of the National Marine Sanctuaries Act

Enacted in 1972, the National Marine Sanctuaries Act sets aside ocean and Great Lakes areas for permanent protection and long-term management as national marine sanctuaries. The NMSA takes a comprehensive approach to ocean management, seeking both to protect marine resources and to provide for multiple uses. Today there are 13 sanctuaries established under the NMSA and located across the country, on the East Coast, the Gulf Coast, and the Pacific Coast and in the Great Lakes, Hawai'i, and American Samoa.[75]

A. Purpose

The primary goal of the NMSA is to protect submerged natural and cultural resources in the oceans and the Great Lakes.[76] Similarly, the mission of the national marine sanctuary program, as established by the NMSA's implementing regulations, is "to identify, designate, and manage areas of the marine environment of special national, and in some cases international, significance due to their conservation, recreational, ecological, historical, research, educational, or aesthetic qualities."[77]

The NMSA and the sanctuary program currently have several purposes and objectives:

- Permanently protect nationally significant areas of the marine environment by designating them national marine sanctuaries;
- Manage sanctuaries as ecosystems to maintain and enhance their natural biodiversity, historical and cultural heritage, and other unique qualities;
- Support, promote, and coordinate scientific research and monitoring in sanctuaries;
- Facilitate all lawful public and private sanctuary uses that are compatible with resource protection;
- Enhance public awareness, understanding, and stewardship of the oceans (and the Great Lakes); and
- Support permanent preservation of sanctuaries to benefit current and future generations.[78]

B. Congressional Intent in Enacting the NMSA

Originally enacted as Title III of the Marine Protection, Research, and Sanctuaries Act of 1972,[79] the NMSA was passed in response to significant environmental failures at the time.

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[75] Nat'l Oceanic & Atmospheric Admin., National Marine Sanctuaries, Visiting the Sanctuaries, http://sanctuaries.noaa.gov/visit/welcome.html (last visited Apr. 22, 2013). Under a distinct process under the Antiquities Act, marine national monuments also have been established since 2006. *See infra* Part IV.A.4.d.

[76] *See* 16 U.S.C. § 1431(b)(6) (noting the NMSA's "primary objective of resource protection"); *see generally* National Marine Sanctuaries Act, 16 U.S.C. §§ 1431-1445c-1.

[77] 15 C.F.R. § 922.2(a).

[78] *See* 16 U.S.C. § 1431(a)(4), (b); 15 C.F.R. § 922.2(b).

Public support coalesced after a series of events unfolded: A major oil spill blackened the coast of Santa Barbara, California, in 1969; other environmental disasters occurred; popular marine recreation areas experienced degradation; and a federal study revealed the toll of ocean dumping.[80]

The NMSA's legislative history indicates that Congress enacted the statute to provide a comprehensive solution to the problem of ocean degradation.[81] In the words of one commentator, members of Congress said "they were creating an important program likely to ensure balanced planning for a wide range of uses on a broad geographic scale—in effect, a program to provide for comprehensive multi-use management of the oceans."[82] Indeed, nearly every member of Congress who stated a position referred to the problem's geographic scope and the solution's grand scale.[83] Notwithstanding the NMSA's potentially grand scale, Congress emphasized that the legislation was intended to allow for multiple uses in the ocean.[84] Rather than prohibiting all uses in designated sanctuaries, Congress aimed to fashion a system that would permit and manage compatible uses.[85] In sum, then, Congress intended through the NMSA to create a comprehensive management system for the entire marine environment that balanced preservation and human activities.

C. Sanctuary Designation and Management

There are two paths by which a national marine sanctuary may be designated. First, as provided in the NMSA, the Secretary of Commerce may take such action for "any discrete area of the marine environment" if, among other factors, the area has "special national significance due to—(A) its conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or esthetic qualities; (B) the communities of living marine resources it harbors; or (C) its resource or human-use values."[86] As we outline below, the NMSA and its implementing regulations set out several steps the National Oceanic and Atmospheric Administration (NOAA) must follow to advance the designation process.

The second possibility is for Congress simply to pass an act to designate a sanctuary, outside the process defined in the NMSA. Of the 15 sanctuary designations to date, Congress has made seven, typically when it tired of waiting for NOAA and presidential administrations to take action.[87] As an example, Congress created the Stellwagen Bank

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[79] Pub. L. No. 92-532, §§ 301-304, 86 Stat. 1052, 1061-63 (1972).

[80] Donald C. Baur et al., *Putting "Protection" into Marine Protected Areas*, 28 VT. L. REV. 497, 510 (2004); Dave Owen, *The Disappointing History of the National Marine Sanctuaries Act*, 11 N.Y.U. ENVTL. L. J. 711, 714-15 (2003).

[81] Owen, *supra* note 80, at 716; *see also* 16 U.S.C. § 1431(a)(3) (congressional finding that then-current laws could not always "provide a coordinated and comprehensive approach to the conservation and management of special areas of the marine environment").

[82] Owen, *supra* note 80, at 716.

[83] *Id.* at 716-17.

[84] *Id.* at 717-18; Baur et al., *supra* note 80, at 509-10.

[85] Baur et al., *supra* note 80, at 509-10.

[86] 16 U.S.C. § 1433(a).

[87] Owen, *supra* note 80, at 722, 730-38; Nat'l Oceanic & Atmospheric Admin., National Marine Sanctuaries, About Your Sanctuaries, http://sanctuaries.noaa.gov/about/welcome.html (last visited Dec.

National Marine Sanctuary in 1992 after expressing concern over a slow-moving designation process, with at least one member of Congress complaining that President George H. W. Bush's administration was delaying designation because it was hesitant to prohibit sand and gravel mining in the area.[88]

The standard designation process laid out in the NMSA and its regulations is lengthy and entails exceptional stakeholder involvement. Throughout the process, the Secretary must consult with congressional committees, several federal agencies, state and local governments that may be affected by the proposed designation, officials of any Regional Fishery Management Council that may be affected, and other interested parties.[89] As a preliminary step toward designation, NOAA is required to maintain a comprehensive "Site Evaluation List" of marine sites that preliminarily are deemed "highly qualified" for possible designation as sanctuaries.[90] Once an "active candidate" site is selected from this list, public notice of the proposed designation and regulations, and related documentation, must be provided.[91] For all proposed sanctuary designations, NOAA must prepare a draft environmental impact statement under the National Environmental Policy Act, a resource assessment, a draft management plan, and maps depicting the proposed sanctuary's boundaries.[92] In addition to the public review process required for an environmental impact statement, at least one public hearing must be held in the coastal area or areas that will be most affected by the proposed designation, to receive comments from interested parties.[93]

The appropriate House and Senate committees may hold hearings on the proposed sanctuary designation.[94] During a 45-day review period, either congressional committee may issue a report on a designation or any of its terms, and the Secretary must consider any such report before designating territory as a sanctuary.[95] Additionally, if any part of a proposed sanctuary lies within state waters, the governor of the affected state may declare the designation or any of its terms unacceptable and without effect as applied to state waters.[96]

After approval, NOAA's Office of National Marine Sanctuaries manages the designated area by implementing a sanctuary-specific management plan.[97] The Secretary also may establish advisory councils to make recommendations about sanctuary management (and

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21, 2012). Although there have been 15 sanctuary designations, there are only 13 national marine sanctuaries today because the Florida Keys National Marine Sanctuary subsumed two other sanctuaries in 1990. Nat'l Oceanic & Atmospheric Admin., *supra.*

[88] National Marine Sanctuaries Program Amendments Act of 1992, Pub. L. No. 102-587, § 2202, 106 Stat. 5039, 5048; Owen, *supra* note 80, at 732-33, 735-36.

[89] 16 U.S.C. § 1433(b)(2).

[90] 15 C.F.R. § 922.10(a).

[91] 16 U.S.C. § 1434(a)(1).

[92] *Id.* § 1434(a)(2) (citing the National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321 *et seq.*).

[93] *Id.* § 1434(a)(3).

[94] *Id.* § 1434(a)(6).

[95] *Id.*

[96] *Id.* § 1434(b)(1).

[97] 15 C.F.R. § 922.30(a); *see also* Nat'l Oceanic & Atmospheric Admin., National Marine Sanctuaries, Frequently Asked Questions, http://sanctuaries.noaa.gov/about/faqs/welcome.html#3 (last visited Nov. 9, 2012).

designation).[98] Advisory councils are designed to be composed of stakeholders and may include federal and state employees with relevant expertise; Regional Fishery Management Council members; representatives of local user groups, conservation groups, and other organizations; and other interested individuals.[99]

D. Implementation

Progress in designating sanctuaries has been halting. Only two were designated in the 1970s, totaling 101 square miles.[100] Neither designation "resembled the type of broad-based planning described in early congressional rhetoric," and both sanctuaries were too small to accommodate a wide range of uses.[101] Under President Carter, NOAA designated four more sanctuaries, two of which were much larger. Only one new sanctuary was designated during the Reagan Administration, but again designations rebounded by the early 1990s after political winds shifted and the *Exxon Valdez* oil tanker ran aground off the Alaska coast. After several designations during this period, however, another sanctuary was not designated until 2000.[102] About that time, sanctuary designation was described as "sporadic and geographically piecemeal, dependent upon the whims of Congress and the executive."[103]

No more sanctuaries have been designated since 2000, in large part because Congress decided in 2000 to bar NOAA from making future designations until NOAA first determined it had sufficient resources to manage existing sanctuaries and inventory them.[104] Congress's action has had the practical effect of placing a moratorium on sanctuary designations. Some commentators allege that this "moratorium" evinces a lack of congressional commitment to the NMSA and "throws a pall of uncertainty over the program."[105]

Additionally, and related to the 2000 amendments, the Site Evaluation List[106] currently is inactive.[107] There are no candidate sites, therefore, for designation as sanctuaries. Nevertheless, the Obama Administration recently proposed expanding by up to 2,771 square

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[98] 16 U.S.C. § 1445a(a).
[99] *Id.* § 1445a(b).
[100] Owen, *supra* note 80, at 722-24.
[101] *Id.* at 724.
[102] *Id.* at 722, 725-30, 738-39.
[103] *Id.* at 756.
[104] 16 U.S.C. § 1434(f)(1), added by the National Marine Sanctuaries Amendments Act of 2000, Pub. L. No. 106-513, § 6(f), 114 Stat. 2381, 2385 (2000); Nat'l Oceanic & Atmospheric Admin., National Marine Sanctuaries, About Your Sanctuaries, http://sanctuaries.noaa.gov/about/welcome.html (last visited Dec. 21, 2012).
[105] WILLIAM J. CHANDLER & HANNAH GILLELAN, THE MAKINGS OF THE NATIONAL MARINE SANCTUARIES ACT: A LEGISLATIVE HISTORY AND ANALYSIS 28 (2005), *available at* http://mcbi.marine-conservation.org/publications/publications.htm.
[106] As stated in the regulations, the Site Evaluation List "was established as a comprehensive list of marine sites with high natural resource values and with historical qualities of special national significance that are highly qualified for further evaluation for possible designation as National Marine Sanctuaries." 15 C.F.R. § 922.10(a). Selection of a site from the Site Evaluation List began the formal sanctuary designation and evaluation process. *Id.* § 922.21.
[107] *Id.* § 922.10(b); CHANDLER & GILLELAN, *supra* note 105, at 28.

miles two existing national marine sanctuaries off the northern California coast, an action that would more than double the sanctuaries' size.[108]

Overall, protection of ocean resources under the NMSA has been called "at times creative and innovative" but generally "uneven," given the relatively small amount of marine territory preserved and the inconsistency of prohibitions under the statute.[109] We turn now to how the NMSA establishes prohibited and permitted uses in sanctuaries.

E. Prohibitions and Permitted Uses

Although the NMSA expressly contemplates multiple uses in national marine sanctuaries, certain actions are prohibited in all sanctuaries. It is unlawful to "destroy, cause the loss of, or injure any sanctuary resource managed under law or regulations for that sanctuary."[110] Nor may an individual "possess, sell, offer for sale, purchase, import, export, deliver, carry, transport, or ship by any means any sanctuary resource taken in violation of this section."[111]

Under the NMSA every sanctuary has its own set of regulations, in addition to the generally applicable regulations. Unless prohibited by sanctuary-specific regulations or other valid legal authority, all activities such as fishing, boating, diving, research, and education may be conducted in sanctuaries.[112]

Each sanctuary-specific set of regulations is designed to preserve and manage the specific area individually, a recognition of each sanctuary's unique ecosystem and operation under its own designation document.[113] While certain regulations are applied across several sanctuaries, other regulations are crafted with a sanctuary's particular resources in mind.[114]

Examples of these regulations have been summarized as follows:

> [M]any of the sanctuary-specific regulations prohibit activities that alter the seabed or are related to developing oil, gas, or minerals. Other common regulations prohibit the removal or injury of historical resources, or the taking of any marine mammal, sea turtle, or seabird. Less common regulations may prohibit activities such as operating personal watercraft or vessels carrying cargo. Some sanctuary-specific regulations prohibit activities such as attracting white sharks, diving of any type,

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[108] Boundary Expansion of Cordell Bank and Gulf of the Farallones National Marine Sanctuaries, 77 Fed. Reg. 75,601 (Dec. 21, 2012) (to be codified at 15 C.F.R. pt. 922); Press Release, NOAA's Office of National Marine Sanctuaries, NOAA Seeks Public Comment on Expanding Gulf of the Farallones and Cordell Bank National Marine Sanctuaries Off Northern California (Dec. 20, 2012), *available at* http://sanctuaries.noaa.gov/news/press/2012/pr122012.html.

[109] Owen, *supra* note 80, at 746-47, 756.

[110] 16 U.S.C. § 1436(1).

[111] *Id.* § 1436(2).

[112] 15 C.F.R. § 922.42.

[113] *Id.* § 922.40; Connolly et al., *supra* note 42, at 542.

[114] Connolly et al., *supra* note 42, at 542.

coming within one hundred yards of a humpback whale, or removing, injuring, or possessing coral or live rock.[115]

The U.S. Court of Appeals for the D.C. Circuit had occasion to consider restrictions on "motorized personalized watercraft" in an area that became at its designation in 1992 the nation's largest sanctuary—the Monterey Bay National Marine Sanctuary, off the central California coast.[116] Within the new sanctuary, the challenged regulation limited to four designated zones and access routes the operation of motorized personalized watercraft, defined to include jet skis, wet bikes, surf jets, miniature speed boats, air boats, and hovercraft.[117] The administrative record before NOAA and the court was "full of evidence" that these watercraft "interfered with the public's recreational safety and enjoyment of the Sanctuary and posed a serious threat to the Sanctuary's flora and fauna."[118] The court upheld the regulation, ruling that NOAA did not act arbitrarily by restricting motorized watercraft without also regulating other types of vessels in the Monterey Bay Sanctuary.[119]

Under the NMSA's implementing regulations, NOAA has the authority to issue national marine sanctuary permits that authorize activities otherwise prohibited by sanctuary-specific regulations.[120] To issue such a permit, NOAA must find that the activity will accomplish one of several objectives listed for each sanctuary. As one example, to receive a permit in the Cordell Bank National Marine Sanctuary, an otherwise-prohibited activity must (1) further research or monitoring related to the sanctuary, (2) further the sanctuary's educational value, (3) further certain salvage or recovery operations in or near the sanctuary, or (4) assist in managing the sanctuary.[121] NOAA has discretion in deciding whether to issue a national marine sanctuary permit, though the regulations list several factors the agency must consider in making this determination.[122] Appropriate terms and conditions may be imposed on permits.[123]

In addition to national marine sanctuary permits, the NMSA authorizes the issuance of special use permits for certain activities in a sanctuary. NOAA may issue a special use permit if found necessary either "to establish conditions of access to and use of any sanctuary resource; or to promote public use and understanding of a sanctuary resource."[124] Special use permits may authorize activities in sanctuaries only for a five-year period, unless renewed.[125]

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[115] *Id.* (footnotes omitted) (citing all relevant regulatory sections).
[116] *Personal Watercraft Industry Ass'n v. Dep't of Commerce*, 48 F.3d 540, 542 (D.C. Cir. 1995).
[117] *Id.* (citing 15 C.F.R. §§ 944.3, 944.5(a)(8) (1992)).
[118] *Id.* at 545.
[119] *Id.* at 541.
[120] 15 C.F.R. § 922.48(a).
[121] *Id.* § 922.113(b); *see also, e.g., id.* § 922.153(c) (listing permit issuance criteria for the Olympic Coast National Marine Sanctuary, among them promoting or enhancing certain objectives for one of several American Indian tribes adjacent to the sanctuary).
[122] *See, e.g., id.* § 922.113(b), (c) (relevant factors for the Cordell Bank National Marine Sanctuary); *id.* § 922.123(c) (same for the Flower Garden Banks National Marine Sanctuary).
[123] *Id.* § 922.48(d).
[124] 16 U.S.C. § 1441(a)(1)-(2).
[125] *Id.* § 1441(c)(2).

Moreover, permits may authorize only an activity that is "compatible with the purposes for which the sanctuary is designated and with protection of sanctuary resources."[126] Permitted activities must be conducted so as not to "destroy, cause the loss of, or injure sanctuary resources."[127]

Finally, the regulations provide that activities that otherwise would be prohibited in a sanctuary are allowed, provided certain conditions apply, if such activities are authorized by a valid lease, permit, license, approval, or other authorization issued before or after a sanctuary is designated.[128]

Violators of the NMSA are subject to criminal and civil penalties. Certain offenses can receive a criminal punishment of, in most cases, a fine, up to 6 months' imprisonment, or both.[129] Civil penalties can reach $100,000 per violation per day for continuing violations, while individuals who destroy, cause the loss of, or injure any sanctuary resource are civilly liable for the resulting response costs and damages, with interest.[130]

F. Protections/Strengths

Unique among federal statutes that govern the marine environment, the NMSA provides for comprehensive, ecosystem-based management. The statutory process of sanctuary designation permits the creation of marine protected areas, which, as discussed, are characterized by integrated management and a focus on the marine system as opposed to an individual resource or species.[131] This approach has several important benefits, as previously identified, including more robust protection of marine biodiversity, habitat, and fisheries.

NMSA regulations, including those applicable across all sanctuaries and to individual sanctuaries, serve to protect and manage marine resources within each designated area. Simple designation of an area as a national marine sanctuary does not guarantee extensive protections, but sanctuary-specific regulations can provide for them. The preceding section discussed sanctuary-specific regulations that prohibit extractive activities, the taking of certain animals, impacts on historical resources, and other human activities that could harm the marine ecosystem. Such regulations, to prohibit extractive and non-extractive activities alike, "provide a good deal of protection" to ocean resources where the regulations apply.[132] Off the California coast, for instance, the NMSA has succeeded in limiting oil and gas drilling.[133]

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[126] *Id.* § 1441(c)(1).
[127] *Id.* § 1441(c)(3).
[128] 15 C.F.R. §§ 922.47, 922.49.
[129] 16 U.S.C. § 1437(c).
[130] *Id.* §§ 1437(d)(1), 1443(a)(1), (c).
[131] *See supra* Part II.B.
[132] Baur et al., *supra* note 80, at 521; *see also* Owen, *supra* note 80, at 745.
[133] Owen, *supra* note 80, at 745.

Another strength of the NMSA lies in its deliberate balancing of multiple uses.[134] By authorizing and managing compatible uses of the oceans, the NMSA helps harmonize marine preservation, and human use and enjoyment. Sanctuaries can allow for commercial activity like fishing, for recreational activities that depend on an intact natural environment, and for long-term preservation.

On a related note, the NMSA allows for strong stakeholder and community engagement. The statute includes extensive opportunities for public participation, from the time a sanctuary is considered for designation through its ongoing management as a protected area. The NMSA's commitment to participation is evidenced by its provision for advisory committees of stakeholders to make recommendations on sanctuary designation and management.[135]

More generally, the sanctuary program is set up to engage citizens in the NMSA's mission. States and communities can take a sense of ownership in their local marine environment through the program.[136] Sanctuaries become living laboratories, classrooms, and playgrounds, as the NMSA makes marine areas accessible for research centers, educational institutions, and other entities. The public involvement aspect of the NMSA is a major strength of the program, as it facilitates long-term buy-in by affected parties.

For violators of sanctuary protections, the NMSA provides for both civil and criminal penalties. This represents a strength of the statute, as it enables the Secretary of Commerce to assess a civil penalty or request the initiation of a civil action against alleged violators without necessarily instituting criminal proceedings, which likely would have a lower priority relative to, say, violent crimes committed on land.[137] Additionally, NOAA takes into account whether a violation occurred in a sanctuary when assessing penalties under other statutes, including the Endangered Species Act and the Marine Mammal Protection Act.[138]

G. Shortcomings

In spite of its strengths, the NMSA, as currently drafted and implemented, also has several weaknesses. To begin, it long has been politically challenging for NOAA to establish sanctuaries. In part, this is due to the intense opposition that inheres in reserving significant natural resources. Yet the difficulty also stems from the NMSA's delegation of responsibility for making sanctuary designations to an administrative agency, particularly one of NOAA's relatively small size. Under no other provision of law has Congress attempted to delegate

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[134] *Id.* at 717-18; Baur et al., *supra* note 80, at 509-10 (describing Congress's intention to enable multiple-use management in marine sanctuaries).
[135] 16 U.S.C. § 1445a(a).
[136] Owen, *supra* note 80, at 746.
[137] *See* 16 U.S.C. § 1437(d)(1), 1443(c)(1).
[138] *See* NOAA Office of the General Counsel—Enforcement and Litigation, Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions, at 7-8 (March 16, 2011), http://www.gc.noaa.gov/documents/031611_penalty_policy.pdf.

such broad responsibility to an administrative agency, preferring instead to place this political minefield in Congress's or the President's hands.[139]

More recently, as discussed above, Congress has imposed tough requirements on NOAA before the agency can designate further sanctuaries.[140] We are aware of no evidence that NOAA intends or is able to make the requisite findings to reinitiate designations.

The NMSA does not include a private right of action that would allow the public to force the designation of sanctuaries. Such a right is common in other environmental laws, such as the Endangered Species Act, and can empower private citizens to force agency action to protect the environment.[141]

Once sanctuaries are designated, the NMSA's provision for multiple use complicates preservation of intact ocean ecosystems. Extractive activities like oil drilling and commercial fishing can undermine the biodiversity and integrity of marine protected areas and marine reserves.[142] Some critics argue that NOAA's attempts to balance preservation with active uses of sanctuaries have "made it extremely difficult to establish fully protected sanctuaries or even fully protected zones within sanctuaries" that permit low-intensity uses, thus hindering the NMSA's purpose of preserving marine resources.[143] As such, this critique goes, even though the intent of the NMSA was to preserve ocean ecosystems, the statute lacks a "singular focus on preservation" and, therefore, does not adequately accomplish this goal.[144]

Finally, while not a fault with the NMSA per se, NOAA has been chronically underfunded. The NMSA does not guarantee that NOAA will receive increased funding after designating additional sanctuaries, and, indeed, Congress has not routinely made such allocations.[145] In 2000 Congress essentially acknowledged NOAA's financial challenges in managing the sanctuaries when Congress prohibited new designations until NOAA determines it has adequate resources to manage and inventory existing sanctuaries.[146]

H. Summary

The NMSA holds significant potential for preserving ocean ecosystems. Unlike other federal statutes, it was structured with this end firmly in mind. Sanctuary-specific regulations can be designed to prohibit or limit activities that degrade habitat for marine species, while they also can be tailored to permit multiple uses. Furthermore, the NMSA is effective in encouraging stakeholder involvement through advisory committees and other means of public participation. For these reasons, the NMSA has substantial promise in furthering

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[139] *Id.* at 748-51.
[140] *See supra* Part III.D.
[141] Owen, *supra* note 80, at 752-53 (citing as examples the Endangered Species Act, 16 U.S.C. § 1540(g); the Clean Water Act, 33 U.S.C. § 1365; and the Clean Air Act, 42 U.S.C. § 7604(a)).
[142] CHANDLER & GILLELAN, *supra* note 105, at 9.
[143] *Id.* at 16; *see also id.* at 9.
[144] *Id.* at 9, 20.
[145] *See* Owen, *supra* note 80, at 723-57 (noting, throughout a history and analysis of the NMSA, the inadequate funding Congress has allocated to implement the legislation).
[146] *See* 16 U.S.C. § 1434(f).

comprehensive management of ocean ecosystems, though its promise remains unfulfilled due to the statutory and political challenges that accompany sanctuary designation and management.

IV. Other Legal Mechanisms for Preserving Marine Ecosystems

A. Federal Law

1. Executive Order 13,158

a. Provisions

In 2000, a coalition of scientists petitioned President Clinton to create a national system of marine protected areas in order to better conserve the nation's marine ecosystems, cultural resources, and fisheries. At that time, marine protected areas were generally viewed as fragmented and confusing. As a result, in May 2000, President Clinton promulgated Executive Order 13,158 in recognition of the role marine protected areas play in preserving marine heritage and the lack of a national framework to further these areas' planning, support, and coordination.[147]

The Executive Order, designed to "strengthen the management, protection, and conservation of existing marine protected areas and establish new or expanded MPAs [marine protected areas]," also endeavors to "develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources; and . . . avoid causing harm to MPAs through federally conducted, approved, or funded activities."[148]

Under Section 3 of the Executive Order, all federal agencies with authority to establish or manage marine protected areas must take "appropriate actions to enhance or expand protection of existing MPAs and establish or recommend, as appropriate, new MPAs." Marine protected areas are defined in the Executive Order as "any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein."[149] This definition is similar to the one developed by the International Union for Conservation of Nature.[150]

Section 4 specifically calls out the Department of Commerce and the Department of the Interior to fulfill the following tasks in order to develop a "National System" of marine protected areas:

- Establish a Marine Protected Area Federal Advisory Committee to provide nonfederal recommendations;

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[147] 65 Fed. Reg. 34,909 (May 26, 2000), *reprinted in* 16 U.S.C. § 1431.

[148] *Id.* at 34,909.

[149] *Id.*

[150] As discussed in footnote 8, the International Union for Conservation of Nature defines a marine protected area as "any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment." GUIDELINES FOR MARINE PROTECTED AREAS, *supra* note 8, at xviii.

- Establish a website for information on marine protected areas;
- Publish and maintain a national inventory of marine protected areas;
- Establish a "Marine Protected Area Center" to provide science, tools, and strategies to assess the effectiveness of existing and future marine protected areas and develop the framework for a national system of such areas; and
- Consult with government and nongovernment stakeholders.[151]

In addition, the Executive Order directs the U.S. Environmental Protection Agency (EPA) to propose new regulations under the Clean Water Act to protect the marine environment from pollution. The regulations must be "science-based" and may include the identification of areas that "warrant additional pollution protections and the enhancement of marine water quality standards."[152]

Section 5 of the Executive Order requires each federal agency to identify its actions that "affect the natural or cultural resources that are protected by an MPA."[153] It further directs such agencies, "to the maximum extent practicable," to "avoid harm to the natural and cultural resources that are protected by an MPA."[154]

It is worth highlighting what the Executive Order is not. The Executive Order does not order the establishment of new marine protected areas, nor does it provide additional or new legal authorities to establish new protected areas. The Executive Order does not interfere with the local, state, and federal authorities empowered to manage and establish marine protected areas. Rather, the framework envisioned by the Executive Order is designed to support and coordinate the efforts of those governmental bodies charged with protecting marine resources. While participation by state, local, and tribal authorities benefits the development of a comprehensive, national framework, the Executive Order's requirements only apply to federal government agencies.

As described above, Section 4 of the Executive Order mandated the creation of the National Marine Protected Area Center (within NOAA) in order to develop the framework for a national system of marine protected areas. The Executive Order also required the establishment of a Marine Protected Area Federal Advisory Committee to advise the Secretaries of Commerce and Interior on developing the national system. The Advisory Committee is composed of nonfederal scientists, resource managers, and other interested persons and organizations.

A major accomplishment of the Center was the release of the *Framework for the National System of Marine Protected Areas of the United States of America* in 2008. The Framework recognizes that "U.S. MPA programs can achieve more efficient, effective conservation of the nation's important natural and cultural resources by working together rather than separately,

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[151] Exec. Order No. 13,158, 65 Fed. Reg at 34,910.
[152] *Id.* at 34,911.
[153] *Id.*
[154] *Id.*

and that many solutions require collaboration across programs."[155] It further is intended to be inclusive of all kinds of marine protected areas—not only those established by different legal authorities (federal, state, local, or tribal) but marine protected areas using differing protective methodologies (multiple-use or "no take"). The definition of "National System of MPAs" reflects the Center's principles guiding the development of the Framework:

> The group of MPA sites, networks, and systems established and managed by federal, state, tribal, and/or local governments that collectively enhance conservation of the nation's natural and cultural marine heritage, and represent its diverse ecosystems and resources. National system MPAs work together at the regional and national levels to achieve common objectives for conserving the nation's important natural and cultural resources.[156]

In order to be officially included as a marine protected area within the national system, a site must:

1. Meet the Framework's definition of a marine protected area;
2. Have a management plan (can be site-specific or part of a broader programmatic management plan; must have goals and objectives and call for monitoring or evaluation of those goals and objectives); and
3. Contribute to at least one priority conservation objective as listed in the Framework.[157]

Another objective of the Framework is to identify conservation gaps—those areas that meet the priority conservation objectives of the national system but remain inadequately protected to ensure their long-term viability. It is the Framework's goal for existing marine protected areas to incorporate the identified conservation gaps into their respective management plans. As of March 2012, there are 355 federal, state, and territorial marine protected areas within the national system, covering an area of 177,033 square miles.[158] The national system sites cover four percent of U.S waters and represent every major eco-region in the country.[159]

b. Shortcomings of the Executive Order

Observers have noted that the Executive Order provides an ideal mechanism for carrying out an ecosystem- (versus use-) based approach to conservation. Its provisions stress the importance of protecting marine ecosystems and basing federal actions on ecosystem

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[155] Nat'l Marine Protected Areas Ctr., Framework for the National System of Marine Protected Areas of the United States of America, at Executive Summary, 2 (2008), http://www.mpa.gov/pdf/national-system/finalframework_full.pdf.

[156] *Id.* at 4.

[157] *Id.* at 17.

[158] Nat'l Marine Protected Areas Ctr., Analysis of National System MPAs, http://www.mpa.gov/pdf/national-system/analysis_of_ns_sites_march_2012.pdf (last updated Mar. 2012).

[159] *Id.*

functions.[160] However, the Executive Order suffers from several weaknesses. As for implementation of the national system, the Framework lays out a vision but acknowledges cautiously that "the timing of the implementation . . . may be sequential, simultaneous, or otherwise, depending on resources available and the priorities of national system partners."[161]

Executive orders by definition are weak due to their lack of enforceability. For example, a private party cannot sue the federal government based on the Executive Order. The Executive Order explicitly acknowledges this limitation by stating that it does not create any "right or benefit, substantive or procedural, enforceable in law or equity by a party against the United States, its agencies, its officers, or any person."[162] As discussed above, under Section 5 of the Executive Order, agencies charged with managing marine protected areas must "avoid harm to the natural and cultural resources that are protected by an MPA."[163] However, the Executive Order does not define harm, nor does it explain what agency action (or inaction) would constitute "harm." The Framework attempts to elaborate on Section 5's requirements, but ultimately, it acknowledges that agencies will satisfy their obligations under Section 5 through their own "existing natural or cultural resource management or review authorities and procedures."[164]

In addition, the Framework interprets Section 5 to apply only to resources specifically afforded protection on the List of National System MPAs. This narrow interpretation means agencies are required to "avoid harm" only to those resources specifically protected by the marine protected area. Finally, the Executive Order does not establish any sort of formal accountability for agencies that fail to "avoid harm," and opts instead for unreliable self-policing.[165] The determination of whether an agency is avoiding harm to marine protected area resources, to the extent permitted by law and to the maximum extent practicable, is left to the individual agency using its own existing review processes.[166]

2. Use-Based Authorities

a. Outer Continental Shelf Lands Act

The Outer Continental Shelf Lands Act (OCSLA) is the foundation of U.S. ocean energy law. The OCSLA establishes federal jurisdiction of the subsoil and seabed of the Outer Continental Shelf seaward of state territorial waters.[167] Within this vast area, the OCSLA

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[160] Patrick A. Parenteau et al., *Legal Authorities for Ecosystem-Based Management in U.S. Coastal and Ocean Areas*, *in* OCEAN AND COASTAL LAW AND POLICY, *supra* note 42, at 597, 628.
[161] NAT'L MARINE PROTECTED AREAS CTR., *supra* note 155, at 35.
[162] Exec. Order No. 13,158, 65 Fed. Reg at 34,911.
[163] *Id*.
[164] NAT'L MARINE PROTECTED AREAS CTR., *supra* note 155, at 43.
[165] *Id.* at 44-45.
[166] *Id.* at 45.
[167] 43 U.S.C. § 1333(a)(1)-(2)(A); Connolly et al., *supra* note 42, at 546-47; *see also* Milo C. Mason, *Offshore Energy Development*, *in* OCEAN AND COASTAL LAW AND POLICY, *supra* note 42, at 409 (providing a detailed review of the OCSLA).

gives the Secretary of the Interior the authority to grant leases for the development of energy resources within the Outer Continental Shelf.[168]

The goal of the OCSLA is well explained by this policy statement in the law: "the outer Continental Shelf is a vital national resource reserve held by the Federal Government for the public, which should be made available for expeditious and orderly development, subject to environmental safeguards, in a manner which is consistent with the maintenance of competition and other national needs."[169] In 2011, the Department of the Interior restructured the administration of the OCSLA. Today, the Bureau of Ocean Energy Management manages the development of the nation's offshore resources, including leasing, plan administration, environmental studies, National Environmental Policy Act analysis, resource evaluation, economic analysis, and the renewable energy program.[170] The Bureau of Safety and Environmental Enforcement enforces safety and environmental regulations, including permitting and research, inspections, offshore regulatory programs, oil spill response, and training and environmental compliance functions.[171]

Under the OCSLA, the Secretary must prepare and maintain an oil and gas leasing program with a schedule of proposed lease sales indicating the size, timing, and location of leasing activity which the Secretary "determines will best meet national energy needs for the five-year period following its approval or reapproval."[172] Under the program, management of the Outer Continental Shelf "shall be conducted in a manner which considers economic, social, and environmental values of the renewable and nonrenewable resources" contained in the Outer Continental Shelf "and the potential impact of oil and gas exploration on other resource values of the [Outer Continental Shelf] and the marine, coastal, and human environments."[173] Eight considerations are used to determine the timing and location of exploration, development, and production of oil and gas, including, for example, "an equitable sharing of developmental benefits and environmental risks among the various regions."[174] No lease may be issued "unless it is for an area included in the approved leasing program and unless it contains provisions consistent with the approved program."[175]

In addition to leasing, the Secretary has numerous associated responsibilities under the OCSLA. For example, the Secretary must schedule onsite announced and unannounced inspections of facilities on the Outer Continental Shelf[176] and generally require all new drilling and production operations and, wherever practicable, existing operations, to use the best available and safest technologies that are economically feasible.[177] Further, lessees must

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[168] 43 U.S.C. § 1334(a); *see also* Connolly et al., *supra* note 42, at 547.
[169] 43 U.S.C. § 1332(3).
[170] Bureau of Ocean Energy Mgmt., The Reorganization of the Former MMS, http://www.boem.gov/About-BOEM/Reorganization/Reorganization.aspx (last visited Nov. 27, 2012).
[171] *Id*.
[172] 43 U.S.C. § 1344(a).
[173] *Id*. § 1344(a)(1).
[174] *Id*. § 1344(a)(2)(B).
[175] *Id*. § 1344(d)(3).
[176] *Id*. § 1348(c); Mason, *supra* note 167, at 417.
[177] 43 U.S.C. § 1347(b).

maintain all places of employment within the lease area in compliance with occupational safety and health standards, maintain all operations within the lease area in compliance with regulations intended to protect persons, property, and the environment on the Outer Continental Shelf, and to allow prompt access to any inspector at the site of any operation subject to safety regulations.[178]

The OCSLA protects marine ecosystems in at least two ways. The first concerns one of the primary purposes of the law—to find and use domestic oil and gas on submerged public lands. Developing domestic resources on the Outer Continental Shelf minimizes reliance on foreign oil and, in turn, may reduce the travel distances and attendant risks (e.g., oil spills) associated with transporting oil in supertankers between countries.[179]

Second, the OCSLA includes provisions expressly designed to protect marine resources. For instance, the OCSLA requires the Secretary to "select the timing and location of leasing, to the maximum extent practicable, so as to obtain a proper balance between the potential for environmental damage, the potential for the discovery of oil and gas, and the potential for adverse impact on the coastal zone."[180] In striking this "balance," the Secretary must consider "environmental sensitivity and marine productivity" of areas when determining whether such areas will be open for development.[181] In addition, the President can withdraw areas of the Outer Continental Shelf from leasing to protect such areas from development.[182] Where activities threaten marine, coastal, or the human environment or damage to fish and other aquatic life, the Secretary can suspend or temporarily prohibit operations pursuant to a lease or cancel a lease,[183] powers that can create de facto marine protected areas from oil and gas activities.[184]

b. Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (FCMA) is the most significant federal fishery management law. The FCMA establishes a fishery conservation zone from the shores of the United States out 200 miles and a set of rules to manage fishing activities.[185] Two institutions primarily implement the law: the National Marine Fisheries Service (NMFS) and eight Regional Fishery Management Councils (councils). NMFS regulates certain highly migratory species,[186] and the eight councils manage fisheries within their respective jurisdictions that vary in geographic size.[187]

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[178] *Id*. § 1348(b).
[179] Mason, *supra* note 167, at 433-34.
[180] 43 U.S.C. § 1344(a)(3).
[181] *Id*. § 1344(a)(2)(G).
[182] *Id*. § 1341(a).
[183] *Id*. § 1334(a)(1)(B), (a)(2)(A)(i).
[184] Connolly et al., *supra* note 42, at 547.
[185] 16 U.S.C. §§ 1801 *et seq*.; Josh Eagle, *Domestic Fishery Management*, *in* OCEAN AND COASTAL LAW AND POLICY, *supra* note 42, at 275, 276; *see also id.* at 275-93 (providing a detailed review of the FCMA).
[186] 16 U.S.C. §§ 1852(a)(3), 1854(g).
[187] Eagle, *supra* note 185, at 277-78.

Under the FCMA, councils decide which fisheries within their respective jurisdictions need "conservation and management."[188] For these fisheries, the councils must develop a fishery management plan.[189] Fishery management plans must establish "conservation and management measures . . . necessary and appropriate . . . to prevent overfishing and rebuild overfished stocks, and to protect, restore, and promote the long-term health and stability of the fishery."[190] Fishery management plans must also "assess and specify the present and probable future condition of, and the maximum sustainable yield and optimum yield from, the fishery."[191]

Each fishery management plan must be consistent with ten "national standards" for fishery conservation and management.[192] For instance, councils are to achieve "optimum yield from each fishery," use "[c]onservation and management measures . . . based upon the best scientific information available," and manage an individual stock of fish as a unit through its range.[193] There are also standards that address political and social concerns, including one that prohibits conservation and management measures from discriminating between residents of different states and another that requires such measures, to the extent practicable, to promote safety at sea.[194]

Once a council has prepared a fishery management plan, it transmits the document to NMFS for review and approval.[195] The Secretary of Commerce reviews the plan for consistency with the national standards and other provisions of the FCMA.[196] Councils can amend their plans from time to time.[197]

The FCMA features mechanisms to rebuild, protect, and conserve marine ecosystems. For instance, to protect global fish stocks, the United States will prohibit the importation of fish, fish products, and sports fishing equipment from any nation identified by the Secretary as having nationals engaged in illegal, unregulated, or unreported fishing beyond the exclusive economic zone of any nation.[198]

In U.S. waters, councils must rebuild overfished fisheries in "as short as possible" a period of time and, in general, must do so within 10 years.[199] To further rebuild and protect fisheries, a council's fishery management plan may create marine protected areas, designating "zones where, and periods when, fishing shall be limited, or shall not be permitted, or shall be permitted only by specified types of fishing vessels or with specified

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[188] 16 U.S.C. § 1852(h)(1).
[189] *Id*.
[190] *Id*. § 1853(a)(1).
[191] *Id*. § 1853(a)(3).
[192] *Id*. § 1851; Eagle, *supra* note 185, at 280.
[193] 16 U.S.C. § 1851(a)(1)-(a)(3).
[194] *Id*. § 1851(a)(4), (a)(10).
[195] *Id*. § 1854(a).
[196] *Id*. § 1854(a)(1)(A).
[197] *Id*. § 1852(h)(1).
[198] *Id*. § 1826a(b); David K. Schorr, *Trade in Fish and Fisheries Products*, *in* OCEAN AND COASTAL LAW AND POLICY, *supra* note 42, at 333, 355.
[199] 16 U.S.C. § 1854(e)(4)(A)(i), (ii).

types and quantities of fishing gear."[200] Fishery management plans have been used to establish protected zones or marine reserves.[201] For instance, the December 2011 Pacific Coast Groundfish Fishery Management Plan set aside time and area closures from fishing and noted that "most either are practically permanent (portions of the [Groundfish Conservation Areas]) or are intended to be permanent (habitat closed areas and the trawl footprint closure). These time/area closures offer lasting protection and may be considered [marine protected area]."[202]

The FCMA also requires councils to "describe and identify essential fish habitat for the fishery,"[203] which includes "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity."[204] Councils must also "minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat."[205] These designations can have broad conservation impacts beyond the fishing industry because federal agencies must consult with the Secretary with respect to actions authorized, funded, or undertaken by the agency that may adversely affect essential fish habitat.[206] If the Secretary determines that an action would adversely affect essential fish habitat, the Secretary will provide recommended measures to the agency proposing the action to conserve the habitat.[207]

c. Shortcomings of Use-Based Authorities

Notwithstanding the marine protection authorities under the OCSLA and the FCMA, these laws do not provide for comprehensive management of ocean ecosystems. The OCSLA promotes exploration and use of resources on the Outer Continental Shelf. While decisions under the OCSLA can create de facto protected areas from development on the Outer Continental Shelf, the OCSLA is designed to develop resources on the Outer Continental Shelf and is not intended to provide for the kind of comprehensive, multi-sector protection needed to protect whole ecosystems intact and in perpetuity.

Similarly, the FCMA includes important marine protection and conservation mechanisms, but the law is meant to sustain and rebuild fisheries, and is not focused on protecting broader ecosystems, irrespective of their value for fisheries. As reflected in a recent NMFS report under the FCMA, fisheries yield and recovery are properly the focus of

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[200] *Id*. § 1853(b)(2).
[201] Connolly et al., *supra* note 42, at 543 (describing council use of marine reserves).
[202] PACIFIC FISHERY MANAGEMENT COUNCIL, PACIFIC COAST GROUNDFISH FISHERY MANAGEMENT PLAN 87 (2011), *available at* http://www.pcouncil.org/groundfish/fishery-management-plan/; *see also* NOAA Southeast Fishery Bulletin, FB09-004 (Jan 13, 2009), *available at* http://www.safmc.net/Portals/6/Library/FMP/SnapGroup/FB09-004%20FR%20to%20Implement%20A14.pdf (summarizing final rule to implement Amendment 14 to the South Atlantic Snapper Grouper Fishery Management Plan to restrict fishing by establishing eight marine protected areas ranging from North Carolina to Florida).
[203] 16 U.S.C. § 1853(a)(7).
[204] *Id*. § 1802(10).
[205] *Id*. § 1853(a)(7).
[206] *Id*. § 1855(b)(2).
[207] *Id*. § 1855(b)(4)(A).

the agency administering the law,[208] as opposed to other federal programs that protect valued ocean places.

Because these use-based authorities center on the management of marine resources for consumptive use, they do not provide a clear mandate to the agencies that administer them to set aside nationally significant marine areas in order to protect the range of values inherent to these areas that can be protected under the NMSA. Such values include "conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or esthetic qualities; the communities of living marine resources [the area] harbors; or its resource or human-use values."[209] Further, the narrow use-based focus of the OCSLA and the FCMA shapes the manner in which industry and other stakeholders engage in and seek to influence policy decisions under these laws. Under the OCSLA, stakeholders focus on how best to exploit or prevent the use of energy resources on the Outer Continental Shelf. Under the FCMA, stakeholders focus on managing and recovering fish stocks. By contrast, through the extensive stakeholder engagement to designate sanctuaries under the NMSA, the public can orient its input so as to ensure comprehensive, ecosystem-based management of marine areas in perpetuity.

In sum, protecting marine areas is not the primary focus of the OCSLA and the FCMA, nor of the agencies that implement them or the industries and other stakeholders that rely on them.

3. Coastal-Focused Authorities

a. Coastal Zone Management Act

Congress enacted the Coastal Zone Management Act (CZMA) in 1972, in recognition of the "piecemeal development of coastal ecosystems without an overall strategy for comprehensive coastal management."[210] Section 303 of the CZMA declares as the national policy to "preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations."[211] "Coastal zone" is defined as:

> the coastal waters (including the lands therein and thereunder) and the adjacent shorelands (including the waters therein and thereunder), strongly influenced by each other and in proximity to the shorelines of the several coastal states, [which] includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches.[212]

The CZMA is administered by the Department of Commerce at the direction of NOAA, but the actual implementation of approved management plans takes place at the state level. The CZMA is similar to other federal environmental statutes from the 1970s that provide

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[208] NAT'L MARINE FISHERIES SERV., 2011 REPORT TO CONGRESS, THE STATUS OF U.S. FISHERIES, Forward & Executive Summary (May 2012).
[209] 16 U.S.C. § 1433(a).
[210] 1 PATRICIA E. SALKIN, AMERICAN LAW OF ZONING § 3:3 (5th ed. 2012).
[211] 16 U.S.C. § 1452(1).
[212] *Id.* § 1453(1).

jointly for "wise" development and environmental protection.[213] The CZMA recognizes that implementation of a management plan must take place at a more local level, given that land use controls often are administered by municipalities.[214] The states can achieve the CZMA's objectives—and receive the benefits provided by the statute—but are still free to choose the mix of land and water uses in their programs.

The CZMA aims to achieve its goal by encouraging state responsibility for coastal zones through "management programs" to meet numerous objectives, including the protection of natural resources, improvement of coastal water quality, and management of coastal development. Under the CZMA, coastal states may submit management plans for approval by the Department of Commerce. To be approved, a state program must define the boundaries of the state coastal zone, identify the means by which the state will exert control over land and water uses, describe the organizational structure to implement the program, provide which activities are permissible within the zone, and designate legal authorities for decision-making and administration of the program.[215] In addition, the state must coordinate its program with local, area-wide and interstate plans and establish a mechanism to ensure continuing consultation between the state agency administering the plan and local and regional agencies.[216] The CZMA provides federal funding to states during both the planning and implementation stages of management plans. If approved, the state management plan is eligible for federal funding to assist in the implementation of the management's objectives.

The CZMA also includes funding opportunities through the coastal resource improvement program. Under the program, states can obtain federal dollars to preserve or restore specific areas because of their conservation, recreational, ecological, or aesthetic values, redevelop urban waterfronts or ports, provide public access to beaches or other areas of significance or develop a coordinated process to regulate aquaculture facilities.[217] Section 309 also makes federal grants available to coastal states to fund programs that support "coastal zone enhancement objectives." These objectives include the protection, restoration, or enhancement of the coastal wetlands, planning for the use of ocean resources, as well as the assessment of coastal growth and development.[218]

In addition to federal funding, the CZMA's main incentive to states lies in Section 307, known as the "federal consistency provision."[219] Federal actions affecting a state's coastal uses or resources must be consistent "to the maximum extent practicable" with the state coastal management program.[220] This provision affords the participating states a significant

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[213] *Id.* § 1452(2).
[214] SALKIN, *supra* note 214, § 3:3.
[215] 16 U.S.C. § 1455(d).
[216] *Id.* § 1455(d)(3).
[217] *Id.* § 1455a.
[218] *Id.* § 1456b.
[219] *Id.* § 1456.
[220] *Id.* § 1456(c)(2).

amount of control and the opportunity to exercise autonomy to craft and enforce their coastal management plans.[221]

This provision is noteworthy because it also captures private development, as it includes those projects requiring federal permits and licenses. Before a federal authority may grant a permit or license affecting the coastal resource, the applicant must certify that the proposed activity will be conducted in a manner consistent with the management program.[222] If a state objects, the federal agency is precluded from moving forward unless, on administrative appeal, the Department of Commerce finds the proposed activity is consistent with the CZMA's objectives or if national security requires the project to proceed. Projects often affected by this provision include grants from the Department of Housing and Urban Development, as well as federal highway funds and permits from the Department of Transportation.

The CZMA also established the National Estuarine Research Reserve System (NERRS).[223] Estuaries are defined as the parts of a river or stream or other body of water having unimpaired connection with the open sea, where the sea water is measurably diluted with fresh waters derived from land drainage.[224] The NERRS is a network of individual reserves that are dedicated to long-term estuarine research.[225] For an estuarine area to be designated as part of the system, the nominating coastal state must have laws in place that provide long-term protection to ensure a stable research environment. The CZMA authorizes federal funding for designated reserves, including the delegation of federal grants for use in managing the reserve and conducting education, research, or monitoring activities.[226] The statute, therefore, is an incentive for coastal states to enact laws dedicated to protecting estuarine areas.[227] Currently, there are 28 national reserves.[228]

The CZMA was reviewed and reauthorized in 1980 and again in 1990. The 1990 Coastal Zone Reauthorization Amendments expanded the federal consistency provision in Section 307 to include federal activities "within *or outside* the coastal zone."[229] Congress expanded the scope of this provision in direct response to the U.S. Supreme Court's decision in *Secretary of the Interior v. California*.[230] In that case, the Court held that the Department of Interior's sale of

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[221] The consistency requirement works both ways: Section 307(d) requires that state or local applications for federal assistance be consistent with the enforceable policies of the coastal state's management program. The statute does provide an exception for projects necessary in the interest of national security. 16 U.S.C. § 1456(d).

[222] Detailed regulations regarding the certification process are at 15 C.F.R. §§ 930.30-930.100.

[223] 16 U.S.C. § 1461. Regulations applicable to the NERRS are at 15 C.F.R. § 921.

[224] 15 C.F.R. § 921.2(e).

[225] 16 U.S.C. § 1461(b).

[226] *Id.* § 1461(e).

[227] Connolly et al., *supra* note 42, at 545.

[228] Nat'l Oceanic & Atmospheric Admin., Ocean and Coastal Resource Management, The National Estuarine Research Reserve System, http://coastalmanagement.noaa.gov/programs/nerr.html (last visited Apr. 19, 2013).

[229] 16 U.S.C. § 1456(c)(1)(A) (emphasis added) (as amended by Pub. L. No. 101-508, § 6208(a) (1990)).

[230] 464 U.S. 312 (1984).

OCS oil and gas leases did not constitute activity "directly affecting" California's coastal zone and that a consistency review was not required.

Thirty-four of the 35 coastal and Great Lakes states (and territories) operate under approved programs. The participating states and territories comprise over 90 percent of the nation's coastline.[231]

b. Clean Water Act

The Clean Water Act provides four notable mechanisms for protecting marine resources: Section 320 (the National Estuary Program), Section 403 (Ocean Discharge Criteria), Section 404 (Permits for Dredged or Fill Material), and Section 303(d) (Water Quality Standards and Implementation Plans).

i. National Estuary Program

Estuaries are highly productive habitats that sustain a wide variety of animal and plant life, yet they are used extensively for recreation, shipping, and industry. The National Estuary Program (NEP) was established in 1987, as part of amendments to the Clean Water Act. Section 320 of the Clean Water Act establishes a "place-based" program to protect and restore the water quality of estuaries of national significance. An estuary is defined as "all or part of the mouth of a river or stream or other body of water having unimpaired natural connection with open sea and within which the sea water is measurably diluted with fresh water derived from land drainage."[232] To date, there are 28 estuaries that have been designated as estuaries of national significance under the NEP.

Under the National Estuary Program, the governor of a state may nominate an estuary to the NEP. If accepted, EPA holds a management conference to assess the estuary's condition and begin work on a management plan.[233] The membership of the management conference must include a broad cross-section of stakeholders, including representatives of all states located in the estuarine zone, affected local governments, industry, and the general public.[234] The management conference's main work product is its Comprehensive Conservation and Management Plan, which includes recommendations and proposed solutions for the highest priority problems identified by the conference. EPA supports the efforts of the management conference and the implementation of the management plan through funding.[235]

The National Estuary Program's approach emphasizes public participation and uses a consensus-building approach and collaborative decision-making process to identify problems and develop recommendations to solve the challenges facing each estuary. This approach has been praised by some, who note that the networks in National Estuary Program areas incorporate more levels of government, integrate more experts into the policy

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[231] Nat'l Oceanic & Atmospheric Admin., Ocean and Coastal Resource Management, Measuring Performance, http://coastalmanagement.noaa.gov/success/measure.html (last visited Nov. 27, 2012).
[232] 33 U.S.C. §§ 1254(n)(4), 1330(k).
[233] *Id.* § 1330(a)(2).
[234] *Id.* § 1330(c).
[235] *Id.* § 1330(f), (g).

discussion, nurture stronger interpersonal ties between stakeholders, and create greater faith in the procedural fairness of local policy than other comparable estuaries.[236] For example, EPA reports that the National Estuary Program's membership benefits from the informal exchange of information and best practice regarding common estuarine environmental problems, such as alteration of natural hydrologic flows, aquatic nuisance species, and habitat loss and degradation.[237]

ii. Ocean Discharge Criteria

To protect the quality of "beaches, coasts, and the marine environment from pollution," Section 4(f) of Executive Order 13,158 directed EPA to "expeditiously propose new science-based regulations, as necessary, to ensure appropriate levels of protection for the marine environment."[238] EPA was to rely on "existing Clean Water Act authorities" in drafting the regulations, which the Executive Order provided could include "the identification of areas that warrant additional pollution protections and the enhancement of marine water quality standards."[239]

The Executive Order defines "marine environment" broadly to include "those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands thereunder, over which the United States exercises jurisdiction, consistent with international law."[240] EPA interpreted the Executive Order to require revisions to its Section 403 ocean discharge criteria.[241] Section 403 of the Clean Water Act subjects point source discharges to the territorial seas, contiguous zone, and oceans to certain regulatory requirements in addition to those requirements applicable to typical discharges.[242] The purpose of Section 403 is to ensure that no unreasonable degradation of the marine environment occurs as a result of the discharge.

Section 402 of the Clean Water Act requires permits for discharges of pollutants into the territorial seas, contiguous zone, and oceans. The permits are administered by the National Pollutant Discharge Elimination System. Under Section 403, EPA may not issue Section 402 permits unless it determines that the discharge will not result in "unreasonable degradation" of the marine environment.[243] The ocean discharge regulations, originally promulgated in 1980, specify for the permitting authority the factors that must be considered when evaluating the impact of a discharge to the marine environment. The factors are:

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[236] Mark Schneider et. al., *Building Consensual Institutions: Networks and the National Estuary Program*, 47 AM. J. OF POL'Y SCI. 143 (2003).

[237] U.S. Envtl. Prot. Agency, Water: Estuaries and Coastal Watersheds, Challenges and Approaches, http://water.epa.gov/type/oceb/nep/challenges.cfm (last visited Nov. 27, 2012).

[238] Exec. Order No. 13,158, 65 Fed. Reg. at 34,911.

[239] *Id.*

[240] *Id*. at 34,909.

[241] *See* Ocean Discharge Criteria: Revisions to Ocean Discharge Criteria Regulations; Notice of Public Meetings, 65 Fed. Reg. 42,936-01, 42,937 (proposed July 12, 2000, to be codified at 40 C.F.R. pt. 125).

[242] 33 U.S.C. § 1343(c).

[243] 40 C.F.R. § 125.123.

- Quantities, composition, and potential bioaccumulation or persistence of pollutants to be discharged;
- Potential transport of the pollutants by biological, physical, or chemical processes;
- Composition and vulnerability of potentially exposed biological communities;
- Importance of the receiving water area to the surrounding biological community;
- The existence of special aquatic sites;
- Potential direct or indirect impacts on human health;
- Existing or potential recreational and commercial fishing;
- Any applicable requirements of an approved Coastal Zone Management Plan;
- Such other factors relating to the effects of the discharge as may be appropriate;
- Marine water quality criteria. [244]

According to EPA, more than 300 facilities are subject to Section 403's requirements under individual permits. In addition, approximately 2,500 oil and gas exploration and production platforms must comply with Section 403.[245]

In 2000, as part of EPA's implementation of the Executive Order, the Agency set out to promulgate amendments to Section 403's implementing regulations.[246] EPA's proposed revisions would have issued water quality standards applicable to "healthy ocean waters," defined as ocean waters beyond three miles offshore. The revisions also proposed "special ocean sites" to limit new discharges and encourage development of "no discharge zones."[247]

To date, no progress has been made to update the 1980 regulations. In January 2001, President Bush issued a Regulatory Review Plan that withdrew the proposed rule.[248] Without these revised regulations, EPA fails to meet its obligations under the Executive Order. However, as laws and policy evolve further to protect marine resources, the ocean discharge criteria may prove a valuable mechanism to develop discharge criteria for ocean waters.[249]

iii. Section 404 Permits and the Protection of Coastal Wetlands

The CWA also regulates discharges of pollutants into coastal wetlands. Wetlands are defined as:

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[244] *Id*. § 125.122.

[245] U.S. Envtl. Protection Agency, Clean Water Act Section 403, http://water.epa.gov/aboutow/owow/programs/403.cfm (last visited Nov. 27, 2012).

[246] Ocean Discharge Criteria, 65 Fed. Reg. at 42,937.

[247] Kathryn Mengerink & Andrea A. Treece, *The Clean Ocean Act*, THE ENVTL. FORUM, Jan.-Feb. 2012, at 24, 27-28.

[248] Memorandum for the Heads and Acting Heads of Executive Departments and Agencies, 66 Fed. Reg. 7702-01, 7702 (Jan. 24, 2001).

[249] Mengerink & Treece, *supra* note 247, at 28.

> [t]hose areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances, do support, a prevalence of vegetation typically adapted for lift in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.[250]

Wetlands are important to the marine ecosystem for a multitude of reasons, including their ability to trap and filter pollutants, create flood water retention and storage, and provide a habitat for various types of species.[251]

Section 404 of the CWA, entitled "Permits for Dredged or Fill Material" requires permits for certain water resource development projects affecting coastal wetlands, for example the addition of fill material that has the effect of changing the elevation of a water body.[252] The day-to-day administration of the permitting process is managed by the United States Army Corps of Engineers.

The Section 404 permitting program is centrally premised on the concept of mitigation, which includes "three key steps: avoidance, minimization, and compensation."[253] Avoidance requires searching for an alternative to the discharge to wetlands. Then, the permit applicant must take steps to minimize unavoidable impacts. Compensation is undertaken only if the impacts of the proposed activity cannot be minimized and avoided. This concept is reiterated in the applicable regulations, commonly called the 404(b)(1) Guidelines.[254] Failure to meet mitigation requirements can result in enforcement.[255]

iv. Impaired Waters under Section 303(d)

EPA has the ability to address ocean acidification through Section 303(d) of the Clean Water Act. Ocean acidification is the result of the decrease in the pH of oceans caused by the uptake of carbon dioxide from the atmosphere. As more carbon dioxide dissolves in the ocean, it reduces ocean pH, which changes the chemistry of the water. Research shows ocean water has become 30 percent more acidic, a rapid and unprecedented change that threatens many varieties of sea life, as well as the coral reefs.[256]

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[250] 33 C.F.R. § 328.3.

[251] Kim Diana Connolly, *Regulation of Coastal Wetlands and Other Waters in the United States*, *in* OCEAN AND COASTAL LAW AND POLICY, *supra* note 42, at 87, 87.

[251] *Id.* at 106.

[252] *Id.* at 97.

[253] *Id.* at 106.

[254] 40 C.F.R. § 230.1(c) states that "dredged or fill material should not be discharged into the aquatic ecosystem, unless it can be demonstrated that such a discharge will not have an unacceptable adverse impact either individually or in combination with known and/or probable impacts of other activities affecting the ecosystems of concern."

[255] 33 U.S.C. § 1344(s). The United States Army Corps of Engineers tends to take the lead role in enforcement. *See* Connolly, *supra* note 251, at 142 n.464.

[256] Letter from Miyoko Sakashita, Oceans Director, Center for Biological Diversity, to Committee on Natural Resources, U.S. House of Representatives (Oct. 22, 2012), *available at* http://www.biologicaldiversity.org/campaigns/endangered_oceans/pdfs/Letter_to_Congress_OA_hearing_HNR_2012.pdf.

Section 303(d) requires states, territories, and authorized tribes to develop lists of "impaired waters," which are so polluted that they cannot meet established water quality standards.[257] After a water is designated "impaired," the appropriate jurisdiction (often the state) must develop Total Maximum Daily Loads that calculate the maximum amount of a pollutant that a water body can receive and still meet water quality standards.[258]

In October 2012, the Center for Biological Diversity filed a petition with EPA requesting a revision of various state water quality standards for marine pH under the CWA to address ocean acidification.[259] Currently, EPA recommends that seawater acidity should not change more than 60 percent as a result of anthropogenic causes.[260] According to the Center for Biological Diversity, this is inadequate to protect marine life.

The Center for Biological Diversity filed another petition with EPA on April 17, 2013, requesting that EPA use water-quality standards (in addition to those focused on marine pH) to more effectively monitor and detect ocean acidification and to publish guidance assisting the states in making determinations that waters are impaired by ocean acidification.[261] EPA has not yet taken action on the Center's petitions.

However, on April 16, 2013, the Obama Administration released its National Ocean Policy Implementation Plan, which includes several commitments to ocean restoration activities, including building resiliency and adaption to climate change and addressing the effects of ocean acidification.[262] For example, federal agencies are committing to "coordinate to address key threats to coral reef ecosystems, including impacts from land-based sources of pollution, climate change, ocean acidification, planned activities . . . , and unplanned activities."[263]

c. Coastal Barrier Resources Act

Coastal barriers—the succession of long, narrow islands, spits, and bay barriers generally located parallel to the mainland coast—are unique land forms that function as buffers, protecting the mainland against the destructive forces of hurricanes and other coastal

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[257] 33 U.S.C. § 1313(d).

[258] *Id.*

[259] Press Release, Center for Biological Diversity, EPA Urged to Overturn Standards that Allow Corrosive Seawater (Oct. 18, 2012), *available at* http://www.biologicaldiversity.org/news/press_releases/2012/ocean-acidification-10-18-2012.html.

[260] *Id.*

[261] Press Release, Center for Biological Diversity, EPA Urged to Toughen Standards to Protect Marine Life from Ocean Acidification (Apr. 17, 2013), *available at* http://www.biologicaldiversity.org/news/press_releases/2013/ocean-acidification-04-17-2013.html.

[262] NATIONAL OCEAN COUNCIL, NATIONAL OCEAN POLICY IMPLEMENTATION PLAN (2013), http://www.whitehouse.gov/sites/default/files/national_ocean_policy_implementation_plan.pdf; Press Release, National Ocean Council, Obama Administration Releases Plan to Promote Ocean Economy and Resilience (April 16, 2013), *available at* http://www.whitehouse.gov/administration/eop/ceq/Press_Releases/April_16_2013.

[263] NATIONAL OCEAN COUNCIL, *supra* note 262, at 15-16.

storms.[264] In addition, coastal barriers protect the habitat for migratory birds and other wildlife. Coastal barriers, which are predominantly distributed along the Atlantic and Gulf coasts, can also be found in areas surrounding the Great Lakes, the Virgin Islands, and Puerto Rico.

Coastal barriers are generally unsuitable for development because the movement of unstable sediments undermines man-made structures. Development on coastal barriers can lead to several problems, including the loss of environmentally sensitive ecosystems, interference with natural processes, and increases in storm damage to coastal areas (flooding, hurricane winds, land degradation, and erosion and property damage).[265] The construction of beachfront homes, for example, disrupts the ecosystem by "straitjacketing" the naturally mobile landforms, with the detrimental effect of inhibiting the barrier's ability to adapt and recover from storms and rising sea levels.[266] Development of these coastal areas persists, despite these threats. For example, a 2004 report by NOAA's National Ocean Service found that 53 percent of Americans live in coastal areas with coastal barriers.[267]

The Coastal Barrier Resources Act (CBRA) was enacted in 1982 to protect undeveloped coastal barriers from development. The CBRA's stated purposes are to minimize the loss of human life, decrease wasteful expenditures of federal funds, and prevent damage to fish, wildlife, and other natural resources.[268] CBRA's central provision restricts future federal expenditures and financial assistance within the John H. Chafee Coastal Barrier Resources System that have the effect of encouraging coastal barrier development.[269] Federal assistance includes loans, grants, guaranties, payments, rebates, subsidies, or any other form of direct or indirect assistance.[270] The CBRA defined the Coastal Barrier Resources System to include 585 "units" of undeveloped coastal land, as well as nearly 1.3 million acres of associated aquatic habitats.

The prohibitions include the construction or purchase of roads, airports, boat landings, or other facilities on or leading to a unit, as well as any project to stabilize inlets, shorelines, or inshore areas for the purpose of encouraging development.[271] Perhaps the most significant funding restriction is the ban on federal flood insurance policies issued under the National Flood Insurance Act of 1968 for any new construction or substantially improved property. Although the Secretary of the Interior is responsible for consulting with other agencies that propose spending funds within the Coastal Barrier Resources System, recommending

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[264] U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-07-356, COASTAL BARRIER RESOURCES SYSTEM: STATUS OF DEVELOPMENT THAT HAS OCCURRED AND FINANCIAL ASSISTANCE PROVIDED BY FEDERAL AGENCIES 6 (2007).

[265] U.S. DEP'T OF HOUS. & URBAN DEV., COASTAL BARRIER RESOURCES ACT OF 1982 (AS AMENDED): GUIDELINES FOR COMPLIANCE (2008), http://portal.hud.gov/hudportal/documents/huddoc?id=DOC_12983.pdf.

[266] Elise Jones, *The Coastal Barrier Resources Act: A Common Cents Approach to Coastal Protection*, 21 ENVTL. L. 1015, 1022 (1991).

[267] U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 264, at 7.

[268] 16 U.S.C. § 3501(b).

[269] *Id.* § 3504.

[270] *Id.* § 3502(3).

[271] *Id.* § 3504.

modifications to unit boundaries and maintaining maps for the Coastal Barrier Resources System, the prohibitions on federal spending apply to all federal agencies.

The CBRA contains certain exceptions to the general prohibition, including funding for essential emergency operations, maintaining and replacing existing publicly owned infrastructure, energy development, and land use related to national security.[272] In addition, the CBRA does not impede the issuance of certain federal permits, such as EPA-issued permits regulating the discharge of wastes into navigable waters. Finally, the CBRA does not prohibit development within the Coastal Barrier Resources System by property owners intent on developing their own lands without federal financial assistance.

The CBRA has been revised several times. Congress expanded the Coastal Barrier Resources System in 1990 by designating an additional 1.8 million acres of land already held for conservation or recreation. These "otherwise protected areas" include national wildlife refuges, national parks and seashores, and state and county parks. The CBRA's reauthorizations in 2000 and 2005 instructed the U.S. Fish and Wildlife Service to complete a "Digital Mapping Pilot Project" to improve original Coastal Barrier Resources System maps, which the Service admits were outdated, difficult to use, and frequently challenged via the CBRA's property determination process.[273]

The unique approach employed by the CBRA has several advantages that a more traditional approach to resource protection lacks. The CBRA combines environmental protection and cost savings, and promotes state and local land use programs by reducing the development pressure that could undermine local efforts to protect coastal areas. The statute also avoids legal complications that can affect other federal efforts to protect the environment. Specifically, because the denial of federal subsidies is not an actual asset of the property, the subsidies are not viewed as a right and thus avoid challenges as a taking under the Fifth Amendment.[274]

According to a 2007 U.S. Government Accountability Office (GAO) report, most of the Coastal Barrier Resources System remains undeveloped. Only about 3 percent of units covered by the CBRA experienced significant development. Despite that, the report concludes that the CBRA did not play the primary role in restricting development. Rather, additional factors are primarily responsible for restricting development, including: (1) the lack of developable land in the unit, (2) the lack of accessibility to the unit, (3) state laws discouraging development within coastal areas, and (4) ownership of land by groups motivated to preserve the natural state of the land (such as the National Audubon Society).[275] This does not mean the CBRA is without influence. The CBRA can be viewed as an additional safeguard against coastal development, working in concert, in particular, with state laws that discourage development and with private ownership of coastal land by conservation groups.

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[272] *Id.* § 3505.

[273] Additional descriptions of the revised statutes can be found at http://www.fws.gov/CBRA/Act/Legislation.html.

[274] JULIAN CONRAD JUERGENSMEYER & THOMAS E. ROBERTS, LAND USE PLANNING AND DEVELOPMENT REGULATION LAW § 11:9 (3d ed. 2012).

[275] U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 264, at 10.

For example, in an area where state and local government policies complement the CBRA's prohibitions, it is unlikely the area will experience significant new development.[276] For those areas covered by the CBRA that have experienced such development, the primary motivations were (1) commercial and public interest in development, (2) local government encouragement to develop for economic reasons, and (3) the availability of private flood insurance.[277]

The Digital Mapping Pilot Project, mentioned above, could serve as a meaningful improvement to CBRA and its ability to protect coastal areas. The U.S. Fish and Wildlife Service expects the final recommended pilot project maps will be transmitted to Congress in Fiscal Year 2013. To take effect, the pilot project maps must be enacted by Congress through new legislation.[278]

d. Shortcomings of Coastal-Focused Authorities

The preceding efforts make significant strides to protect marine life in coastal regions, but they are not without limitations. By definition, the federal statutes discussed above fall short of the NMSA, due to their focus. While the NMSA provides for comprehensive, ecosystem-based management of designated sanctuaries,[279] these authorities provide for coastal protections only. Some federal authorities are even more tailored, such as the Section 404 CWA permits, which address only discharges associated with dredge and fill activities. As discussed in detail above, the NMSA's goals of integrated management and attention to the entire marine system allow for across the board protections of marine biodiversity, habitat, and fisheries.

There are additional shortcomings associated with coastal-focused protections. For example, participation under the CZMA is voluntary, and states can withdraw at will. The diversity of management programs and the latitude afforded by the statute to the implementing state makes it difficult to measure performance and determine overall effectiveness. The CZMA has attempted to respond to this shortcoming. NOAA has developed a "strategic plan" dedicated, in part, to developing measuring tools to track effectiveness on a national level. The CZMA Performance Measurement System utilizes a suite of contextual indicators to provide information on environmental and socioeconomic factors influencing program actions and performance measures to assess how well states are achieving CZMA objectives.[280]

Certain sections of the CWA protections are weak on enforcement and remain undeveloped. For example, despite the benefits of the NEP's approach, Section 320's provisions lack teeth. Namely, the Comprehensive Conservation and Management Plan is

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[276] *Id.*

[277] *Id.* at 13-14.

[278] More information about the Digital Mapping Pilot Project can be found at http://www.fws.gov/CBRA/Act/Pilot.html.

[279] See *supra* Part III.G.

[280] Nat'l Oceanic & Atmospheric Admin., Ocean and Coastal Resource Management, Measuring Performance, http://coastalmanagement.noaa.gov/success/measure.html (last visited Nov. 27, 2012).

not an enforceable regulation.[281] Nevertheless, management plans can serve as a catalyst for changing local laws and regulations that affect estuarine protection.[282]

With regard to the CWA's ocean discharge criteria, no progress has been made to update the 1980 regulations. In January 2001, President Bush issued a Regulatory Review Plan that withdrew the proposed rule.[283] Without these revised regulations, EPA fails to meet its obligations under the Executive Order. However, as laws and policy evolve further to protect marine resources, the ocean discharge criteria may prove a valuable mechanism to develop discharge criteria for ocean waters.[284]

The same critique can be levied on EPA's development of Total Maximum Daily Load requirements to address ocean acidification. Progress has been slow. It remains to be seen what effect legal petitions like those filed by the Center for Biological Diversity or action plans such as the National Ocean Policy Implementation Plan will have on the development of tools aimed at alleviating the impact of ocean acidification.

Finally, the CBRA does not provide comprehensive oversight of the various federal agencies covered by the statute's prohibition. The Department of the Interior is available for consultation and will issue a written opinion as to the applicability of exemptions or whether the proposed project is consistent with the statute's purposes. But an agency can seek guidance and ignore the recommendations.[285]

The CBRA's effectiveness will improve once better maps are in place. For example, the 2007 GAO report found that four federal agencies provided prohibited financial assistance to property owners in Coastal Barrier Resources System units.[286] The assistance took various forms, including flood insurance policies, home loan guarantees, disaster loans, and assistance payments. While the amount of prohibited funds dispersed was not significant, the GAO report recommended that agencies be provided with more accurate maps, as well as better self-regulate their disbursement of financial assistance.

4. Federal Land-Based Authorities

Federal land-based authorities provide an opportunity to protect, maintain, and restore the nation's ocean resources so that they are capable of delivering ecosystem services—clean beaches, healthy seafood, abundant wildlife, etc.—through the protection of spatially-defined marine protected areas. This part examines the various federal land-based conservation statutes that have been used and have the potential to be used to provide spatial protection for sensitive or important protected marine areas.

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[281] Matthew W. Bowden, *An Overview of the National Estuary Program*, NAT. RESOURCES & ENV'T, Fall 1996, at 35, 37.
[282] *Id.*
[283] Memorandum for the Heads and Acting Heads of Executive Departments and Agencies, 66 Fed. Reg. 7702-01, 7702 (Jan. 24, 2001).
[284] Mengerink & Treece, *supra* note 247, at 28.
[285] Jones, *supra* note 266, at 1037-38.
[286] Mengerink & Treece, *supra* note 247, at 16.

a. National Park Service Organic Act[287]

The National Park System (Park System) administered under the National Park Service Organic Act has evolved to represent the natural, scenic, cultural, and historic heritage of the United States. Section 1 of the Organic Act states that the purpose of the Park System is to "conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."[288] This directive makes clear that resource protection is the primary goal for units of the Park System. Nonetheless, Congress has authorized consumptive use of Park System resources through site-specific legislation.[289]

Thirty-nine Park System units include coastal or marine waters, or are located adjacent to such areas.[290] Yet other important marine areas worthy of resource protection may not meet the elements Congress considers to determine whether territory is worthy of national park designation. Moreover, the Organic Act's stringent preservation mandate may not be compatible with the needs of marine resource users and consumers, although exceptions to this mandate can be legislated.

b. National Wildlife Refuge System Administration Act[291] and Refuge Improvement Act[292]

The National Wildlife Refuge System Administration Act of 1966 provides a uniform set of management principles that govern the National Wildlife Refuge System (Refuge System). The law authorizes the Secretary of the Interior by regulation to "permit the use of any area within the System for any purpose, including but not limited to hunting, fishing, public recreation and accommodations, and access whenever he determines that such uses are compatible with the major purposes for which such areas were established."[293] The Refuge Improvement Act of 1997 (Improvement Act) provides further guidance regarding management of the Refuge System. The Improvement Act establishes a process for determining compatible uses of refuges[294] and adopted an overall mission of the Refuge System to conserve fish, wildlife, plants, and their habitats.[295] In this regard, the Improvement Act corresponds to the Park Service Organic Act.

National wildlife refuges may be established by an act of Congress or presidential[296] or secretarial order,[297] donation from private parties, or transfer from other agencies.[298] The

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[287] 16 U.S.C. §§ 1 and other sections scattered throughout Title 16 of the U.S. Code.
[288] *Id*. § 1.
[289] *See, e.g., id*. § 459a-1 (expressly authorizing commercial fishing within the Cape Hatteras National Seashore).
[290] UPTON & BUCK, *supra* note 7, at 21.
[291] 16 U.S.C. §§ 668dd-668ee.
[292] Pub. L. No. 105-57, 111 Stat. 1252 (1997) (amending 16 U.S.C. §§ 668dd-668ee).
[293] 16 U.S.C. § 668dd(d)(1)(A).
[294] *Id*. § 668dd(a)(3)(A)-(D).
[295] *Id*. § 668dd(a)(2).
[296] *Id*. § 431 (Antiquities Act); see discussion *infra* Part d.
[297] *See, e.g.*, 16 U.S.C. §§ 715d, 1533(b)(2) (authorizing the Secretary to create refuges).

purposes of a refuge unit to which the compatibility test applies are determined by the enabling authority for the unit. Typically, this is the federal statute creating the Refuge System unit, but it can come from presidential proclamation, secretarial order, or another source depending upon the origin of the unit.

The U.S. Fish and Wildlife Service administers the compatibility test flexibly. The Service allows a wide range of secondary uses, from recreational to commercial. Approximately 140 national wildlife refuges are located in marine and coastal areas.[299]

c. Wilderness Act[300]

Wilderness areas established under the Wilderness Act are generally 5,000 or more acres and comprise lands largely in their natural state. Section 2(c) of the Wilderness Act defines wilderness as areas "where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."[301] Four federal agencies administer the National Wilderness Preservation System: the Bureau of Land Management, the U.S. Fish and Wildlife Service, the U.S. Forest Service, and the National Park Service. Wilderness is designated by Congress based upon the recommendation of the land managing agency, as transmitted through the President to Congress.[302] To date, Congress has created ocean wilderness areas only as part of upland wilderness designations.[303]

The land manager for most federal submerged lands offshore is the Secretary of the Interior, who has delegated management authority to the Bureau of Ocean Energy Management under the Outer Continental Shelf Lands Act, discussed above in section IV.A.2.a.[304] The OCSLA contains no provisions for the Bureau of Ocean Energy Management to recommend submerged lands for wilderness designation. While Congress can directly designate lands as wilderness, wilderness is the most restrictive category of federal lands. Absent compelling resource protection needs, Congress is unlikely to favor a wilderness designation where management flexibility is desired.

d. Antiquities Act[305]

The Antiquities Act authorizes the President to proclaim as national monuments historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on the lands owned or controlled by the federal government. The Antiquities Act differs from the foregoing statutes because it delegates congressional authority to the President to set aside national monuments.[306] The ability of the President to act alone and

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[298] *See, e.g., id.* §§ 668dd(a)(6), 1534(a)(2).
[299] UPTON & BUCK, *supra* note 7, at 25.
[300] 16 U.S.C. §§ 1131-1136.
[301] *Id.* § 1131(c).
[302] *See, e.g., id.* § 1132(b).
[303] *E.g.*, Aleutian Islands Wilderness Area established in Section 702(1) of the Alaska National Interest Lands Conservation Act, Pub. L. No. 96-487, § 702(1), 94 Stat. 2371 (1980); and Florida Keys Wilderness Area established in Section 1(b) of the Act of Jan. 3, 1975, Pub. L. No. 93-632, § 1(b), 88 Stat. 2153 (1975).
[304] *See* 43 U.S.C. § 1331(b).
[305] 16 U.S.C. §§ 431-443.
[306] *Id.* § 431.

without any required process to take protective action is the Act's most significant feature. There is precedent for the Act being used to preserve marine resources. Through presidential proclamations in 2006 and 2007, President Bush designated the Papahānaumokuākea Marine National Monument (Northwestern Hawaiian Islands Marine National Monument), covering over 150,000 square miles of ocean, and the Marianas Trench, Pacific Remote Islands, and Rose Atoll Marine National Monuments.[307]

The Antiquities Act does not itself specify the federal agency that will manage any national monument created under its authority. Although the Park Service Organic Act authorizes the NPS to manage national monuments, other than those under the jurisdiction of the Secretary of the Army,[308] it has not been construed to require management by the NPS. Thus the President typically may choose which agency will administer a new national monument.

e. Shortcomings of Federal Land-Based Authorities

Each of these land-based statutes has limitations that make them less useful than the NMSA in protecting marine areas. Indeed, Congress specifically recognized in the NMSA that the nation's historical protection of special areas of the public domain has been directed almost exclusively to land areas above the high water mark.[309] So while marine areas have been included in designations under these land-based statutes, the vast majority of marine areas within such designations were included because of their connection to significant upland resources.

i. National Park Service Organic Act

The chief difficulty with using the Organic Act to designate marine protected areas is its stringent preservation mandate. This mandate may not be compatible with the needs of marine resource users and consumers, although exceptions to the mandate can be legislated. In contrast, despite the NMSA's primary goal of preservation, national marine sanctuaries allow for various compatible uses, including fishing, boating, diving, and other forms of human activity. Unlike national parks, which generally apply significant restrictions on human activities, the NMSA facilitates lawful public and private sanctuary uses that are compatible with resource protection. The availability of this multiple-use approach engages the public and reinforces the scientific, cultural, and historic value of marine sanctuaries.

Moreover, national parks are typically established by congressional action, although some park units have been established by presidential proclamation under the Antiquities Act. In contrast, absent the current congressional moratorium, the Secretary of Commerce, in addition to Congress, can create a national marine sanctuary. This introduces greater flexibility into the designation process.

[307] Proclamation No. 8031 (June 15, 2006) and Amendment of Mar. 2, 2007.
[308] 16 U.S.C. § 1.
[309] *Id.* § 1431 (a)(1).

ii. National Wildlife Refuge System Administration Act and the Refuge Improvement Act

Similar to the Park Service Organic Act, the Improvement Act creates a preservation mandate that may not be compatible with the needs of marine resource users and consumers. Wildlife refuges can only allow uses that are compatible with the major purposes for which such areas were established. In contrast, the NMSA facilitates lawful public and private sanctuary uses that are compatible with resource protection. The availability of this multiple-use approach engages the public and reinforces the scientific, cultural, and historic value of marine sanctuaries.

Wildlife refuges can be created in numerous ways, including establishment by Congress, the President, the Secretary of the Interior, or even private donation.[310] As such, designation of wildlife refuges is more flexible than designation of national marine sanctuaries.

iii. Wilderness Act

Wilderness is the most restrictive category of federal lands. Only Congress can designate lands as wilderness. Absent compelling resource protection needs, Congress is unlikely to look to use of a wilderness designation where management flexibility is desired. Despite the NMSA's primary goal of preservation, national marine sanctuaries allow for various compatible uses, including fishing, boating, diving, and other forms of human activity. Moreover, the NMSA facilitates lawful public and private sanctuary uses that are compatible with resource protection.

iv. Antiquities Act

Given President Bush's use of the Antiquities Act within the past decade to set aside marine areas as national monuments and in light of the 2004 moratorium on the designation of future marine sanctuaries,[311] it is relevant to consider whether the Antiquities Act has become the statute of preference for protecting sensitive or important marine areas. Our analysis demonstrates that despite recent reliance on the Antiquities Act, the NMSA is still the better tool for preserving and protecting marine areas, should Congress lift the moratorium on national marine sanctuary designations.

Management Challenges with Monument Designations

There are differences in the management authorities contained within the Antiquities Act and the NMSA. The Antiquities Act only addresses the President's power to designate national monuments. It does not provide any significant management authority. Historically, the President has relied upon the federal land managing agency assigned to a national

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[310] See *supra* notes 296-298.

[311] Section 304(f)(1) of the NMSA, 16 U.S.C. § 1434(f)(1), provides that the Secretary of Commerce may not issue any new sanctuary notice unless he or she makes certain findings by the deadlines established in subsection f(2), 16 U.S.C. § 1434(f)(2). The 2004 deadlines established by this subsection have passed and cannot now be met.

monument to use its organic authority to manage the monument.[312] For example, President Bush assigned management authority to the Secretaries of Commerce and Interior, acting through NOAA and the Fish and Wildlife Service respectively, to manage the Papahānaumokuākea Marine National Monument.

In contrast, the NMSA provides comprehensive law enforcement authority to the Secretary of Commerce to enforce the protections accorded to marine sanctuaries. This authority extends to regulating fishing outside of the marine sanctuary that impairs resources within the sanctuary. While the organic authority of the Park Service has been interpreted to allow regulation of at least some activities beyond the boundaries of the protected lands, this authority is very limited.[313] Moreover, the Park Service and the Fish and Wildlife Service may not have the administrative expertise to craft protective regulations that adequately address the needs of the competing constituencies, especially the commercial fishing industry.

The NMSA also provides for civil and criminal penalties for violations of the statute's protections, whereas the Antiquities Act contains only criminal provisions that have been held to be overly vague and therefore unconstitutional.[314] In place of the Antiquities Act's criminal provisions, the organic authority of the monument's land managing agency applies to criminal and civil violations of a monument's protections. But in contrast to civil penalties available under other land-based authorities, the NMSA authorizes NOAA to assess significantly higher civil penalties (up to $100,000 per day per violation) for violations of the NMSA or its implementing regulations, and damages against people that injure sanctuary resources, including imposition of response costs.[315] Other land-based authorities also do not provide for *in rem* jurisdiction and the imposition of a maritime lien over vessels used in committing a violation.[316]

Significant civil penalties are important to protecting marine resources. In light of federal prosecutors' heavy caseloads, criminal violations affecting far-flung marine resources are unlikely to receive priority. In contrast, civil penalties can be enforced by the Secretary of Commerce without involving federal prosecutors at least initially. In most cases, prosecutors can be avoided altogether, when civil penalties are not contested in court. Moreover, the level of civil penalties under the NMSA and the ability to recover response costs in addition to damages assures more than just a slap on the wrist for destruction of the resources protected by marine sanctuaries.

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[312] While the organic authority of the National Park Service, the U.S. Fish and Wildlife Service and the Bureau of Land Management each provides law enforcement authority, the organic authority of the Bureau of Ocean Energy Management only provides enforcement authority relating to mineral extraction activities.

[313] *See* Memorandum from John Leshy, Solicitor, U.S. Dep't of the Interior, to Bruce Babbitt, Secretary, U.S. Dep't of the Interior (Apr. 16, 1998), *available* at http://www.doi.gov/sol/M36993.pdf.

[314] *United States v. Diaz*, 499 F.2d 113 (9th Cir. 1974).

[315] *See* 16 U.S.C. §§ 1436, 1437, 1443.

[316] *Id*. §§ 1437, 1443.

Differences Between NMSA and Antiquities Act Designations

The fundamental purposes of the NMSA and the Antiquities Act are different. The NMSA creates a comprehensive, ecosystem-based approach to solving problems of ocean degradation and conflicting uses. The Antiquities Act is designed to preserve objects of historic and scientific interest and its authority is limited to the smallest area necessary to do so.

National monuments may work well in relatively remote areas with less human use, but they may be less effective in areas near larger human populations or with more complex or higher levels of use because the Antiquities Act does not provide a pre-designation process through which potential conflicts are identified, addressed and resolved to the extent possible. Designation through the NMSA ensures substantial public involvement in the designation process, and in the ongoing management of the site through the sanctuary advisory council process.

The NMSA authorizes the Secretary of Commerce to designate a national marine sanctuary based upon the standards and factors required by the statute[317] and by following its procedures for designation and implementation. For example, the NMSA requires the Secretary of Commerce to consult with other federal agencies, state and local governments, officials of a Regional Fishery Management Council that may be affected by a proposed designation, and other interested parties.[318]

The Antiquities Act provides the President with immediate authority to designate a national monument without any outside consultation, while the NMSA provides a set of time-tested management tools for the protection and management of protected resources.

National Monuments Not Within the Existing National Marine Sanctuary Program

Monuments, even though they might be managed by the Secretary of Commerce through NOAA, are not expressly included in the national marine sanctuary system and do not fall within the scope of the protections that the NMSA provides.

Including national monuments in the national marine sanctuary program through reauthorization of the NMSA (or another mechanism) would provide opportunity for more uniform and consistent management of all four current marine national monuments and any future monuments for which NOAA has a management role.

f. Summary

Many of our nation's ocean regulatory laws focus on controlling specific activities or managing specific species, but, taken together, they fall short of providing comprehensive protection of ocean resources. Federal land-based authorities such as the Antiquities Act, the National Park Service Organic Act, the National Wildlife Refuge System Administration Act, and the Wilderness Act go a step further by providing spatial protection for sensitive or

[317] *See id*. § 1433.
[318] *See id*. § 1434.

important protected areas. In recent years, the Antiquities Act, which authorizes the President to act alone to set aside national monuments without any additional process, has become a preferred mechanism for protecting marine areas. In comparison to the NMSA, however, the Antiquities Act has limited ability to properly designate, coordinate, manage, and enforce protections in marine protected areas.

5. Species-Based Authorities

a. Endangered Species Act: Critical Habitat Designations

In enacting the Endangered Species Act of 1973 (ESA), Congress found that "various species of fish, wildlife, and plants in the United States have been rendered extinct as a consequence of economic growth and development untempered by adequate concern and conservation."[319] Noting that the United States had pledged its intent in the international community to conserve, to the extent practicable, the various species of fish or wildlife and plants facing extinction,[320] Congress declared the purposes of the ESA to be to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions" for conservation of threatened and endangered species.[321]

For a species to receive ESA protections, it must first be listed as threatened or endangered. Listing and delisting decisions may be initiated either by the U.S. Fish and Wildlife Service or NOAA's National Marine Fisheries Service (collectively, the Agencies), who jointly administer the ESA, or by nonfederal parties submitting petitions.[322] Listing decisions must be made based on the best available science and subject to specific statutory deadlines, and in accordance with five criteria: (1) the presence or threatened destruction, modification, or curtailment of the species' habitat or range; (2) overutilization of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or man-made factors affecting the species' continued existence.[323]

Once a species is listed as threatened or endangered, the Agencies are required to designate critical habitat, defined by the ESA as the specific geographic areas that contain the physical and biological features essential to the species' conservation and that may require special management or protection.[324] Critical habitat designation decisions must be made at

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[319] *Id.* § 1531(a)(1).
[320] *Id.* § 1531(a)(4) (referencing the International Convention for the Northwest Atlantic Fisheries, Feb. 8, 1949, 1 U.S.T. 477, and the International Convention for the High Seas Fisheries of the North Pacific Ocean, U.S.-Can.-Japan, May 9, 1952, 1955 U.N.T.S. 80 (*replaced by* the Convention for the Conservation of Anadromous Stocks in the North Pacific Ocean, Feb. 11, 1992, 1992 WL 602605)).
[321] *Id.* § 1531(b).
[322] *Id.* § 1533(a)-(c).
[323] *Id.* § 1533(a).
[324] *Id.* § 1532(5).

the time of listing, or if it is not determinable at the time of listing, within one year of the listing decision. The Agencies may decline to designate critical habitat if they determine that designation is not prudent (i.e., the benefit of designating critical habitat is outweighed by the potential harm to the species of identifying its habitat), or if the economic and social costs of designation outweigh the benefit to the species, so long as failure to designate will not result in the species' extinction.

The goal of the ESA is to achieve not just species conservation, but species recovery, that is, bringing the listed species back to the point where ESA protections are no longer required.[325] There are five primary mechanisms in the ESA that facilitate this goal. First, listed species are protected against take within the United States, its territorial sea, and upon the high seas, with "take" defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct," including significant habitat destruction that actually kills or injures an endangered species.[326] This broad definition provides significant authority to limit activities that may result in the take of endangered species. Second, the Agencies are required to develop and implement recovery plans for listed species unless they determine that a plan will not promote the conservation of the species.[327] These plans provide specific criteria and conditions that species populations must meet to be deemed "recovered" for purposes of delisting. The plans are developed by "recovery teams" and subject to public review and comment. Third, Section 6 of the ESA authorizes the Agencies to enter into cooperative agreements with states to establish "adequate and active" programs for the conservation of listed species and to fund such programs.[328] In the past five years, NMFS has completed Section 6 cooperative agreements with all coastal states, including the Pacific coast states that are home to most listed marine species. Fourth, federal agencies have a special obligation to conserve listed species under the ESA. Under Section 7(a)(1), federal agencies are directed by broad mandate to carry out programs for the conservation of threatened and endangered species.[329]

Finally, Section 7(a)(2) requires that all federal agencies consult with the Agencies to ensure that "any action authorized, funded, or carried out" by a federal agency "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification" of critical habitat.[330] The Section 7 consultation process sets the ESA apart from all other wildlife conservation laws by requiring the review of agency actions to determine whether proposed actions may affect a listed species or critical habitat. If the Agencies make a "may affect" determination, they will prepare a biological opinion on those impacts to determine whether the action is likely to jeopardize the continued existence of the listed species or adversely modify or destroy its designated critical habitat. The Agencies may suggest reasonable and prudent alternatives to

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[325] *See id.* §§ 1531(c), 1533(f).
[326] *Id.* §§ 1538(a), 1532(19); 50 C.F.R. § 17.3; *see also Babbitt v. Sweet Home Chapter of Communities for a Greater Oregon*, 515 U.S. 687 (1995).
[327] 16 U.S.C. § 1533(f).
[328] *Id.* § 1535(c).
[329] *Id.* § 1536(a)(1).
[330] *Id.* § 1536(a)(2).

the proposed action to avoid jeopardy or adverse modification. Once the consultation process has resulted in an action that receives a "no jeopardy" determination, the Agencies will issue an incidental take statement, which authorizes a specific level of take and provides reasonable and prudent measures to minimize impacts to the listed species and its habitat.

Listing and designation of critical habitat under the ESA provides a significant level of protection for marine species. As just one example, the prohibition on take has provided significant protections for listed sea turtle populations that had been bycatch casualties in net fishing operations. The take prohibition resulted in the development of turtle exclusion devices, a technological advance that has become a required precursor to the issuance of permits for particular fisheries in turtle habitat.[331] Recovery plans have provided the scientific basis for determining and facilitating species recovery, and are commonly used to assess the potential impacts of proposed activities on listed species as part of the Section 7 consultation process. The Section 7 consultation process has provided the Agencies with the mandate and authority to ensure that proposed federal activities will not result in jeopardy to the listed species or adverse modification of its critical habitat. In practical terms, this has resulted in enhanced review of offshore and nearshore activities, and the adoption of alternative actions and measures to ensure the protection of listed species and their habitats. Critical habitat designation can also provide significant protections through Section 7 for marine species. Federal activities, including traditional and renewable offshore energy development, issuance of fishing permits, issuance of incidental harassment authorizations under the Marine Mammal Protection Act, and sonar and other defense-related testing activities occurring in designated critical habitat will trigger the Section 7 consultation requirement and the resulting protective considerations that it contains.

b. Marine Mammal Protection Act

When it enacted the Marine Mammal Protection Act of 1972 (MMPA),[332] Congress set forth a series of findings that form the statute's policy foundation. Congress recognized that specific marine species and populations were or may soon be in danger of extinction as a result of human activities, and that species and stocks "should not be permitted to diminish beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part, and, consistent with this major objective, they should not be permitted to diminish below their optimum sustainable population."[333] To facilitate species and ecosystem conservation, Congress found there was a critical need for more information about species biology and ecology, and called for international efforts to encourage the research and conservation of marine mammals.[334] Finally, in declaring that the primary goal of the MMPA is maintaining the health and stability of the marine ecosystem, Congress stated:

[331] 50 C.F.R. §§ 223.206, 223.207.
[332] 16 U.S.C. §§ 1361 *et seq*.
[333] *Id*. § 1361(1)-(2).
[334] *Id*. § 1361(3)-(4).

> [M]arine mammals have proven themselves to be resources of great international significance, esthetic and recreational as well as economic, and it is the sense of the Congress that they should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management and that the primary objective of their management should be to maintain the health and stability of the marine ecosystem. Whenever consistent with this primary objective, it should be the goal to obtain an optimum sustainable population keeping in mind the carrying capacity of the habitat.[335]

At the core of the MMPA is the moratorium on taking set forth in Section 101(a), which establishes a general ban on the taking and importation of marine mammals throughout areas subject to United States jurisdiction and by any person, vessel, or conveyance subject to the jurisdiction of the United States on the high seas.[336] Like the ESA, the MMPA generally prohibits the "take" of marine mammals, defined as to "harass, hunt, capture, or kill" any marine mammal, or attempt the same.[337]

The definition of "take" has been expanded by U.S. Fish and Wildlife Service regulations to mean:

> to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal, including, without limitation, any of the following: The collection of dead animals or parts thereof; the restraint or detention of a marine mammal, no matter how temporary; tagging a marine mammal; or the negligent or intentional operation of an aircraft or vessel, or the doing of any other negligent or intentional act which results in the disturbing or molesting of a marine mammal.[338]

NMFS regulations also prohibit feeding or attempting to feed marine mammals in the wild.[339] Exemptions from the prohibition on take are authorized in certain situations identified in the regulations.[340]

A number of MMPA provisions emphasize habitat and ecosystem protection, including the Section 2 findings and declaration of policy.[341] Direct protections can be provided pursuant to the Section 2 objective that the Agencies "maintain the health and stability of the marine ecosystem."[342] Additionally, the statute's "take" prohibition further provides the Agencies with the regulatory authority to implement the protections of the MMPA in a way that results in de facto marine habitat protection. The Agencies may issue permits for the incidental take of marine mammals related to commercial fishing, which includes the

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[335] *Id.* § 1361(6).
[336] *Id.* §§ 1371(a), 1372(a).
[337] *Id.* §§ 1362(13), 1372(a).
[338] 50 C.F.R. § 18.3.
[339] *Id.* § 216.3.
[340] *See* 16 U.S.C. § 1371(a)-(d).
[341] *See id.* § 1361(2), (5)(B), (6).
[342] *Id.* § 1361(6).

authority to implement time and area closures or gear modifications necessary to reduce take to near zero.[343]

c. Shortcomings of Species-Based Authorities

Despite the protections they offer to marine species, the ESA and the MMPA each have significant shortcomings. The primary problem with both statutes is that, unlike the NMSA, the ESA and the MMPA do not set aside protected areas of the marine environment.

Designation of critical habitat under the ESA cannot offer the type of broad-based ecosystem protection offered by the NMSA. Such designations only apply to a given action to the extent the action is authorized, funded, or carried out by a federal agency and, for that reason, subject to the protections of Section 7(a)(2).[344] Moreover, by their nature, critical habitat designations, like the ESA as a whole, address only a single species at a time, as neither the ESA nor its constituent protections are designed to consider and protect entire ecosystems. The express purposes of the NMSA, in contrast, include protecting all natural habitats, populations, and ecological processes in marine sanctuaries, as well as providing authority for the sanctuaries' comprehensive conservation and management.[345] The NMSA's framework allows for superior preservation of the marine environment.

A related concern with the ESA is the limited protection provided to some species from activities *not* included in the Section 7 consultation process (e.g., activities without a federal link), or activities undertaken by noncitizens in waters outside United States jurisdiction. These activities (including fishery management, whale harvest, etc.) significantly impact the overall health of the listed species and can dramatically lower the efficacy of ESA protections.

For its part, the MMPA does not even provide for critical habitat, nor does it include any other direct authority for ecosystem protection for marine species. The absence of such authority aligns with the MMPA's fundamental purpose of enabling the protection and study of marine mammals. While the statute acknowledges the importance of the marine ecosystem and species habitat in species conservation efforts, it does not incorporate habitat protection authority. This undermines the MMPA's usefulness as a stand-alone tool. Like the ESA, therefore, the MMPA falls short of providing comprehensive protection to the oceans.

6. Authorities Focused on Aquatic Invasive Species

a. Authorities

Ballast water discharged from ships is a pathway for the introduction and spread of "aquatic invasive species." Ballast water is water held in tanks or cargo holds of ships to provide stability and maneuverability.[346] Attention first focused on aquatic invasive species following the arrival of zebra mussels, via ballast water discharge, in the Great Lakes in the

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[343] *Id.* § 1387.

[344] *See id.* § 1536(a)(2).

[345] *See id.* § 1431(b)(2), (b)(3).

[346] EUGENE H. BUCK, CONG. RES. SERV., NO. RL32344, CRS REPORT FOR CONGRESS: BALLAST WATER MANAGEMENT TO COMBAT INVASIVE SPECIES 2 (2010).

late 1980s, an episode that inflicted significant damage on city water supplies and electric utilities.[347] These types of invasive species threaten native ecosystems, as well as the economy.

The first federal effort to address the spread of aquatic nuisance species from ballast water resulted in the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA).[348] NANPCA's jurisdiction was limited; it required ballast exchange for ships entering the Great Lakes and the Hudson River watershed.[349] It also created the Aquatic Nuisance Species Task Force to conduct studies and report to Congress regarding the optimal locations for ballast water exchange[350] and the need for controls for vessels entering U.S. waters other than the Great Lakes.[351]

In 1996, the National Invasive Species Act (NISA) amended NANPCA and created a national ballast management program expanding on the Great Lakes program.[352] NISA requires the Secretary of Homeland Security "to ensure to the maximum extent practicable that aquatic nuisance species are not discharged into waters of the United States from vessels."[353] The statute initially implemented the program on a voluntary basis, but in 1994 the U.S. Coast Guard issued regulations making the program mandatory.[354] Under NISA, all ships entering U.S. waters must conduct ballast exchange or implement an alternative measure approved by the Coast Guard.[355]

In accordance with NISA, which requires the Secretary of Homeland Security to periodically evaluate and revise its ballast waste management regulations based on the best available scientific information, the Coast Guard recently finalized new regulations addressing ballast water management.[356] The review concluded that ballast water exchange is

> not well suited as the basis for the protective [ballast water management] programmatic regimen envisioned by NISA, even though it has been a useful interim management practice and was a logical place to start. We have concluded that, as an alternative method to using [ballast water exchange] as the benchmark, establishing a

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[347] *Id.* at 1.
[348] 16 U.S.C. §§ 4701-4741.
[349] *Id.* § 4711.
[350] Ballast water exchange requires ships on their way to the next port to release the lower-salinity coastal water they brought aboard in their last port and replace it with higher-salinity open ocean water. It is designed to reduce the number of potentially invasive species in ballast tanks and replace them with organisms that are less likely to survive in the lower-salinity waters of the ship's next port. *See* BUCK, *supra* note 346, at 2.
[351] *Id.* at 3.
[352] 16 U.S.C. § 4711.
[353] *Id.* § 4711(c)(2)(A).
[354] Mandatory Ballast Water Management Program for U.S. Waters, 69 Fed. Reg. 44,952-01 (July 28, 2004) (codified at 33 C.F.R. pt. 151).
[355] 16 U.S.C. § 4711.
[356] Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters, 77 Fed. Reg. 17,254-01 (Mar. 23, 2012).

> standard for the concentration of living organisms that can be discharged in ballast water will advance the protective intent of NISA . . . .[357]

The standard sets numerical limits that are supported by reports published by the National Academy of Science and the EPA's Science Advisory Board.[358] The Coast Guard believes that a ballast water discharge standard will promise the development of new, innovative technologies, facilitate enforcement of the ballast waste management regulations, and assist in evaluating the effectiveness of the ballast waste management program.[359] The regulations became effective on June 21, 2012. It remains to be seen whether these new regulations will improve federal efforts to curb the influence of aquatic invasive species.

EPA also regulates ballast water discharged from ships. The National Pollutant Discharge Elimination System, authorized by the Clean Water Act, requires permits for point sources that discharge pollutants into waters of the United States.[360] EPA originally exempted from the permit requirement those discharges incidental to the normal operation of a vessel, including discharges of ballast water.[361] Environmentalists challenged this regulatory exemption, and in 2008 the Ninth Circuit upheld a lower court's decision to revoke the exemption.[362]

In response to the litigation, EPA developed its Vessel General Permit.[363] The Vessel General Permit includes general effluent limits applicable to all discharges, as well as additional effluent limits applicable to 26 specific discharge streams.[364] The permit also includes inspection, monitoring, recordkeeping, and reporting requirements.[365] The current permit is in effect until 2013.

In 2011, EPA and the Coast Guard entered into a Memorandum of Understanding that details the respective obligations each agency committed to implement.[366] Under the terms of the MOU, EPA is responsible for making interpretations of the Vessel General Permit and its terms. EPA and the Coast Guard jointly will cooperate to enforce the requirements of the permitting program, coordinate and share information, and communicate on a regular basis to ensure efficient implementation of the Vessel General Permit program. The MOU has spurred an enforcement initiative. In Spring 2012, EPA reported that, based on data received

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[357] *Id.* at 17,255.

[358] U.S. Coast Guard, Ballast Water Management, http://www.uscg.mil/hq/cg5/cg522/cg5224/bwm.asp (last updated Dec. 21, 2012).

[359] *Id.*

[360] 33 U.S.C. § 1342.

[361] 40 C.F.R. § 122.3(a) (2006).

[362] *Nw. Envtl. Advocates v. EPA*, 537 F. 3d 1006 (9th Cir. 2008).

[363] 73 Fed. Reg. 79,473-02 (Dec. 29, 2008).

[364] The NPDES program for vessels regulates not only ballast water, but also bilgewater, graywater, and deck runoff/washdown. *See* U.S. Envtl. Prot. Agency, Vessel Discharges, http://cfpub.epa.gov/npdes/home.cfm?program_id=350 (last visited Jan. 17, 2013).

[365] With the exception of ballast water discharges, non-recreational vessels less than 79 feet (24.08 meters) in length, and all commercial fishing vessels, regardless of length, are not subject to this permit.

[366] *The Coast Guard and Environmental Protection Agency Collaborate to Enforce Vessel General Permit Requirements*, ENVTL. COUNS., Apr. 2011, at 10.

from Coast Guard inspections, it is issuing Notices of Violation to vessels believed to be in violation of the General Vessel Permit.[367]

In anticipation of the Vessel General Permit's expiration in 2013, EPA has proposed a new version of the permit.[368] EPA believes the draft permit will reduce the administrative burden for vessel owners, as well as streamline certain self-inspection requirements.[369] In addition to the 26 specific discharge categories covered by the current permit, the draft permit addresses the discharge of fish hold effluent. Most notable is the draft permit's incorporation of a numeric standard to control the release of non-indigenous invasive species in ballast water discharges.[370] The limits generally track those contained in the International Maritime Organization's 2004 Ballast Water Convention. EPA expects the final Vessel General Permit to be issued in March 2013.[371]

Under Section 401 of the CWA, states are permitted to issue their own conditions to supplement the Vessel General Permit if the state determines it necessary to ensure discharges do not violate the state's water quality standards.[372] More than 20 states have included their own conditions in the current Vessel General Permit.[373]

b. Shortcomings of Authorities Focused on Aquatic Invasive Species

The federal authorities focused on aquatic invasive species suffer from some of the same limitations as other federal statutes governing the marine environment. Namely, these efforts are extremely focused and incapable of implementing comprehensive, ecosystem-based management, as the NMSA can. Each statute also has been subjected to specific criticisms.

NISA's exemptions have been criticized. The statute provides for an exemption from the ballast management practice if the master of the ship determines that a ballast exchange would threaten the safety or stability of the ship or passengers because of "adverse weather, vessel architectural design, equipment failure, or any other extraordinary conditions."[374] This exemption, which equates "vessel architectural design" with an "extraordinary circumstance," is viewed by some as eliminating any inventive to modify and upgrade

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[367] *Update on EPA and U.S. Coast Guard MOU*, NPDES VESSELS PROGRAM QUARTERLY (U.S. Envtl. Prot. Agency), Spring 2012, at 2, *available at* http://www.epa.gov/npdes/pubs/vgp_spring2012newsletter.pdf.
[368] Draft NPDES Vessel General Permits, 76 Fed. Reg. 76,716-01 (Dec. 8, 2011).
[369] Press Release, U.S. Envtl. Prot. Agency, EPA Proposes Updated Vessel General Permit and Permit for Small Vessels/Action Would Help Protect U.S. Water Quality and Lower Invasive Species Risk (Nov. 30, 2011), *available at* http://yosemite.epa.gov/opa/admpress.nsf/0/B2BC930144417D2A852579580075CB6C.
[370] Draft NPDES Vessel General Permits, 76 Fed. Reg. at 76,720.
[371] U.S. Envtl. Prot. Agency, Vessel Discharges, http://cfpub.epa.gov/npdes/home.cfm?program_id=350 (last visited Jan. 17, 2013).
[372] 33 U.S.C. § 1341(a).
[373] Cory Hebert, *Ballast Water Management: Federal, States, and International Regulations*, 37 S.U. L. REV. 315, 329 (2010).
[374] 16 U.S.C. § 4711(k)(2)(A).

ballast piping systems or implement other management options to address ballast exchange.[375]

The statute has been criticized for its focus, as well. There are additional pathways by which invasive species are introduced, and NISA addresses only issues associated with ballast water.[376] In addition, the overall efficacy of the ballast management regime is questionable, given that additional introductions of invasive aquatic species persist in the Great Lakes, the region that has been regulated for the longest period.[377]

Finally, the ability of states to tailor the terms of the Vessel General Permit creates uncertainty for the regulated community. Critics describe the permit program as a "patchwork quilt of regulations represent[ing] the balkanization of vessel discharge regulations."[378] As discussed above, enforcement of the permit's conditions required strengthening, and it remains to be seen what the long term effects of the joint EPA-Coast Guard enforcement initiative will be.

B. State Law

States have played a critical role in protecting marine resources since the colonial era.[379] Indeed, the U.S. Supreme Court determined in 1842 that states took over the British Crown's rights to navigable coastal waters and underlying soils.[380] In the Submerged Lands Act of 1953, Congress confirmed states' jurisdiction over navigable waters within their borders.[381] States and territories generally have jurisdiction over coastal waters out to three nautical miles of the low-water mark.[382]

1. The Public Trust Doctrine

States own lands below their navigable waters in trust for the public.[383] States have embraced the public trust doctrine as a source of authority to protect marine areas. Florida and Louisiana, for example, include the public trust doctrine in their state constitutions.[384] Traditionally, the public trust doctrine protected the public's interest in navigation, fishing,

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[375] BUCK, *supra* note 346, at 5.
[376] Flynn Boonstra, *Leading by Example: A Comparison of New Zealand's and the United States' Invasive Species Policies*, 43 CONN. L. REV. 1185, 1198 (2011).
[377] BUCK, *supra* note 346, at 5.
[378] Constantine G. Papavizas & Lawrence I. Kiern, *2007-2008 U.S. Maritime Legislative Developments*, 40 J. MAR. L. & COM. 315, 321 (2009).
[379] Sylvia Quast & Michael A. Mantell, *Role of the States*, *in* OCEAN AND COASTAL LAW AND POLICY, *supra* note 42, at 67.
[380] *Martin v. Waddell*, 41 U.S. (16 Pet.) 367 (1842).
[381] 43 U.S.C. §§ 1301 *et seq.*
[382] *Id.* §§ 1301(c), 1311, 1312. There are some exceptions to this rule. For example, Texas, Florida (with respect to its Gulf of Mexico waters), and Puerto Rico have jurisdiction over waters out to roughly nine miles from the low-water mark. Quast & Mantell, *supra* note 379, at 69.
[383] *Shively v. Bowlby*, 152 U.S. 1 (1894).
[384] FLA. CONST. art. X, §§ 11, 16; LA. CONST. art. IX, § 1.

and commerce.[385] Application of the doctrine in some states has evolved to include contemporary interests in public use of state waters for recreation, environmental and ecological protection, and aesthetic beauty.[386]

The public trust doctrine, however, does not establish a hierarchy among protected uses, many of which may conflict with each other, and raises the question of who decides what use is in the best interest of the public.[387] Is the legislature, composed of the elected representatives of the people, in the best position to determine the highest public use?[388] Or is the public's interest in protected uses a constitutional right to be arbitrated by courts?[389] Or is the public trust doctrine best employed as a government defense against takings claims by private parties contesting marine restrictions?[390]

Few states have used the public trust doctrine to protect marine areas by prohibiting public uses that may potentially harm marine life and habitat. One such outlier is the State of Washington, where the supreme court held that a county ordinance banning the use of motorized personal watercraft in marine areas did not violate the public trust doctrine.[391] The court implied that the highest public use of marine areas, to be protected even at the expense of some public access or recreation opportunities, is the area's environmental health.[392] Yet the public trust doctrine does not provide comprehensive protection to state waters in Washington or elsewhere, because the doctrine, as generally applied, does not require this hierarchy of uses. In Oregon, for instance, the supreme court held that the public trust doctrine did not prohibit the Division of State Lands from granting a permit to fill 32 acres of estuary for non-water-related uses.[393] As this decision indicates, the common law public trust doctrine does not prevent states from allowing uses that may harm marine ecosystems.

2. Common State Marine Protected Area Regulations

Relying on common law, constitutional authority, and statutory provisions, states regulate their waters to promote vital fishing and tourism industries and to conserve areas of special ecological and scientific significance. As may be expected, however, state regulation of marine protected areas is varied. A report on state marine policies from NOAA's National Marine Protected Areas Center classifies state marine management programs into four categories.[394] The diversity of these programs demonstrates the varied goals, achievements,

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[385] Donna R. Christie, *Marine Reserves, the Public Trust Doctrine and Intergenerational Equity*, 19 J. LAND USE 427, 432 (2004); *see also* J.C. Sylvan, *How to Protect a Coral Reef: The Public Trust Doctrine and the Law of the Sea*, 7 SUSTAINABLE DEV. L. & POL'Y 32, 35 (2006).

[386] Christie, *supra* note 385, at 432.

[387] Sylvan, *supra* note 385, at 34.

[388] *See id.*

[389] *See id.*

[390] *See id.*

[391] *Weden v. San Juan County*, 958 P.2d 273, 283-84 (Wash. 1998).

[392] *Id.* at 284 ("[I]t would be an odd use of the public trust doctrine to sanction an activity that actually harms and damages the waters and wildlife of this state.").

[393] *Morse v. Or. Div. of State Lands*, 590 P.2d 709, 712 (Or. 1979).

[394] BRAXTON DAVIS, JOHN LOPEZ & ANDREA FINCH, STATE POLICIES AND PROGRAMS RELATED TO MARINE MANAGED AREAS: ISSUES AND RECOMMENDATIONS FOR A NATIONAL SYSTEM 4 (2004).

and effectiveness of state-regulated marine protected areas. The following subpart discusses recent trends in state regulation of marine protected areas.

a. Marine Resource Areas

State laws to protect specific marine resources may create marine protected areas (which generally require a spatial definition) when the protected resource is mapped or mappable.[395] For example, state protection of tidal wetlands may create marine protected areas. Reliance on generic resource laws, however, offers little site-specific protection where the protected resource shifts location over time.[396] Moreover, generic resource laws assume that protection of the resource is equally important wherever the resource is found, regardless of location, size, density, biological functions, and ecosystem significance.[397] State resource laws, even when focused on marine resources, do not offer comprehensive, effective, and long-term regulation of marine protected areas because they do not, by definition, establish an ecosystem-based management scheme.

b. Marine Overlay Zones

Marine overlay zones, generally defined as large sites subject to uniform policies within legally defined and fixed boundaries, include a broad range of protected marine areas, from fishery management zones to restrictive, no-take marine reserves.[398] Marine overlay zones are more protective of a sensitive area than generic resource laws, and the two types of regulations can work together to protect sensitive resources within an overlay zone. Several coastal states have designated marine overlay zones to protect habitat of endangered or threatened species.[399] Coastal states also frequently establish a general shoreline overlay zone or regulatory zones to protect specific shoreline features such as beaches, tidal wetlands, or intertidal flats.[400] These marine overlay zones typically restrict coastal development.[401]

Although marine or coastal overlay zones are common, comprehensive marine zoning may offer greater protection to marine resources and habitats. Rhode Island, for example, has zoned all coastal waters into six use categories that range from conservation areas (waters within wildlife refuges and conservation areas) to industrial waterfronts (waters that are extensively altered).[402] The Rhode Island Coastal Resources Management Council oversees the planning and management of the state's marine resources.[403]

c. Marine Planning Areas

The National Marine Protected Areas Center defines marine planning areas as "distinct marine locations subject to site-specific, ongoing management or regulatory planning within

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[395] *Id.* at 4-5.
[396] *Id.* at 5.
[397] *Id.*
[398] *Id.*
[399] *Id.* at 6.
[400] *Id.*
[401] *Id.*
[402] *Id.* at 7.
[403] *See* R.I. GEN. LAWS § 46-23-6.

fixed boundaries."[404] Of the four categories of state marine regulatory programs, marine planning areas are most consistent with the general definition of marine protected areas.[405] Consistent with federal and international marine protected areas established by varied regulatory programs, some states have established marine planning areas for diverse purposes to achieve conservation, recreation, and scientific goals.

Florida established its first aquatic preserve in 1966.[406] There are 41 preserves in the state's system, but no new sites have been added since the 1980s.[407] The preserves consist of submerged lands holding "exceptional biological, aesthetic, and scientific value."[408] Each aquatic preserve is "set aside for being maintained essentially in its natural or existing condition."[409] Although Florida dedicates full-time staff to the aquatic preserve system and coordination is improving, site activities are not standardized statewide and there has traditionally been little attention paid to the relationship of the individual preserves with respect to fish migration.[410]

State and federal regulations can work together to create marine protected areas. In California, ten state marine reserves and two state marine conservation areas comprise approximately 142 square nautical miles in the nearshore waters around the Channel Islands.[411] State marine reserves are no-take areas; state marine conservation areas allow limited recreational and commercial fishing.[412] In 2006 and 2007, NOAA expanded the network of federal marine protected areas to encompass the deeper waters around the Channel Islands.[413] The California Department of Fish and Wildlife (formerly the Department of Fish and Game) has oversight responsibility for the state marine reserves and state marine conservation areas but coordinates policy with the Channel Islands National Marine Sanctuary and the National Park Service.[414]

In Washington, the Department of Natural Resources manages the state aquatic reserves program for state-owned aquatic lands with unique or high-quality ecological features and habitats.[415] The program establishes three types of reserves: educational, environmental, and

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[404] DAVIS, LOPEZ & FINCH, *supra* note 394, at 7.

[405] *See* Exec. Order No. 13,158, 3 C.F.R. 273, 274, 65 Fed. Reg. 34,909, 34,909 (May 26, 2000), *reprinted in* 16 U.S.C. § 1431 (defining marine protected areas as "any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein").

[406] BRAXTON DAVIS & JOHN LOPEZ, CASE STUDIES OF STATE-LEVEL MARINE MANAGED AREA SYSTEMS: ADDENDUM TO STATE POLICIES AND PROGRAMS RELATED TO MARINE MANAGED AREAS: ISSUES AND RECOMMENDATIONS FOR A NATIONAL SYSTEM 6 (2004).

[407] *Id.*

[408] FLA. STAT. § 258.36.

[409] *Id.* § 258.37(1).

[410] DAVIS & LOPEZ, *supra* note 406, at 7-8.

[411] *Id.* at 3.

[412] CAL. PUB. RES. CODE § 36700.

[413] Channel Islands National Marine Sanctuary, Marine Reserves Network Map, http://channelislands.noaa.gov/marineres/main.html (last visited Nov. 29, 2012).

[414] DAVIS & LOPEZ, *supra* note 406, at 5.

[415] WASH. ADMIN. CODE § 332-30-151.

scientific.[416] As is obvious from these reserve types, ecosystem considerations play a key role in the designation of an area for protection.[417] Moreover, site connectivity is a consideration and critical to establishing a network of ecosystem-protective aquatic reserves.[418]

Although coastal states with marine planning area programs remain a minority, these examples demonstrate that some states have made efforts to protect marine resources and habitats with ecosystem- or spatially-based regulations.

d. Coastal Planning Areas

Coastal planning areas are similar to marine planning areas but involve more comprehensive integration of water and land use planning to protect or promote marine resources.[419] Coastal planning areas that include only state-owned uplands generally focus on land management to ensure that land uses do not adversely impact sensitive marine resources or habitats. Coastal planning areas that include privately held uplands typically establish guidelines, recommendations, or policies to protect marine resources from adverse land uses.[420] Many coastal planning areas that include private properties have been developed under the Coastal Zone Management Act's special area management planning program.[421]

3. California's Marine Life Protection Act

Typical of many states' marine environment management schemes, California's system of marine protected areas was established in a piecemeal fashion that lacked clearly defined purposes or effective management and resulted in only an "illusion of protection."[422] To remedy the problem, the Marine Life Protection Act (MLPA), passed in 1999, requires California to reevaluate its existing marine protected areas and establish new areas to create a functioning statewide network.[423] Between 1999 and 2004, the California Department of Fish and Game led two unsuccessful efforts to implement the MLPA.[424] Both efforts suffered from lack of resources, and each failed to effectively involve stakeholders and provide sufficient information about the socioeconomic impact of marine protected areas.[425] In 2004, the Department of Fish and Game partnered with the California Resources Agency and the Resources Legacy Fund Foundation to launch a new effort to implement the MLPA.[426] The parties signed a memorandum of understanding to create the Marine Life Protection Act

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[416] *Id.*
[417] DAVIS & LOPEZ, *supra* note 406, at 18.
[418] *Id.* at 19.
[419] DAVIS, LOPEZ & FINCH, *supra* note 394, at 8.
[420] *Id.* at 8-9.
[421] *Id.* at 8.
[422] CAL. FISH & GAME CODE § 2851(a).
[423] *Id.* § 2853.
[424] Mary Gleason et al., *Designing a Network of Marine Protected Areas in California: Achievements, Costs, Lessons Learned, and Challenges Ahead*, OCEAN & COASTAL MGMT., 2012 (in press), at 2, *available at* http://dx.doi.org/10.1016/j.ocecoaman.2012.08.013.
[425] CAL. DEP'T OF FISH & GAME, MASTER PLAN FOR MARINE PROTECTED AREAS 9 (Rev. Draft, Jan. 2008).
[426] *Id.*

Initiative, establishing a public-private partnership to help implement the MLPA and achieve its goals of incorporating the best available science and the advice of resource managers, stakeholders, and the public.[427]

To put in place a statewide system of marine protected areas, the MLPA Initiative established five study regions to plan and execute regulations. The California Fish and Game Commission is the ultimate decision-making authority on the statewide master plan and regional proposals.[428] The Department of Fish and Wildlife is the lead design and implementation agency.[429] The MLPA Blue Ribbon Task Force, composed of knowledgeable public leaders, oversees regional planning projects and alternatives development, recommends policy coordination with federal agencies, and directs funding for the Initiative.[430] A science advisory team, made up of staff from various state agencies and scientists with specialties in marine ecology and related fields, convenes for each study region to provide the necessary knowledge and judgment to review marine protected area alternatives and address scientific questions.[431] Regional stakeholder groups assist in developing alternatives and provide the local knowledge necessary to refine proposals.[432]

Throughout the master plan development and the regional planning processes, the Resources Legacy Fund Foundation obtains and coordinates philanthropic investments that supplement public funding for the Initiative.[433] Over seven years, approximately $19.5 million in private charitable contributions supplemented $18.5 million in state funding to complete master plan drafting, four regional planning processes, and environmental review of planned marine protected areas prior to implementation.[434]

The public-private partnership has paid off in the form of a pioneering effort to establish a statewide network of marine protection. In 2007, 29 marine protected areas were designated in the Central Coast region.[435] In 2010, 25 marine protected areas and six special closure areas were designated in the North Central Coast region.[436] In 2012, 50 marine protected areas and two special closure areas were designated in the South Coast region.[437] Planning for the North Coast and San Francisco Bay regions is underway.[438] California's regional marine protected area regulations implement three types of protective designations: state marine

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[427] *Id.* at 14; CAL. FISH & GAME CODE § 2855.
[428] MASTER PLAN FOR MARINE PROTECTED AREAS, *supra* note 425, at 15.
[429] *Id.*
[430] *Id.*
[431] *Id.* at 16.
[432] *Id.*
[433] *Id.*
[434] Gleason et al., *supra* note 424, at 6.
[435] Monterey Bay Sanctuary Foundation, California Marine Protected Areas Educational Resources: Regions & MPAs, http://www.californiampas.org/pages/regions.html (last visited Jan. 22, 2013); *see also* Cal. Dep't of Fish & Wildlife, Marine Life Protection Act, http://www.dfg.ca.gov/mlpa/ (last visited Jan. 22, 2013).
[436] Monterey Bay Sanctuary Foundation, California Marine Protected Areas Educational Resources: Regions & MPAs, http://www.californiampas.org/pages/regions.html (last visited Jan. 22, 2013).
[437] *Id.*
[438] *Id.*

reserves, state marine parks, and state marine conservation areas. For example, Central Coast regional marine protected areas cover approximately 204 square miles (roughly 18 percent of state waters in the region) and include 15 marine conservation areas and 13 "no-take" marine reserves.[439]

Though California's growing network of marine protected areas serves as a model of statewide planning and coordination, the system faces crucial ongoing funding and enforcement challenges. To supplement state enforcement staff, environmental groups have volunteered to patrol some local waters.[440] Additionally, compromise was a necessary byproduct of the public-private, multi-layer planning and implementation process. Final recommendations made by the Blue Ribbon Task Force to the Fish and Game Commission reflected the divergent interests in a particular region and therefore likely did not satisfy any constituency completely, whether conservation groups or the fishing industry.[441]

It is too soon to measure the overall success of California's regional implementation process, but the MLPA Initiative provides an example of a process that integrates best available science, stakeholder interests, and private funding to protect valuable ecological and economic resources.[442] The resulting statewide system is the first of its kind nationally and could establish a successful precedent for effective state management of marine protected areas.

4. Shortcomings of State Law

The minority of coastal states that have implemented marine planning areas demonstrates that state regulations can protect marine resources and habitat in a comprehensive manner. Notably, since establishing the MLPA Initiative in 2004, California has created a statewide, integrated network of marine protected areas through a process that takes into account best available science and stakeholder interests. California has also had success integrating state protections with federal marine protected areas in the Channel Islands, illustrating how states can leverage personnel and financial resources to better protect areas of ecological significance.

California serves as a model of state marine regulation, but remains an outlier. Although states have historically played an important role in managing marine resources, the states' traditional reliance on generic resource laws, or in limited cases the public trust doctrine, has not supported ecosystem-based management. Outside of California, even in states with established marine protected area programs, there remains a general lack of systematic goals and integration. For example, Florida's 41 aquatic preserves were established site by site, with little consideration of fish migration or larval transport.

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[439] Cal. Dep't of Fish & Wildlife, Central Coast Marine Protected Areas, http://www.dfg.ca.gov/mlpa/ccmpas_list.asp (last visited Jan. 22, 2013).

[440] Editorial, *Protecting Marine Protected Areas*, L.A. TIMES, Jan. 10, 2012, *available at* http://articles.latimes.com/2012/jan/10/opinion/la-ed-0110-marine-20120110.

[441] Gleason et al., *supra* note 424, at 7.

[442] *Id.* at 8.

The challenges of protecting vast marine resources illustrate the benefits of federal regulation. Ecosystem-based management of marine resources requires systemwide objectives, uniform monitoring, and consistent purposes. As opposed to state laws, a federal law such as the NMSA has the necessary reach to establish a network of marine protected areas that crosses state borders, includes waters outside state jurisdictions, and preempts inconsistent state laws and regulations.

C. Common Law Tort Claims

Unlike the statutory and executive authorities we have addressed, tort law has emerged largely through judge-made common law. We consider here whether common law tort doctrine might be expansive enough to enable a successful legal strategy that preserves marine ecosystems.

1. Purposes and Potential

At the outset, consider the two leading theories that seek to explain the purposes of tort law.[443] One theory provides that tort law creates the proper incentives for individuals to take into account the costs they impose on others.[444] The second theory focuses instead on corrective justice, arguing that the common law of torts requires tortfeasors to make amends for the wrongful losses they impose.[445] With the first, economic, theory in mind, one might envision tort law serving to protect oceans by encouraging individuals, private entities, and governments to consider potential harms to the oceans before taking a given action. Under the second theory, the common law of torts could be viewed as a mechanism for ensuring that wrongdoers pay back society when they impermissibly damage ocean ecosystems.

2. Public Nuisance

While other potential routes exist, the most promising doctrinal means of advancing such theories likely would be public nuisance. A public nuisance constitutes "an unreasonable interference with a right common to the general public," a concept that has been defined broadly by the courts.[446] One writer has called public nuisance the "tort of choice" for plaintiffs who seek "breathtakingly broad relief" on international environmental issues.[447]

Yet, in one representative attempt to use tort law to promote ocean conservation, plaintiffs in nuisance cases have struggled to extend protections to federal marine protected areas beyond their boundaries. [448] These plaintiffs are forced to "establish compelling fact

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[443] Scott Hershovitz, *Harry Potter and the Trouble with Tort Theory*, 63 STAN. L. REV. 67, 68 (2010).
[444] *Id.* at 68-69 (citing WILLIAM M. LANDES & RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF TORT LAW 1 (1987)).
[445] *Id.* at 68 (citing JULES L. COLEMAN, RISKS AND WRONGS 325 (1992)).
[446] RESTATEMENT (SECOND) OF TORTS § 821B(1) (1979); *see also, e.g.*, *City of Milwaukee v. Illinois & Michigan*, 451 U.S. 304, 348 (1981) (Blackmun, J., dissenting) (citing the Restatement definition).
[447] Richard Faulk, *Uncommon Law: Ruminations on Public Nuisance*, NUISANCE LAW (Feb. 1, 2011 17:07), http://www.nuisancelaw.com/articles/uncommon-law-ruminations-public-nuisance.
[448] Baur et al., *supra* note 80, at 542.

situations and carry out aggressive, costly, and often times difficult litigation strategies."[449] Such litigation stands in contrast to the type of public nuisance claim approved by the U.S. Supreme Court in *New Jersey v. City of New York*—a relatively narrow suit to prevent a city from dumping into the ocean garbage that was polluting a neighboring state's waters and beaches.[450] Additionally, federal courts have resisted recognizing public nuisance claims under maritime law.[451] Even where federal maritime common law claims are recognized and relief is granted, punitive damages generally are capped at a one-to-one ratio to compensatory damages.[452] With all that in mind, tort law, in the view of some commentators, is of "limited value" in preserving federal marine protected areas and, by extension, the marine environment generally.[453]

Reinforcing this view are recent judicial decisions rejecting common law claims to address climate change. In 2011, the U.S. Supreme Court held that the Clean Air Act and federal regulation of greenhouse gas emissions authorized by the statute displaced federal common law public nuisance claims against fossil-fuel-fired power plants.[454] Lower courts also have turned back state common law public nuisance claims designed to counter air pollution, finding such claims displaced by the Clean Air Act.[455] If upheld, these decisions could foreclose state common law as a means of attacking greenhouse gas emissions.

3. Shortcomings of Common Law Tort Claims

We believe tort law cannot offer a comprehensive solution to protecting ocean ecosystems. To understand why, consider the difficulties hypothetical plaintiffs seeking to protect the oceans may confront in each stage of a traditional tort analysis—duty, breach, causation, and harm.[456]

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[449] *Id.*

[450] 283 U.S. 473, 476-77, 483 (1931).

[451] *See, e.g.*, *Barber Lines A/S v. M/V Donau Maru*, 764 F.2d 50, 56-57 (1st Cir. 1985); *Louisiana ex rel. Guste v. M/V Testbank*, 752 F.2d 1019, 1030-32 (5th Cir. 1985) (en banc).

[452] *Exxon Shipping Co. v. Baker*, 554 U.S. 471, 512-13 (2008).

[453] Baur et al., *supra* note 80, at 542 ("[C]ommon law legal strategies are of limited value in extending protection to MPAs.").

[454] *Am. Elec. Power Co., Inc. v. Connecticut*, 131 S. Ct. 2527, 2537 (2011); *see also Native Village of Kivalina v. ExxonMobil Corp.*, 696 F.3d 849 (9th Cir. 2012) (extending the holding of *American Electric Power* to bar a federal common law public nuisance action brought for damages for harm caused by past greenhouse gas emissions).

[455] *See North Carolina, ex rel. Cooper v. Tennessee Valley Authority*, 615 F.3d 291 (4th Cir. 2010) (holding that emissions from coal-fired power plants did not represent a public nuisance under state law); *Bell v. Cheswick Generating Station*, --- F. Supp. 2d ---, 2012 WL 4857796 (W.D. Pa. Oct. 12, 2012) (dismissing state common law nuisance claims for alleged damage by air emissions from a coal-fired power plant); *Comer v. Murphy Oil USA, Inc.*, 839 F. Supp. 2d 849 (S.D. Miss. 2012) (rejecting on numerous grounds, including preemption by the Clean Air Act, state common law nuisance claims against companies whose activities allegedly generated significant greenhouse gases).

[456] Douglas Kysar conducted a comparable analysis for potential climate change plaintiffs to show the difficulties he anticipated they would face, and have faced, at every turn. *See* Douglas A. Kysar, *What Climate Change Can Do About Tort Law*, 41 ENVTL. L. 1, 8-44 (2011).

First, establishing a legal duty of ordinary care could be problematic. Activities that have a negative effect on the oceans are widespread, as established in Part II.B, and the damage can be highly attenuated from the source.[457] The potential class of defendants is vast, encompassing—potentially—all individuals who, among other things, eat fish; consume any food grown with pesticides; live or travel near the coast; or, even, contribute to any increase in greenhouse gas emissions. Similar to climate change litigation, therefore, a comprehensive tort suit to protect ocean ecosystems could "strain liberal notions of limited obligation beyond the breaking point."[458]

Second, courts are unlikely to find a breach of any duty they identify. In the public nuisance context, where injunctive relief traditionally is the default remedy, judges surely would hesitate before enjoining, on a widespread basis, major economic activity such as commercial fishing or industrial-scale agriculture. Such an injunction might loom as "politically radioactive and judicially unwieldy." [459]

Third, proving causation could prove even more difficult for the hypothetical plaintiffs.[460] Establishing the traditionally required "but-for" causation in the context of degradation of marine ecosystems could prove virtually impossible given how diffuse the causes of these harms are. Broader conceptions of harm exist in tort law, but courts have shown "only faint appetite . . . for creative use of the public nuisance cause of action,"[461] arguably the cause of action with the closest fit to the harms here. Similarly, any litigation program to protect the oceans through the tort system would face substantial legal and practical challenges due to the numerosity of potential defendants. As a legal matter, it would be difficult in a given case to show that a single defendant's actions were a substantial factor in causing ocean damage, as required to find liability, given the large number of other factors contributing to the harm.[462] The practical litigation challenges could be even greater given the enormous potential pool of defendants identified above.

Fourth, and finally, even showing harm could be difficult. Individual plaintiffs would need to demonstrate they have suffered a direct injury as a result of ocean degradation, a prerequisite to establishing standing.[463] Courts have been "reluctant" to recognize harm where the injury is "highly attenuated from the plaintiff."[464] For similar reasons, even if a court were to find that such a plaintiff had shown duty, breach, causation, and harm, the court might resist authorizing recovery of damages. A lack of compensation would

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[457] *See supra* Part II.B; Kysar, *supra* note 456, at 12-13, 17.
[458] *See* Kysar, *supra* note 456, at 17.
[459] *Id.* at 27; *see also id.* at 25-26.
[460] This section regarding causation draws on arguments made in Kysar, *supra* note 456, at 29-41.
[461] *Id.* at 35; *see also* Thomas H. Koenig & Michael L. Rustad, *Reconceptualizing the BP Oil Spill as Parens Patriae Products Liability*, 49 HOUS. L. REV. 291, 326 (2012) ("The failure of . . . avant-garde theories of tort causation has left plaintiffs without redress in toxic torts, products liability, environmental torts, and other collective injury cases.").
[462] *See* RESTATEMENT (SECOND) OF TORTS § 433 & cmt. d (1965), § 834 & cmt. d (1979).
[463] Mark Latham et al., *The Intersection of Tort and Environmental Law: Where the Twains Should Meet and Depart*, 80 FORDHAM L. REV. 737, 750 (2011).
[464] *Id.*

undermine future prospective plaintiffs' incentives to bring actions that could protect ocean ecosystems.

The preceding discussion only scratches the surface of complications that could bedevil a strategy to use the common law of torts to prevent widespread harm to the marine environment. Courts simply are reluctant to use tort law to advance broad policy goals such as ocean preservation; they prefer instead to address harms to a specific geographic area or class of people, where causation is clearly supported, and where there is a close fit to the traditional elements of a tort claim.[465] As such, it would be inadequate to rely on filing a series of tort claims to protect marine ecosystems.

[465] *See id.*

V. Recommendation to Further Designate, Protect, and Enhance National Marine Sanctuaries Under the NMSA

A. Advantages of the NMSA over Other Existing Authorities

When compared to other ocean resource laws that could provide spatial protection, the NMSA is best suited to offer the kind of management regime needed to preserve ocean resources. In preserving the ocean's benefits for current and future generations, the NMSA deserves renewed attention as a unique and powerful ocean conservation tool. Unlike most ocean resource laws, which have a narrow focus on coastal resources, marine mammal protection, offshore mineral extraction, or fisheries management, national marine sanctuaries take a different approach: They protect our most valued ocean places, along with the natural, historical, and cultural resources that make them worth preserving.

The comprehensive, multi-sector protection afforded by national marine sanctuaries is not the only thing that makes them unique—sanctuaries also use one of the most thorough public participation processes in federal natural resources management, engaging the public in a "bottom-up" approach where local communities are involved from the very beginning. The following is a summary of the advantages of the NMSA over other existing authorities in establishing, protecting, and managing specific geographic areas.

1. Ecosystem-Based Management

The NMSA was created to ensure that marine areas of significant cultural, historic, scientific, educational, and environmental value are protected. To this end, the statute creates the authority to apply a comprehensive, ecosystem-based approach to solving problems of ocean degradation and conflicting uses.

Ecosystem-based management is vital to the protection of the nation's marine areas. It emphasizes the protection of functions and key processes within a system and focuses on the range of activities impacting a particular area. Managing an area for ecosystem health promotes the ongoing capability for an ecosystem to support a productive and resilient community of species, irrespective of human activity permitted in the area. Further, ecosystem-based management aims to address and mitigate systemic ocean problems, including pollution, rising temperatures, ocean acidification, overfishing, loss of biodiversity, food chain management, and habitat disruption.

Many other legal authorities do not take an ecosystem-focused approach. For instance, use-based authorities such as the Outer Continental Shelf Lands Act and the Magnuson-Stevens Fishery Conservation and Management Act focus primarily on offshore oil and gas development, and fisheries management, while species-based authorities such as the Endangered Species Act and the Marine Mammal Protection Act aim to protect and revive individual species. Federal authorities focused on aquatic invasive species are so targeted they are incapable of implementing comprehensive marine management.

The NMSA's systematic approach to sanctuary designation is also preferable to state-based management plans, or coastal-focused authorities such as the Coastal Barrier Resources Act, the Coastal Zone Management Act, and the Clean Water Act. While these authorities aim to protect and manage the coastal environment, they by definition have a limited jurisdictional authority relative to the NMSA. For their part, courts are reluctant to assert their jurisdiction and use tort law to advance broad policy goals like reversing ocean degradation.

2. Compatible Uses

Despite the NMSA's primary goal of preservation, national marine sanctuaries allow for various compatible uses, including fishing, boating, diving, and other forms of human activity. Unlike federal authorities governing other classifications of protected areas, such as national parks and wilderness areas, which generally apply significant restrictions on human activities, the NMSA facilitates lawful public and private sanctuary uses that are compatible with resource protection.

For example, the Monterey Bay National Marine Sanctuary, which stretches from Marin to Cambria, California, and encompasses 6,094 square miles of ocean (276 miles of shoreline), supports one of the world's most diverse marine ecosystems.[466] The sanctuary was established for the purpose of resource protection but also for research, education, and public use.[467] Specifically, the sanctuary provides for various human uses, including heavy commercial shipping, commercial fishing, and military and recreational uses.[468] Uses are tailored to unique sanctuary subunits, created using marine spatial planning.[469] The public's extensive exposure to the sanctuary, as well as its breadth of involvement in sanctuary management and planning, engages the citizenry and reinforces the scientific, cultural, and historic value of marine sanctuaries.

3. Unified Governance and Enforcement Mechanisms

The NMSA provides comprehensive law enforcement authority to the Secretary of Commerce to enforce the protections accorded to marine sanctuaries. Executive Order 13,158 on Marine Protected Areas is designed to support and coordinate the efforts of those government bodies charged with the protection of marine resources, and under the order agencies must "avoid harm" to existing marine protected areas through their own existing authorities and procedures. However, by definition, executive orders are weak due to their lack of enforceability. The Executive Order fails to establish any formal accountability for federal agencies that fail to comply with the order. Similarly, the Coastal Barrier Resources

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[466] Nat'l Oceanic & Atmospheric Admin., Monterey Bay National Marine Sanctuary, http://montereybay.noaa.gov/ (last updated Oct. 26, 2012).

[467] *Id.*

[468] U.S. Dep't of Commerce, Monterey Bay National Marine Sanctuary Final Management Plan 47-48 (2008).

[469] Nat'l Oceanic & Atmospheric Admin., NOAA Strategic Priority: Supporting Effective Coastal & Marine Spatial Planning (2010), *available at* http://www.noaa.gov/factsheets/new%20version/marine_spatial_planning.pdf.

Act does not provide comprehensive oversight of the various agencies covered by the statute's anti-funding prohibition. As a result, perhaps predictably, numerous federal agencies have provided prohibited financial assistance to property owners in designated units. Finally, the Antiquities Act does not itself provide any significant management authority for national monuments designated under the statute, thus introducing management challenges for these protected areas.

Another advantage of the NMSA is that national marine sanctuary regulations are sanctuary-specific and thus tailored to the unique habitats and resources of a given sanctuary. Rather than limiting its focus to protection of a single species, or regulation of fisheries or oil and gas drilling, sanctuary governance covers the entire sanctuary ecosystem. Other laws, like the Endangered Species Act and the Marine Mammal Protection Act, only provide enforcement authority for activities that result in injury to constituent elements of the marine environment, like the individual members of protected species. The NMSA, by contrast, extends its prohibitions and enforcement authority to all components of the sanctuary area.

4. Substantial Public Involvement in the Designation Process

The NMSA also provides for significant stakeholder involvement. Areas deemed highly qualified for possible sanctuary designation must be listed on NOAA's publicly available Site Evaluation List. Prior to designating a sanctuary, the Secretary must consult with congressional committees, several federal agencies, state and local governments, regional fishery councils, and any other interested parties. Further, NOAA must prepare an environmental impact statement, resource assessment, draft management plan, and spatial planning maps. Local public hearings are held and public comments are collected and considered. Once designated, advisory councils (made up of federal, state, and local experts and stakeholders) oversee sanctuary management through the adoption and amendment of sanctuary management plans.

This degree of public participation ensures that sanctuaries are compatible with other nearby uses and effectively managed, and that sanctuary-specific regulations are meaningful and enforceable. In comparison, the Antiquities Act gives the President immediate authority to designate a national monument without any outside consultation, and does not provide any significant management authority or stakeholder participation. These features threaten to undermine long-term resource protection under the Antiquities Act, as there is no provision for publicly identifying, addressing, and resolving, to the extent possible, potential conflicts between marine uses.

B. Shortcomings of the NMSA as Currently Implemented

Despite its strengths, the NMSA, as currently drafted and implemented, is not without its flaws. The NMSA's requirement for extensive coordination between federal, state, and local agencies and stakeholders, all of which have competing and sometimes incompatible goals, may stall or altogether derail sanctuary designations. More importantly, over the past decade, no new sanctuary designations have been made, congressional action has had the

practical effect of placing a moratorium on new designations, and NOAA has been faced with chronic underfunding.

1. Effective Moratorium on New Sanctuary Designations

For over ten years, Congress has prohibited NOAA from making future sanctuary designations without first determining whether it had sufficient resources to inventory and manage existing sanctuaries. As such, the NMSA's Site Evaluation List, which catalogues marine sites that have been deemed highly qualified for possible sanctuary designation, is currently inactive and no new designations have been made since 2000.

2. Funding to Manage Current Sanctuary Designations

Additionally, NOAA's Office of National Marine Sanctuaries has been chronically underfunded. The NMSA does not guarantee that NOAA will receive increased funding after designating additional sanctuaries, and Congress has not routinely made such allocations, thus negatively affecting NOAA's ability to manage its sanctuaries.

3. Coordination Between Ocean Management Authorities and Stakeholders in Designating and Managing Sanctuaries

As discussed previously, the standard designation process laid out in the NMSA and its regulations is lengthy and entails substantial stakeholder involvement. Although this high degree of coordination among agencies and stakeholders is meant to promote comprehensive ocean management, it often results in a slow-moving and sometimes failed designation process. And although Congress may simply pass an act to designate a sanctuary, only half of the sanctuary designations made to date have been created in this manner.

C. Recommendation to Base an Ocean Protection Strategy on the NMSA

Even with these shortcomings, the NMSA is the most effective and comprehensive approach currently available to protect specific areas within the coastal and ocean zones, including entire marine ecosystems, and the statute is the only existing federal law structured with this end squarely in mind. In contrast to other management regimes, Congress designed the NMSA to provide for comprehensive management of marine ecosystems, allowing for multiple uses that are compatible with the statute's primary goal of preservation. Stakeholders play a significant role in sanctuary designations and in defining permitted uses in each sanctuary, a key attribute of the program that helps ensure affected parties buy into the NMSA's mandate to protect ocean resources.

Further, sanctuary management is wholly consistent with the principles of the Obama Administration's National Ocean Policy, which aims to "protect, maintain and restore the health and biological diversity of ocean, coastal, and Great Lakes ecosystems and resources"[470] as well as "support sustainable, safe, secure, and productive access to, and uses

[470] Exec. Order No. 13,547, § 2, 75 Fed. Reg. 43,023, 43,023 (July 19, 2010).

of the ocean, our coasts, and the Great Lakes."[471] The Policy reflects recommendations made by the Interagency Ocean Policy Task Force. The Task Force's recommendations include shifting away from use-based laws and toward ecosystem-based management of marine resources,[472] as well as increasing stakeholder involvement to ensure that ocean management considers the needs of those affected by new policies.[473] Through further designation, protection, and enhancement of national marine sanctuaries, the NMSA has substantial promise to advance all of these goals and is better suited to do so than other existing authorities.

[471] *Id.* at 43,024.
[472] WHITE HOUSE COUNCIL ON ENVTL. QUALITY, FINAL RECOMMENDATIONS OF THE INTERAGENCY OCEAN POLICY TASK FORCE 2 (2010).
[473] *Id.* at 7.

VI. Conclusion

This paper has discussed and assessed each of several significant authorities that may be used to regulate the marine environment. Based on this analysis, we conclude that the National Marine Sanctuaries Act is the best existing mechanism available for preserving ocean ecosystems by establishing, protecting, and managing marine protected areas and marine reserves. The NMSA's spatial and ecosystem-based approach to protecting ocean resources contrasts favorably with other authorities' narrower concerns with particular resources, geographic areas, or species. Additionally, the statute's allowance for multiple uses and its emphasis on stakeholder involvement help build needed public support for the long-lasting protection of America's marine resources.