Zoning the Oceans: Using the National Marine Sanctuaries Act and the Antiquities Act to Establish Marine Protection Areas and Marine Reserves in America

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INTRODUCTION

The designation of marine protected areas (MPAs)\(^1\) and their more controversial progeny, no-take marine reserves,\(^2\) has dominated recent ocean law scholarship and represents perhaps the most significant development in national and international fishery policy in a decade. After years of trying to define and implement "individual take quotas," "optimal sustainable yield," and a variety of other difficult standards and vague academic

\(^1\) The United States federal government defines MPA 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." Exec. Order No. 13,158, 65 Fed. Reg. 34,909 (May 26, 2000). This definition is broad enough to include national marine sanctuaries, fisheries management zones, national seashores, national parks, national monuments, critical habitats, national wildlife refuges, national estuarine research reserves, state conservation areas, state reserves, and many others. See Marine Protected Areas of the United States: What is a Marine Protected Area, at http://mpa.gov/mpadescriptive/whatis.html (last visited March 25, 2002). No-take marine reserves are thus a subset of the larger category of MPAs.

\(^2\) The National Research Council defines marine reserves as zones "where some or all of the biological resources are protected from removal or disturbance." Marine reserves thus include both fishery reserves (zones that preclude fishing activity on some or all species to protect critical habitat, rebuild stocks, provide insurance against overfishing, or enhance fishery yield) and ecological reserves (zones that protect all marine resources through prohibitions on fishing and the removal or disturbance of any living or non-living marine resource). NATIONAL RESEARCH COUNCIL, COMMISSION ON GEOSCIENCES, ENVIRONMENT AND RESOURCES, MARINE PROTECTED AREAS: TOOLS FOR SUSTAINING OCEAN ECOSYSTEMS 10 (2000), available at http://books.nap.edu/books/0309072867/html/3.html.
buzzwords, a growing number of researchers and policymakers have concluded that traditional methods of fishery management have failed to protect underwater habitats and prevent fishery collapse. A scientific and academic consensus appears to be coalescing around an entirely new approach—the identification and management of significant underwater ecosystems as MPAs, and the closing of entire sections of ocean to all commercial use through the creation of no-take marine reserves.

The last several years have seen a renewed focus on creating and cataloging MPAs at the national level, culminating in President Clinton's May 26, 2000 Executive Order calling for strengthened management and protection of a comprehensive national system of marine protected areas. Although the United States has more than 300 MPAs spread across a variety of states and managed by dozens of statutes, the nation does not have an integrated, comprehensive network of sites and "there is no comprehensive approach to designating, evaluating, or monitoring marine protected areas at either the state or the federal level."3 President Clinton's order, coupled with ongoing efforts by the Department of Commerce, represents the first sustained national effort to follow the lead of other countries and manage American MPAs in a cohesive and coordinated manner.

The last few years have also seen a remarkable reversal of the most significant obstacle to the creation of no-take marine reserves in America and other parts of the world—the lack of proven scientific research powerful enough to overcome the intense antipathy on the part of commercial fishers. Recent studies by both the National Research Council (NRC) and the American Association of the Advancement of Science have concluded that marine reserves lead to substantially greater fish biomass and habitat protection, and increasing numbers of environmentalists, governmental decisionmakers, and even some fishers are beginning to recognize that reserves are a potentially powerful management tool. As stocks continue to collapse and traditional management regimes produce few positive changes despite significant costs, no-take marine reserves are increasingly "being seen as the last great hope for fisheries management in many parts of the world."4

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3. Id.
As a result, today's legislative and political leaders possess a dramatic opportunity not seen since the early decades of the twentieth century. For more than 100 years, the nation has recognized the importance of preserving and protecting pristine and fragile areas of its public lands, a recognition embodied in such statutes as the National Park Service Organic Act, the Wilderness Act, and the Antiquities Act of 1906. Yet these efforts have been directed almost exclusively to areas above the high water mark of the oceans, ignoring the more than forty-three percent of the nation's public lands lying offshore. The push to unify the existing array of MPAs and to create a new system of no-take marine reserves represents the perfect opportunity to revisit the debates that accompanied that early terrestrial legislation, to evaluate the effectiveness of the nation's public land management in light of 100 years of history, and to design and implement a new, improved system of multi-use and no-take zones to govern the marine areas of the United States.

The National Marine Sanctuaries Act (NMSA or "Act") and the system of National Marine Sanctuaries the Act has created stand at the forefront of U.S. efforts to design and manage MPAs and no-take marine reserves more effectively. Although the NMSA has been ignored by some Presidential administrations and virtually abandoned by legal scholars, the language and legislative history of the Act clearly support its use as the umbrella statute for all MPAs, obviating the need for the current management regime of uncoordinated agencies and divergent statutory authority.

The NMSA has also served, with little success, as the platform for serious consideration of marine reserves on both coasts over the last ten years. The Florida Keys and Channel

5. The Antiquities Act states: "The President of the United States is authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments." 16 U.S.C. § 431 (1994).
8. There is almost no academic, legal analysis of the provisions of the NMSA and its potential use in the MPA and marine reserve concept. The only two law review articles to examine the Act in any real detail are more than twenty years old. See Blumm & Blumstein, supra note 6; Epting, supra note 6.
Islands National Marine Sanctuaries each established consensus-based, multi-party processes to evaluate and propose fishery and ecological reserves. Both processes were quickly inundated with intense and sometimes violent opposition from recreational and commercial fishermen and local business interests. The result has been delay, stagnation, and repeated cuts in reserve proposals until only the most remote, unfishable locations in any given area are deemed worthy of lasting protection. Similar efforts by two regional fishery management councils and the State of California have met with similarly ignominious fates.

This article argues that the NMSA represents a viable mechanism for consolidating the management of the United States' MPAs, and suggests how Congress could make this mechanism stronger and more effective. The NMSA's shortcomings are too numerous, however, for the Act to serve as the platform for a new system of no-take marine reserves. While lengthy, consensus-based negotiations are often extremely advantageous for regional biodiversity planning, this article explores why marine reserves engender more political controversy and opposition from entrenched, single-interest groups than the process can accommodate. What is instead needed is the increased application of the Antiquities Act to the marine environment, allowing the Executive to rise above fear, parochialism, and petty self-interest and create no-take marine reserves single-handedly. This use of the Antiquities Act, coupled with the ongoing education of recalcitrant commercial and recreational fishers, may soon serve as the platform for a grand extension of the ideals of preservation and conservation to new, underwater wildernesses.

Section II of this Article explains the confusing and bewildering MPA management system currently employed by the federal government, and finds some hope in a bold executive order signed in the last year of the Clinton administration. Section III examines the legislative history and key provisions of the NMSA, and articulates ways in which the Act may be strengthened and made more effective in the effort to unite and improve management of national MPAs. Section IV articulates the case for marine reserves, which have succeeded in stemming the tide of fish stock collapses in other parts of the world and which very recently have been trumpeted by an impressive collection of international marine scientists. Section V examines the legal and political obstacles that have sharply limited the effectiveness of multi-party, consensus-based negotiations.
conducted under the aegis of the NMSA and other state and federal laws. Finally, Section VI argues that the most badly needed marine reserves will only be enacted if the Antiquities Act of 1906 is advanced and applied in the marine context and becomes a legitimate concern for interest groups that might otherwise boycott, stall, and undermine local marine reserve negotiations.

I

THE MANAGEMENT OF MARINE PROTECTION AREAS IN THE UNITED STATES

In defining "Marine Protected Area," the federal government has clearly distinguished MPAs from marine reserves in much the same way that National Forests are differentiated from wilderness areas. Like similar restrictions on activity in wilderness areas, marine reserves prohibit most fishing and commercial development. In contrast, MPAs are defined more vaguely as any area governed by "lasting protection for part or all of the natural and cultural resources therein." As a result, MPAs serve roughly the same functions as National Forests—they ideally are subject to an ecosystem approach to protecting valuable resources while serving multiple uses within their borders.

The National Forest system provides two distinct advantages for the management of national resources. First, the system


11. See National Oceanic and Atmospheric Administration (NOAA), Marine Protected Areas of the United States: The Challenges, at http://mpa.gov/mpadescriptive/challenges.html (last visited March 21, 2002). The agency has specifically identified five categories of challenges facing the MPA system: "1) taking an ecosystem approach, 2) enhancing scientific knowledge, 3) coordinating across complex jurisdictions, 4) managing multiple uses, and 5) selecting new marine protected areas." Id.
fosters centralization and predictability—the areas are managed by one agency, using one set of statutes and regulations. Secondly, the National Forest Management Act—while far from perfect—provides at least some overarching policy guidance to help planners strike a balance between conservation and development of natural resources. Any attempt to create a National Park or National Forest-like system of offshore MPAs ideally should come from a single statute that fulfills those two basic requirements.

A. Past and Present Management of MPAs in the United States

Unfortunately, the current management of MPAs in the United States is decentralized, disjointed, and dependent upon the proper application of dozens of different federal laws by a variety of separate agencies. There are approximately 300 MPAs in the U.S., managed by federal agencies, state governments, and even nongovernmental organizations (NGOs). These MPAs include National Marine Sanctuaries; selected National Parks, Seashores, Monuments, and Wildlife Refuges; National Estuarine Research Reserves; National Estuary Program areas; “Special Ocean Sites;” and certain areas designed for rebuilding fish stocks in Fishery Management Plans.

While it is certainly better to have 300 MPAs than none, the system shows few signs of coherence or centralized governance. Unlike the situation on dry land, where regulatory power over specific tracts has generally been assigned to one specific agency, often with one overarching organic statute, the United States’ current regime for ocean and coastal management is a complicated and confusing amalgamation of overlapping jurisdictions and legislative authorities. The applicable federal


13. On January 19, 2001, the Environmental Protection Agency (EPA) proposed establishing four new “Special Ocean Sites,” which would be covered by greater Clean Water Act protection than the rest of the coast. EPA, EPA Proposes Special Ocean Sites, Jan. 19, 2001, available at 2001 WL 44062. EPA has proposed requiring all development activities at these sites (such as mining, oil and gas exploration, and fish farming) to meet protective new standards under the CWA. The four sites are: 1) the Flower Garden Banks, off the Texas coast; 2) the Gorda Ridge-Blanco Fracture Zone, located off Oregon; 3) the Escanaba Trough of the Gorda Ridge, off the California coast; and 4) the Northern Right Whale Critical Habitat Areas, located off Massachusetts and the Florida/Georgia border. Id. EPA has also proposed a petition process to allow citizens and states to request additional Special Ocean Sites. Id.
statutes make up a bewildering alphabet soup—the CBRA, CWA, CZMA, ESA, MMPA, NMSA, MSFCMA, NEPA, OCSLA, OPA, and dozens of other statutes all play a major

14. The Coastal Barrier Resources Act, 16 U.S.C. §§ 3501-3510 (1999), establishes the John Chafee Coastal Barrier Resources System, consisting of specifically identified undeveloped coastal barriers (bay barriers, barrier islands, and other geological features that protect landward aquatic habitats from direct wind and waves) on the coasts of the United States. The Act restricts any federal expenditures or federal assistance for development activities within these areas, although it does list several excepted activities.

15. The Clean Water Act of 1977, 33 U.S.C. §§ 1251-1387 (1994), contains a variety of provisions impacting the nation’s marine areas, including technology-based and water quality-related effluent limitations, permitting programs for both national pollutant discharges and dredged or fill material, as well as increasingly important requirements regarding nonpoint source management programs. EPA administers the Act.

16. Passed in 1972, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1465 (1994), was designed to manage and protect the habitats, resources, and scenic and recreational qualities of the areas along the nation’s coasts. The Act encourages heavy state participation and initiative, and assists states in establishing programs under the Act and developing their coastal zones in a comprehensive manner. The Act is managed by the States, the Secretary of Commerce through the National Oceanic and Atmospheric Administration (NOAA), and EPA. The Act encourages states to set up approved management programs to create objectives, policies, and standards for guiding public and private uses in the coastal zone. The Secretary of Commerce and EPA share the responsibility of reviewing and approving these programs, and the Secretary of Commerce can make matching grants to states for developing and administering these programs. The CZMA also sets up the National Estuarine Research Reserve System, a collection of prime estuaries protected for research purposes and as representative types of coastal ecosystems.

17. The Endangered Species Act of 1973, 16 U.S.C. §§ 1531-1543 (1994), protects species of plants and animals listed as threatened or endangered by prohibiting the “take” of species, by requiring the designation of critical habitat and the development and implementation of recovery plans, and by ensuring that any federal action is not likely to jeopardize the existence of the species or its habitat.


19. The Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §§ 1801-1883 (1996), establishes fishery management authority over living marine resources on the Continental Shelf and in the Exclusive Economic Zone. The Act sets national standards, requires creation of Regional Fishery Management Councils, requires fishery management plans, and grants the Commerce department the authority to close areas to fishing to protect spawning and rearing populations.

20. The National Environmental Policy Act, 42 U.S.C. §§ 4321-4370d (1994), sets forth the general policy of the federal government concerning the environment, requires environmental impact statements (EISs) for all major federal actions significantly affecting the quality of the human environment, and creates the Council on Environmental Quality (CEQ) to advise the President, gather information, conduct studies, and review actions of the federal government.

21. The Outer Continental Shelf Lands Act, 43 U.S.C. §§ 1331-1356 (1994), establishes federal jurisdiction over submerged lands in the OCS, allows leasing of
role in regulating the conservation and development of the oceans. The National Marine Fisheries Service (NMFS) is just one of the agencies with jurisdiction over coastal and submerged lands and it alone is responsible for administering some thirty-seven different pieces of legislation designed to manage and protect living marine resources.  

In addition, federal power over the oceans is diffused across a variety of administrative agencies, which are heavily burdened by coordination problems. The federal government manages the oceans through the Coast Guard; the Environmental Protection Agency (EPA); the National Oceanic and Atmospheric Administration (NOAA), the National Marine Fisheries Service (NMFS), and Regional Fishery Councils within the Commerce Department; and the Fish and Wildlife Service (FWS) and National Park Service (NPS) within the Department of Interior. State and international governments add a final layer of complication. State governments manage the oceans out to three miles offshore, adding dozens more statutes and administrative agencies to the mix. Beyond the twelve-mile territorial sea and the 200-mile Exclusive Economic Zone (EEZ), the restrictions and regulations of international law play an increasingly important role.

This disjointed web of federal, state, and international ocean law creates two fundamental problems. First, management of the oceans is fractured in irrational and overlapping ways. The

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22. The Oil Pollution Act of 1990, 33 U.S.C. §§ 2701-2761 (1994), improves federal response authority over oil pollution, increases penalties, and defines the scope of damages for which there may be liability.


25. California alone has at least nine agencies responsible for managing its MPAs, including the State Water Resources Control Board (within the California EPA) and the California Coastal Commission, California Department of Fish and Game, California Department of Forestry and Fire Protection, California Department of Parks and Recreation, California Fish and Game Commission, California Park and Recreation Commission, California State Lands Commission, and San Francisco Bay Conservation and Development Commission (all within the State Resources Agency). See State Interagency Marine Managed Areas Workgroup, Improving California's System of Marine Managed Areas: Final Report of the State Interagency Marine Managed Areas Workgroup, Appendix A: State Agencies with Responsibilities Related to Marine Managed Areas & Adjacent Terrestrial Areas, January 15, 2000, available at http://resources.ca.gov/ocean/Final_MMAs/pdf/index.html.

protection of marine mammals is a prime example. The national Marine Mammal Protection Act (MMPA) splits enforcement authority between NMFS in the Department of Commerce (which has jurisdiction over all whales, dolphins and porpoises, and all seals and seal lions except for walrus), and the FWS of the Department of Interior (which has authority over walrus, sea otters, polar bears, and manatees and their Sirenian relatives). The MMPA also created a new Marine Mammal Commission that oversees both agencies and makes recommendations on federal actions and policies regarding marine mammals. In short, the United States manages marine mammals through no less than two agencies in two different executive departments, as well as a third independent regulatory agency. This system is hardly integrated, coordinated, or cohesive.

Second, even if the system of marine mammal protection consisted of fewer statutes and less fragmented management, it would still confront another intractable problem that plagues many federal environmental laws—it would remain species-specific, and poorly designed to manage ecosystems to protect biodiversity. Most of the nation’s environmental statutes are focused on a single set of species—marine mammals, fish, migratory birds—or on a single environmental problem, such as cleaning polluted water or preserving historic places. Very few laws are designed to designate, manage, and protect entire ecosystems as discreet and valuable areas, much less to facilitate the creation of underwater ecosystem networks and marine corridors. Although the United States has thrown dozens of laws and administrative agencies at ocean and coastal issues, it still lacks “a strongly linked, scientifically based, comprehensive network of protected areas representing the diversity of U.S. marine ecosystems.”

32. NOAA, supra note 12.
B. Executive Order 13158

The federal government launched a hopeful salvo in an initial effort to bring this menagerie into coherence when President Clinton issued Executive Order 13158 on May 26, 2000. The order officially establishes and defines MPAs, and directs federal agencies to:

(a) strengthen the management, protection, and conservation of existing marine protection areas and establish new or expanded MPAs; (b) develop a scientifically based, comprehensive national system of MPAs representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources; and (c) avoid causing harm to MPAs through federally conducted, approved, or funded activities.

Although Executive Order 13158 mandates valuable first steps, such as requiring the Interior and Commerce Departments to develop a national system of MPAs and jointly manage a website for information on MPAs, it neither proposes any new substantive requirements nor establishes any binding process guaranteed to survive future administrations. The most one can expect from the executive order, therefore, is a comprehensive catalogue of all national MPAs and some impetus for bringing those marine areas under one governing statute and regulating agency.

II

CHOOSING THE PROPER LEGAL PLATFORM FOR ESTABLISHING MPAS IN THE UNITED STATES

The National Marine Sanctuaries Act (NMSA) is the strongest, most readily-available counterpart to the legislation used to create land-based terrestrial reserves such as national

33. See supra note 1 for a definition of MPAs.
35. In fact, Section 8(c) of the Executive Order states 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.”
parks, forests, and wildlife refuges.\textsuperscript{38} Although many federal statutes could conceivably provide the authority to create a unified and cohesive set of MPAs managed for multiple uses, the NMSA contains extensive and valuable legislative history, speaks with clear statutory language, and has a thirty-year history of managing marine areas for multiple uses. Although the Act has its share of loopholes and program funding has hit abysmal lows throughout the years, the NMSA still provides the best "means of comprehensively managing marine activities by designating and assuring the protection of marine areas of environmental value."\textsuperscript{39}

\textbf{A. History of the National Marine Sanctuaries Program}

The legislative history of the NMSA and the Sanctuary program demonstrates clear Congressional intent to establish a new system of MPAs—called "sanctuaries"—to be protected for multiple uses and subject to a great deal of public and legislative input.\textsuperscript{40} In short, Congress appears to have intended the NMSA to serve as a kind of Organic Act for an entirely new system of underwater national parks.

The genesis of the Act can be traced to the introduction of eleven separate bills in the House of Representatives in 1968.\textsuperscript{41} As Michael C. Blumm and Joel G. Blumstein noted in 1978, the bills were basically a reaction to public outrage stemming from a series of incidents that resulted in the degradation of "popular marine recreation areas," most notably the dumping of nerve gas and oil wastes off the coast of Florida and the infamous 1968 Santa Barbara oil spill.\textsuperscript{42} The initial, unspoken purpose of these bills was to close down oil and gas drilling in particularly sensitive and politically important areas, such as the Santa Barbara channel and areas off the coasts of Massachusetts and New Hampshire.\textsuperscript{43} A change in philosophy accompanied the Congressional debate over marine sanctuaries, however, switching the focus from restricting oil and gas development to

\begin{itemize}
  \item \textsuperscript{38} Blumm & Blumstein, \textit{supra} note 6.
  \item \textsuperscript{39} Id.
  \item \textsuperscript{40} See Epting, \textit{supra} note 6.
  \item \textsuperscript{41} Blumm & Blumstein, \textit{supra} note 6.
  \item \textsuperscript{42} Id.
\end{itemize}
the creation of "a mechanism to attain a national balance of uses in the marine environment and to ensure compatibility of conflicting uses." Writing just three years after enactment of the NMSA, one author pointed out that:

from the introduction of the first sanctuary bill in 1968 until the passage of the National Marine Sanctuaries Act of 1972, a key conceptual transition took place. This was a reversal from the thrust of the early bills oriented to preventing actions such as dredging and oil drilling back to the concept that areas of the ocean and coastal waters had values vital to a balanced use of the resources of the ocean which should be protected and/or restored for their own merits.

The legislative history of H.R. 9727, the bill that eventually became the NMSA, clearly indicates that Congress intended the sanctuary program to protect significant marine areas against all threats, not just those posed by oil and gas development. In the House Report accompanying H.R. 9727, the House Merchant Marine and Fisheries Committee explained that the bill:

deals with an issue which has been of great concern to the Committee for many years: the need to create a mechanism for protecting certain important areas of the coastal zone from intrusive activities by man. This need may stem from the desire to protect scenic resources, natural resources or living organisms: but it is not met by any legislation now on the books.

44. Blumm & Blumstein, supra note 6.
45. Epting, supra note 6 (quoting Kifer, NOAA's Marine Sanctuary Program, 2 COASTAL ZONE MANAGEMENT J. 177 (1975)). As the Virginia Institute of Marine Sciences noted in 1973, this conceptual transition even led to Congressional consideration of biodiversity zoning of the oceans, as proposed by some testifying before Congress:

Some witnesses advocated marine zoning to minimize conflicts between conflicting uses. The concept of sanctuaries as areas for studies of natural systems unencumbered by pollution was brought forward as was the concept of preserving marine areas so that scenic beauty, ocean recreation, and fishing activities could be perpetuated.

Blumm & Blumstein, supra note 6 (quoting VIRGINIA INSTITUTE OF MARINE SCIENCES, MARINE AND ESTUARINE SANCTUARIES 9 (1973)).
46. See Epting, supra note 6, at 1038. In fact, the eleven bills introduced in 1968 were not reported out of Committee during the 90th Congress, largely because "their emphasis on mineral exploration moratoria . . . attracted potent industry opposition." Blumm & Blumstein, supra note 6. Proponents of the marine sanctuary program did not begin to make Congressional headway until they broadened their focus to protecting selected areas of the ocean more generally.
47. H.R. REP. NO. 361, at 15 (1971). The Committee further noted that:

The pressures for development of marine resources are already great and increasing. It is never easy to resist these pressures and yet all recognize that there are times when we may risk sacrificing long-term values for
The Senate Conference Committee concurred in this broader ecosystem-based approach, noting that "the establishment of marine sanctuaries is appropriate where it is desirable to set aside areas of the seabed and the superjacent waters for scientific study, to preserve unique, rare, or characteristic features of the oceans, coastal, and other waters, and their total ecosystems."48 As a result, the Act's requirements on establishing a marine sanctuary make no mention of oil drilling, and instead allow the Secretary of Commerce (or Congress) to designate a sanctuary if the area is of "special national significance" due to its resources or human-use values.49

B. Key Provisions of the National Marine Sanctuaries Act

The language of the Act and its implementing regulations confirm Congress's intent to create a new system of broad-based ecosystem protections for marine areas. The Act has four significant sections worth exploring in detail. Section 301 establishes the findings, purposes, and policies of the program. Sections 303 and 304 describe the standards and procedures for designating new sanctuaries. Section 305 establishes the enforcement options available to the Commerce Secretary. Taken together, these sections establish a clear directive to protect natural resources from human impacts, coupled with a desire to maximize public and Congressional input into the creation of new sanctuaries.

Section 301, which establishes the findings, purposes, and policies of the program, mirrors and builds upon Congress's clear intent to create a program capable of uniting national MPAs and managing the areas in a cohesive manner. In Section 301, Congress first noted that the nation's efforts to protect "special areas" of the public domain had been "directed almost exclusively to land areas above the high-water mark," ignoring short-term gains. The marine sanctuaries authorized by this bill would provide a means whereby important areas may be set aside for protection and may thus be insulated from the various types of "development" which can destroy them.

Id.

49. 16 U.S.C. § 1433(a)(2)(A) (1994). Unfortunately for environmentalists, the Act's legislative history also demonstrates an emphasis on maximizing human benefit and use. Congressman Hastings Keith stated, for example, that the Act "provides for multiple use of the designated areas. It provides a balanced even-handed means of prohibiting the resolution of one problem at the expense of the other. It guards against 'ecology for the sake of ecology.'" 117 CONG. REC. 30,858 (1971).
areas of the marine environment with national or international significance.\textsuperscript{50} It further found that the enactment of resource-specific legislation had failed to provide a “coordinated and comprehensive approach to the conservation and management of special areas of the marine environment,”\textsuperscript{51} and noted a need to maintain “a natural assemblage of living resources for future generations.”\textsuperscript{52} Congress omitted economic considerations from Section 301,\textsuperscript{53} and instead reemphasized the need for “comprehensive and coordinated conservation and management of these marine areas” to further “the primary objective of resource protection.”\textsuperscript{54}

To fulfill this “primary objective of resource protection,” the Secretary of Commerce must designate sanctuaries through a process controlled by Sections 303 and 304 of the NMSA. Unlike Section 301, which clearly emphasizes conservation and preservation of resources over economic development,\textsuperscript{55} Sections 303 and 304 specifically sanction the examination of economic impacts, opening dozens of access points for user groups seeking to block particular proposed designations.

Sanctuaries can be designated if the Secretary finds that the area is of “special national significance due to its resource or

\textsuperscript{50} 16 U.S.C. §§ 1431(a)(1), (2) (1994). Congress specifically found that national or international significance can be derived from “conservation, recreational, ecological, historical, research, educational, or esthetic qualities.” \textit{id.}

\textsuperscript{51} \textit{id.} § 1431(a)(3).

\textsuperscript{52} \textit{id.} § 1431(a)(6).

\textsuperscript{53} NOAA did not entirely omit economic considerations from its regulations establishing the goals of the NMS program, however. Although eight of the nine goals focus on other matters, such as providing for the “comprehensive and coordinated conservation and management” of marine areas and aiming to “[m]aintain, restore, and enhance living resources by providing places for species that depend upon these marine areas to survive and propagate,” the agency also stated that the program should “[f]acilitate, to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas.” 15 C.F.R §§ 922.2(b)(2), (5), (9) (2001).

\textsuperscript{54} 16 U.S.C. §§ 1431(b)(2), (5) (1994). Congress also emphasized the need to “maintain, restore, and enhance living resources by providing places for species that depend upon these marine areas to survive and propagate.” \textit{id.} § 1431(b)(9).

\textsuperscript{55} NOAA has advanced Congress’s preservationist language by defining many of the statute’s key terms in broad and environmentally-friendly ways. The regulatory definition of “take” or “taking,” for example, includes species not yet protected by the ESA. For those species, “take” is defined as “to harass, hunt, capture, kill, collect or ‘injure,’ or to attempt to engage in any such conduct.” 15 C.F.R. § 922.3. This includes the collection of any dead or injured marine mammal, sea turtle or seabird, the restraining, detaining, or tagging of these species, and “any other act that results in the disturbance or molestation of any marine mammal, sea turtle, or seabird.” \textit{id.} “Injure” is further defined as “to change adversely, either in the short or long term, a chemical, biological, or physical attribute of, or the viability of. This includes, but is not limited to, to cause the loss of or destroy.” \textit{id.}
human-use values" and that "existing State and Federal authorities are inadequate or should be supplemented to ensure coordinated and comprehensive conservation and management of the area." Section 303 lists nine factors to be used in making determinations and findings, and essentially reads an environmental cost-benefit analysis into the designation of new sanctuaries. On the "benefits" side, the Secretary must consider a wide variety of "ecological qualities" of the area, the present and potential uses of the area that may adversely affect these ecological qualities, and "the public benefits to be derived from sanctuary status, with emphasis on the benefits of long-term protection of nationally significant resources, vital habitats, and resources which generate tourism." On the "costs" side, the Secretary must explicitly consider the short-term and parochial effects of designation, including "the socioeconomic effects of sanctuary designation" and "the negative impacts produced by management restrictions on income-generating activities such as living and nonliving resources development.

Furthermore, in making determinations and findings, the Secretary must consult with two congressional committees, five separate executive agencies, all state and local governmental

56. 16 U.S.C. §§ 1433(a)(2)(A), (B) (1994). The Secretary must also determine that "the designation will fulfill the purposes and policies of this chapter," id. at § 1433(a)(1), and must find that "the area is of a size and nature that will permit comprehensive and coordinated conservation and management" and that designation of the area will facilitate the objectives of "resource protection, scientific research, and public education." Id. at § 1433(a)(2)(C), (D).

57. 16 U.S.C. § 1433(b)(1)(A) (1994). Ecological qualities include the area's "contribution to biological productivity, maintenance of ecosystem structure, maintenance of ecologically or commercially important or threatened species or species assemblages, maintenance of critical habitat of endangered species, and the biogeographic representation of the site." Id.

58. Id. §§ 1433(b)(1)(C), (D).
59. Id. § 1433(b)(1)(G).
60. Id. §§ 1433(b)(1)(H), (I). The subsection also requires the Secretary to consider "the area's historical, cultural, archaeological, or paleontological significance," id. § 1433(b)(1)(B), "the existing State and Federal regulatory and management authorities applicable to the area and the adequacy of those authorities to fulfill the purposes and policies of this chapter," id. § 1433(b)(1)(E), and "the manageability of the area, including such factors as its size, its ability to be identified as a discrete ecological unit with definable boundaries, its accessibility, and its suitability for monitoring and enforcement activities," id. § 1433(b)(1)(F).
62. Id. § 1433(b)(2)(B). The Secretary must consult with the Secretaries of State, Defense, Transportation, and the Interior, the Administrator of EPA, "and the heads of other interested Federal agencies." Id.
officials that are likely to be affected, the appropriate officials of any Regional Fishery Management Council that may be affected, and all "other interested persons." This gauntlet of consultations appears intended to produce polished, strongly-supported sanctuary proposals at the end of the pipeline, but it also creates a very lengthy designation process with numerous opportunities for single-interest development groups to voice their opposition and build momentum against sanctuary creation.

Section 304's procedures for designating and implementing sanctuaries similarly promote pluralistic consensus-building over swift action. When proposing a sanctuary designation, the Secretary must give notice to the local communities, hold at least one public hearing, prepare a draft environmental impact statement, and submit to Congress a proposal that includes the terms of designation, an estimate of the annual cost, and a draft management plan for the area. After receiving these documents, the two relevant Congressional committees may each hold hearings on the proposed designation. If either committee issues a report on the matter within forty-five days, "the Secretary shall consider this report before publishing a notice to designate the national marine sanctuary." Even after publication of the final notice, two final vetoes remain—Congress retains a forty-five day review period, and, if any portion of the proposed sanctuary is within state waters, the Governor of the state may declare the designation or any of its parts unacceptable as applied to state waters.

Assuming a sanctuary proposal survives this gauntlet of regulatory review, the Secretary's administrative power is bounded by the "terms of designation" presented to Congress. The terms of designation must include "the characteristics of the

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63. Id. § 1433(b)(2)(C).
64. Id. § 1433(b)(2)(D).
65. Id. § 1433(b)(2)(E).
66. See id. §§ 1434(a)(1)(B), (a)(3).
67. See id. § 1434(a)(2)(A).
68. Id. §§ 1434(a)(1)(C)(i), (v), (vi). The Secretary's report to Congress must also include the basis of the findings regarding the sanctuary designation standards, an assessment of the nine factors outlined in section 303, "proposed mechanisms to coordinate existing regulatory and management authorities within the area," the draft EIS, "an evaluation of the advantages of cooperative State and Federal management," if appropriate, and any regulations necessary to implement the proposal. Id. §§ 1434(a)(1)(C)(ii), (iii), (iv), (vii), (viii), (ix).
69. Id. § 1434(a)(6).
70. Id.
71. Id. § 1434(b)(1).
area that give it conservation, recreational, ecological, historical, research, educational, or esthetic value," and, most importantly, "the types of activities that will be subject to regulation by the Secretary to protect those characteristics."\(^{72}\) Those "activities... subject to regulation" become finalized in the "Designation Document," which is published in the Federal Register (along with the final designation notice and implementing regulations) and "acts as a constitution for the Sanctuary establishing its boundaries, purposes and the activities subject to regulation."\(^{73}\) Unless this constitution allows for the regulation of an activity, such as fishing, the sanctuary lacks the authority to manage it and must either defer to other agencies or seek to amend the Designation Document.\(^{74}\)

Amending the Designation Document involves more steps than enacting standard regulations. Article 6 of the Channel Islands' constitution, for example, states that the Designation Document "can be altered only in accordance with the same procedures by which it has been made, including public hearings, consultation with interested Federal and State agencies and the Pacific Regional Fishery Management Council, and approval by the President of the United States."\(^{75}\) In addition, Congress has the authority to review the amended Designation, and the Governor of any state may again veto the application of any terms within state waters.\(^{76}\)

Once a sanctuary has been designated, the Secretary may exercise three types of authority over it. First, the secretary may issue regulations to manage the "activities... subject to regulation" spelled out in the terms of designation and the Designation Document.\(^{77}\) Second, section 307 grants substantial enforcement authority to the Secretary's authorized officers. They may "board, search, inspect, and seize any vessel suspected of being used to violate this chapter," "seize wherever found any sanctuary resource taken or retained in violation of this

72. Id. § 1434(a)(4).
74. See id. at 65,203 ("Article 4 of this Designation lists those activities which may require regulation... and additional activities may be regulated only by amending Article 4.").
75. Id. at 65,203; see also 16 U.S.C. § 1434(a)(4)(1994) ("The terms of designation may be modified only by the same procedures by which the original designation is made.").
chapter," and "seize any evidence of a violation of this chapter." Any person who violates the NMSA is subject to injunctive relief and civil penalties as high as $100,000 for each violation, as well as forfeiture of any vessel and other items used to violate the Act.

Third, the Secretary retains some power over other federal agencies under a provision analogous to section 7 of the ESA. Section 304 of the NMSA requires consultation with the Secretary for all proposed federal actions, including private activities authorized by licenses, leases, or permits, that are likely to destroy, cause the loss of, or injure any sanctuary resource. If the Secretary finds that the action is likely to destroy or injure a sanctuary resource, the Secretary shall then recommend "reasonable and prudent alternatives, which may include conduct of the action elsewhere." Unfortunately for environmentalists, the NMSA then abruptly terminates its similarities to section 7 of the ESA by gutting the Secretary's power. Although the Secretary is required to recommend alternatives, the head of the agency proposing the action can

79. Id. § 1437(i).
80. Id. § 1437(c)(1). Each day of a continuing violation constitutes a separate violation under the Act. Id.
81. Id. § 1437(d)(1). Violators may also be held responsible for "reasonable costs incurred by the Secretary in storage, care, and maintenance of any sanctuary resource or other property seized in connection with the violation." Id. § 1437(i)(2).
82. Section 7 of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by the agency is "not likely to jeopardize" endangered or threatened species or destroy or adversely modify their habitats. 16 U.S.C. § 1536(a)(2) (1994). Before going forward with a project authorization or funding decision, the federal agency must "consult" with the FWS or NMFS. This consultation has several steps. First, the agency asks the FWS (or NMFS) whether a protected species "may be present" in the area. If so, the agency prepares a "biological assessment" to determine the likely impact on protected species. The FWS or NMFS then reviews this assessment and prepares a "biological opinion." 16 U.S.C. § 1536(b)(3)(A) (1994). If the reviewing agency finds the proposed action is "not likely to jeopardize" the plant or animal, the project may go forward with an "incidental take" permit, which typically includes necessary mitigating measures and conditions that should be imposed on the activity. On the other hand, if the FWS or NMFS issues a "jeopardy" opinion, the applicant and the primary federal agency can not go forward with the project as proposed. Instead, the applicant can change his or her project to adopt the "reasonable and prudent alternative" offered by the FWS and NMFS, can seek federal court review, or can abandon the effort altogether. 16 U.S.C. § 1536(d) (1994); 50 C.F.R. § 402.14(h)(3) (2001).
83. See 16 U.S.C. § 1434(d)(1)(A) (1994). Each Federal agency proposing a potentially injurious action must provide the Secretary with a written statement describing the action and its potential effects on sanctuary resources no less that forty-five days before the final approval of the action. Id. at § 1434(d)(1)(B).
84. Id. § 1434(d)(2).
simply decide not to follow them, so long as he or she provides the Secretary "with a written statement explaining the reasons for that decision."\textsuperscript{85}

The picture that emerges from a careful examination of these provisions is that of an Act attempting to navigate among resource conservation, economic interests, and the maximization of Congressional oversight and public comment. On one hand, the NMSA is clearly committed to protecting resources and punishing those who take or injure marine life. At the same time, however, Congressional representatives made sure to retain a substantial amount of power to block or delay any undesirable sanctuary within their states or home districts. And the public—which includes commercial fishers and other powerful single-interest groups—has multiple opportunities to comment, lobby, and minimize the extent of Designation Documents.

The NMSA may be far from perfect, but it represents the closest parallel to the mandate of the organic acts applicable to terrestrial reserves and the best available statutory platform for consolidating and enacting new MPAs in the United States. The delays and opportunities for public input are somewhat justified because MPAs, like terrestrial National Parks and Forests, represent our most prominent national treasures and require a group decision about which areas best display our underwater heritage. It makes sense for sanctuaries to be subject to interest group wrangling because many groups use and enjoy U.S. sanctuaries, whether these areas are above or below the high water mark.

C. \textit{Making the NMSA More Effective for the Management of MPAs}

Several changes must be made in the NMSA and its current implementation for the Act to become a truly viable, long-term platform for creating a comprehensive network of MPAs.

First, the federal government must make a long-term commitment to the Act and to the sanctuary program. Despite the Act's broad focus and generalized statutory language, funding and support have shifted with the presidential winds, and the program has stagnated for decades at a time as a result. From 1972 to 1977, only two national marine sanctuaries were designated, both in 1975: the site of the U.S.S. \textit{Monitor} off the coast of North Carolina and a portion of the Florida reef tract off

\textsuperscript{85} \textit{id.} § 1434(d)(3).
the shore of Key Largo, Florida. By 1978, just six years after enactment, the sanctuary process had already become "largely ignored" and "a nearly forgotten federal program." After President Carter specifically recognized the program in his 1977 Environmental Message to Congress, however, NOAA stepped up its response, and designated five more sanctuaries, including Channel Islands NMS, and suggested some seventy sites as candidates for designation. The program not surprisingly faltered again during the Reagan administration, which in eight years allowed the designation of only one sanctuary, which has the dubious distinction of being the smallest and most remote in the program.

President Bush (Senior) and especially President Clinton revived the program once again. A total of thirteen sanctuaries have now been designated, the program's status has been elevated within NOAA, and funding increased a whopping sixty percent for fiscal year 2000. Still, a recent audit by the congressionally authorized National Academy of Public Administration concluded that "[m]ost close observers of the sanctuaries say that the program is uncertain, ineffective and

88. See Paul C. Pritchard, Undiscovered Diamonds for the Crown Jewels, OCEANUS, Fall 1993, at 3, 4. The Channel Islands NMS, designated in September 1980, consists of an area of approximately 1,252 square nautical miles off the coast of California adjacent to the northern Channel Islands and Santa Barbara Island. 15 C.F.R. § 936 (1980). The Point Reyes-Farallon Islands NMS, a 948-square-nautical-mile area off the California coast north of San Francisco, contains a diverse array of marine mammals, marine birds, and other resources. The Gray's Reef NMS off the coast of Georgia encompasses seventeen square nautical miles of considerably productive and unusual habitat for a wide variety of species including corals, tropical fish, and sea turtles. Finally, the Looe Key NMS consists of a five-square-nautical-mile submerged section of the Florida reef tract southwest of Big Pine Key. The Point Reyes-Farallon Islands, Gray's Reef, and Looe Key sanctuaries were all designated in January 1981. See Epting, supra note 6, at 1043.
89. See Pritchard, supra note 88, at 3. The Reagan administration only allowed the designation of Fagatele Bay in American Samoa, see infra note 162, and even removed Monterey Bay from the list of active sanctuary candidates. Rachel T. Saunders, Does 'Sanctuary' Mean Secure?, ENDANGERED SPECIES UPDATE, 1996, at 43.
90. The Secretary of Commerce has delegated administration and management of the NMS program to NOAA, which in turns administers to the program through its National Ocean Service division. See www.sanctuaries.nos.noaa.gov/natprogram/nplegislation/nplegislation.html (last visited April 29, 2002).
91. See NATIONAL RESEARCH COUNCIL, supra note 2, at 127, 132.
pitifully small, "92 and that more needs to be done. Additionally, there is no guarantee that the new Bush administration will do the work to ensure the program's continued prominence. Without a long-term commitment and source of funding for implementing the NMSA, the sanctuary program unfortunately may continue to live hand-to-mouth and President-to-President.

Second, although the NMSA includes specific statutory language regarding the designation and management of sanctuaries, it is silent on the issue of transferring MPAs from other administrative regimes to the sanctuary aegis. The NMSA certainly cannot be considered the dominant statute in this area while it governs only thirteen of the nation's more than 300 MPAs. If NMSA is to be more than a bit player in the marine management scheme, Congress should pass legislation transferring governance over many MPAs to the sanctuary program or at least establishing a rational and predictable system for doing so.

Third, Congress should eliminate at least some of the levels of review that unduly delay and obstruct the designation of new sanctuaries. 93 While sanctuaries should reflect many users' interests, even Congress now seems to realize that too much public comment and congressional oversight can run counter to the public interest, especially in cases involving particularly controversial proposals. Two of the most recent sanctuaries were created by bypassing statutory rules—Congress designated the Florida Keys National Marine Sanctuary 1993 through direct legislation, and President Clinton jumpstarted the creation of a new Northwestern Hawaiian Islands sanctuary via executive order.

Fourth, Congress should strengthen NOAA's enforcement authority over existing sanctuaries in two ways. First, despite the fact that the Secretary of Commerce has a number of available remedies to punish violations, the NMSA departs from other environmental statutes by failing to include a provision for criminal sanctions. Second, and more importantly, it makes little sense to require the Secretary to review the actions of other federal agencies and offer reasonable and prudent alternatives, only to pull the rug out from under the Secretary by placing final

93. See, e.g., Epting, supra note 6, at 1057-58 ("[I]mplementation of the program has ... been rather slow due to the complexity involved in establishing nomination and designation procedures for sanctuaries and in developing adequate analytical means to balance resource protection needs with uses of the area.").
authority with the agency proposing the action. Although Congress may be loath to grant the Department the same kind of veto power it enjoys in implementing the ESA, it should at least require the action agency to implement all "feasible," "reasonable," or "cost-effective" suggestions made by NOAA and the Secretary.

Finally, Congress should transfer an expanded NOAA out of the Department of Commerce. While the Department has done an adequate job of overseeing NOAA and the miniscule sanctuary system, governing 200 or even 300 MPAs is an entirely different kettle of fish, so to speak. Oversight of NOAA is best suited to the Department of Interior, unless Congress and President truly seize the MPA momentum and decide to create an entirely new agency.

III
THE NEED FOR MARINE RESERVES

Even if the NMSA can be amended and redirected to consolidate MPAs in the U.S. and establish a perfect system of MPAs, it will not be enough to reverse decades of poor fishery management and to save the oceans from widespread stock collapse. In the end, MPAs really only represent blocks of specific governance, where valuable habitats and breeding areas are managed for multiple uses (and likely where commercial fishing and even bottom trawling is allowed). They represent areas of interest to marine heritage, but, like National Forests on dry land, they are not enough to protect and preserve species and habitats for their own sake.

Leading policymakers and scholars are therefore not only pushing for coherent MPA management, but are also strongly advocating the creation of an entirely new system of no-take marine reserves.

A. The Failure of Traditional Fishery Law

Traditional fishery law has failed to prevent stock collapse, protect underwater habitats, and maintain ecosystem balance. Despite decades of effort and the best intentions of many of the world's leading scientists and fishery experts, the statistics are sobering. Between sixty-nine and seventy-four percent of global fish stocks are overfished or fully exploited, and the worldwide

extraction of wild fish has stagnated at about eighty-four million metric tons. More than one-quarter of the world's coral reefs are effectively lost, many because of fishing's direct and indirect impacts on habitat. The trends are no better in the United States, where eighty percent of commercial fish stocks are overexploited and more fish are discarded dead each year in the North Pacific than are caught live by United States fishers in the North Atlantic. The eastern U.S. cod, haddock, and halibut fisheries in the Gulf of Maine and the Grand Banks of Newfoundland were once some of the richest fisheries in the world, but have completely collapsed during the past several years. In California, losses in the stocks of bocaccio (a rockfish that flourished off the coast thirty years ago) approach ninety percent since the 1960s, and stocks of sixty other rockfish species are faring little better.

The reasons for these dramatic worldwide losses are well documented. An explosion of new fishing technologies, starting with the influx of World War II military technology in the 1950s

Peruvian anchovy catch was the largest in the world during the 1950s and 1960s, until it collapsed, recovered two decades later, and has now started on another downturn. See Suzanne Judicello and Margaret Lytle, Marine Biodiversity and International Law: Instruments and Institutions That Can Be Used to Conserve Marine Biological Diversity Internationally, 8 Tul. Envtl. L.J. 123, 126 (1994).


96. Status of Coral Reefs of the World: 2000 (C. Wilkinson ed., 2000); National Research Council, supra note 2, at 95-96. The fishing industry can damage coral reefs and other fish habitat in direct and indirect ways. Fishing with trawls and dredges have destroyed the Ocalina coral reefs of southeastern Florida, and threaten coral beds in Norway, Nova Scotia, and other locations. National Research Council, supra note 2, at 96. Overfishing of specific species, meanwhile, has led to broad and dramatic impacts on entire underwater ecosystems, including degradation of coral reefs in East Africa, Jamaica, St. Lucia, and other areas. Id. at 95-96.


99. Harry R. Tyler, Jr., Marine Areas Conservation: A North Atlantic Perspective, in Marine Protected Areas and Biosphere Reserves: Towards a New Paradigm, supra note 43. The collapse of the scallop and ground fish stocks at Georges Bank forced the closure of 6,000 square miles of ocean and led to a $27 million government buyout of trawlers. See Polakovic, supra note 97.

100. Polakovic, supra note 97 (quoting Milton Love, researcher, Marine Sciences Institute at UC Santa Barbara).
and 1960s, has allowed fishers to extract fish far faster than those populations can reproduce.\textsuperscript{101} The introduction of radar, sonar, electronic navigation aids, satellite positioning systems and weather maps, enormous submerged longlines, and gigantic trawl nets and drift nets have enabled industrialized fishing fleets to harvest entire fish populations at a rate unimaginable to Hugo Grotius\textsuperscript{102} and other free-seas advocates.\textsuperscript{103} The overcapitalization of the worldwide fishing industry has only exacerbated this potential problem. Buoyed by massive governmental subsidies, including fuel-tax exemptions, price controls, low-interest loans, and outright grants for gear and infrastructure, fishers and investors have spent decades financing more fishing ships than the seas’ resources could possibly support.\textsuperscript{104} Between 1970 and 1990, the world’s industrial fishing fleet grew at twice the rate of the global catch, creating an armada of single-use vessels that became valueless once stocks collapsed.\textsuperscript{105}

Rather than default on their boat loans or move out of failing markets, fishers have instead “fished down the food web,” switching to harvesting less attractive species and putting more and more pressure on national bank accounts.\textsuperscript{106} Over the last forty-five years, worldwide catch has shifted to lower-quality, smaller fish positioned lower in the food chain, denying food to larger fish, seabirds, and marine mammals.\textsuperscript{107} In the past

\begin{itemize}
  \item \textsuperscript{101} Safina, supra note 95, at 60.
  \item \textsuperscript{102} See id. Hugo Grotius [1583-1645], published the highly influential \textit{Mare Liberum (The Freedom of the Seas)} in 1609. The pamphlet argued against the notion that England, Spain, Portugal, and other maritime nations should carve up and “close” sections of the oceans, instead positing that the liberty of the sea was a key aspect in the communications amongst peoples and nations. Any potential shortcomings to this freedom of the seas ideal would be mitigated, Grotius argued, by the ocean’s immensity and lack of fixed limits. This particular concept of a boundless and inexhaustible ocean, while potentially accurate in 1609, has been rendered dangerously naive by modern sailing, fishing, and satellite technologies. See Stephen J. Darmody, \textit{The Oil Pollution Act’s Criminal Penalties: On a Collision Course with the Law of the Sea}, 21 B.C. ENVTL. AFF. L. REV. 89, 93-98 (1993); Robert J. Wilder, \textit{The Three Mile Sea: Its Origins and Implications for Contemporary Offshore Federalism}, 32 VA. J. INT’L L. 681, 693-96 (1992).
  \item \textsuperscript{103} The world’s largest fishing vessels are now 144 meters long and can hold sixty-person crews and 7,000 tons of fish. Fred Pearce, \textit{Breaking the Bank}, NEW SCIENTIST, June 23, 2001, available at 2001 WL 23234258.
  \item \textsuperscript{104} Safina, supra note 95, at 61.
  \item \textsuperscript{105} Id. The Gulf of Mexico shrimp fleet tripled in size to an estimated 15,000 vessels between 1960 and the late 1980s, even though catches decreased by 300 pounds per vehicle ton during that period. Territo, supra note 98, at 1370.
  \item \textsuperscript{107} Claire Hutchings, \textit{Save Our Seas}, GEOGRAPHICAL, Dec. 1998, at 12.
\end{itemize}
decade, for example, the Alaska pollock catch has climbed to the largest domestic fish catch by volume and one of the world's largest single species fisheries. If present trends continue, scientists have warned that the oceans might become "a marine junkyard dominated by plankton [and] widespread fisheries collapses." Despite these market failures, governmental subsidies have actually increased for commercial fishing. In 1992, for example, the global fishing industry was subsidized with $54 billion in artificial supports, and still managed to lose a colossal $50 billion.

It does not appear that traditional fishery management techniques can simply be reformed or modified to produce better results. Closed seasons and temporarily closed areas have proven ineffective, since overcapitalized fishers simply wait for the proper season or move to areas where fishing is allowed. Quotas and bag limits are expensive to monitor and difficult to enforce, require timely, accurate data and precise knowledge about the various species in the fishery, and become the subject of intense political pressure as fishing becomes uneconomical. Size limits are typically ineffective because many of the small fish "thrown back" die because of injuries associated with depth changes or the way they were hooked. Limited entry and regulations on fishing gear may reduce mortality but still tend to select against larger individuals and certain species. Finally, hatchery programs and artificial reefs, although popular, have not proven effective for increasing the abundance of marine species.

It is becoming clear, as the United Nation's Food and Agriculture Organization has concluded, that the world's fisheries cannot be sustained without new ideas and management practices. As Jane Lubchenco, a fisheries biologist at Oregon State University and former president of the American Academy for the Advancement of Science, has

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108. Ludicello & Lytle, supra note 94, at 127.
109. Hutchings, supra note 107, at 13 (quoting Daniel Pauly, researcher, University of British Columbia).
111. Id.
112. See James A. Bohnsack, Marine Reserves: They Enhance Fisheries, Reduce Conflicts, and Protect Resources, OCEANUS, Fall 1993, at 63, 68.
113. See Ebba Hierta, Sanctuary at Sea, NATIONAL PARKS, July-Aug. 1993, at 24, 28.
114. Bohnsack, supra note 112, at 68.
115. See id.
116. See Safina, supra note 95, at 59.
eloquently stated, what is really needed is an entirely new approach to fishery management:

We’ve long thought oceans to be so vast and so infinite that nothing we could do would make much of a dent in them, but we’re learning very quickly this mind-set has been misdirected. What we are doing now is not working. We need to do things in a very different way. I view [no-take reserves] as one of the most powerful things that we can and should do immediately.117

No-take fishery and ecological reserves thus represent a new paradigm, and an increasingly attractive management approach to nations around the world.

B. The International Success of Marine Reserves

A large percentage of coastal nations, representing virtually every continent, have implemented marine reserves to protect biodiversity and to provide insurance against species collapse. The most notable example is New Zealand, which has established fifteen reserves over the last twenty-six years and is currently considering thirty-five more.118 The Philippines are home to two of the most interesting and important no-take zones, the Sumilon and Apo Reserves.119 Australia has a network of more than 300 MPAs and marine reserves, covering a total area exceeding 463,000 square kilometers.120 European nations such as France have developed similar reserves,121 while in the western hemisphere, Ecuador’s reserve encompasses one-third of

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119. See Jack Sobel, Conserving Biological Diversity Through Marine Protected Areas: A Global Challenge, OCEANUS, Fall 1993, at 19, 25. The Philippines established the Sumilon Reserve in 1974 as a no-take marine reserve, and research has documented a fairly amazing resurgence of fish and fauna species. After the protective management regime broke down in 1984, however, research documented subsequent adverse impacts on the fish communities. Id. Scientific studies at both Sumilon and Apo have been very important in documenting the positive effects of marine reserves.


121. The Scandola Nature Reserve in France has shown increases in fish populations within the closed area, and has created positive impacts on adjacent areas as well. Sobel, supra note 119, at 25.
the waters surrounding the Galapagos Islands, and the Dominican Republic has created a small humpback whale sanctuary and is considering several more biosphere reserves.

The Central American nation of Belize is home to two of the most successful and most frequently studied reserves in the world. The larger of the two, Glover's Reef, was established in 1993 after a collaborative process similar to that pursued at both Florida Keys and Channel Islands National Marine Sanctuaries. After consultations with the stakeholders of the area, including fishers, landowners, scientists, and representatives of the tourism industry, the reef was divided into four zones, including a no-take zone that comprises thirty percent of the entire reserve. The reserve has not only successfully enabled fish to spawn undisturbed, increasing fish stocks, but has also become the center of a growing tourism industry, attracting SCUBA divers, snorkelers, kayakers, and national and international research scientists. Research documented in Belize and other nations around the world has fueled the push to create marine reserves on both coasts of the United States.

C. Recent Scientific Confirmation of the Efficacy of Marine Reserves

The single greatest obstacle to the implementation of marine reserves has been the need for more research and scientific information. Much like 1960s chemical manufacturers in the wake of Rachel Carson's Silent Spring or today's regulated

122. Polakovic, supra note 97.
123. Sobel, supra note 119, at 25.
124. The reserve has been divided into a Conservation Zone, located in the Southern portion of the atoll, where no commercial fishing is permitted, a small Wilderness Zone where no extractive use is allowed, a Seasonal Closure Area protecting a spawning ground for the Nassau Grouper, and a large General Use zone where fishing is permitted and carefully managed. Coastal Zone Management Authority and Institute, Press Release: CZMA/I Responds to Concerns About the Glover's Reef Marine Reserve, August 13, 1999, available at http://ambergriscaye.com/pages/town/parkgloversreef.html.
125. Id.
126. See NATIONAL RESEARCH COUNCIL, supra note 2, at 84-88.
127. First serialized in The New Yorker in June 1962, the seminal environmental text Silent Spring meticulously described how DDT and other commercial pesticides entered the food chain and accumulated in the fatty tissues of animals, including human beings, and caused cancer and genetic damage. See Natural Resources Defense Council, The Story of Silent Spring, available at http://www.nrdc.org/health/pesticides/hcarson.asp (last visited March 21, 2002). Carson concluded that DDT and other pesticides had irrevocably harmed birds and animals and had contaminated the entire world food supply. Id. The book's most haunting and famous chapter, "A Fable for Tomorrow," depicted a nameless
utilities confronted with evidence of global warming, some fisher groups have long portrayed the scientific evidence behind marine reserves as empty or incomplete. They have decried no-take zones themselves as nothing more than environmental "fads,"128 the work of "plankton-huggers"129 who do not sympathize with the draconian effect reserves would have on local fishers130 and do not sufficiently understand local waters and fish population trends.131 Self-interest likely motivates some fisher groups, but until recently their criticisms often rightly identified a pressing need for more research and scientific study. As recently as 1999, the National Research Council (NRC) acknowledged that the overall success of no-take zones had been established, but held back from fully endorsing reserves due to a lack of baseline data and "huge gaps in our knowledge about how they function within broader marine ecosystems."132

American town where all life had been "silenced" by the insidious effects of DDT. Id. The book alarmed readers across America and brought a howl of indignation from the chemical industry. Id. "If man were to faithfully follow the teachings of Miss Carson," complained an executive of the American Cyanamid Company, "we would return to the Dark Ages, and the insects and diseases and vermin would once again inherit the earth." Id. Monsanto published and distributed 5,000 copies of a brochure parodying Silent Spring entitled "The Desolate Year," relating the devastation and inconvenience of a world where famine, disease, and insects ran amuck because chemical pesticides had been banned. Id. Some of the attacks were more personal, questioning Carson's integrity and even her sanity. Id.

128. See, e.g., Polakovic, supra note 97 (quoting Zeke Grader, president, Pacific Coast Federation of Fishermen's Associations ("This is the latest fad in fisheries. There's a lot of rhetoric and very little science behind it."); Schmidt, supra note 4, at 489 [quoting Nicholas Polunin, marine ecologist, University of Newcastle (United Kingdom) (Marine reserves are "showing signs of being a fad, and fads don't necessarily promote good science.")]; Sean Paige, Zoned to Regulation, REASON, Oct. 1, 2001. available at 2001 WL 7608221 ("It is a fad, but it is being effectively campaigned by national environmental groups that have gotten a lot of foundation money to promote this.").


130. See Larry Bacon, World Fish Population Endangered Due to Overuse, Studies Show, KNIGHT-RIDDER TRIB. BUS. NEWS, Oct. 16, 2001, available at 2001 WL 29426599 (quoting Frank Warrens, owner of a charter boat fishing business in Hammond, Oregon: "This would just have a draconian effect on any people involved in the fishery.").

131. Not all fishers are out of touch with the environmental changes their industry has wrought over the last several decades. "It is really spooky to see a species demise in my lifetime," said one California fisherman. "We have just gotten too efficient." Ed Fletcher, Californians Begin to See Impact of State's New Fishing Regulations, KNIGHT-RIDDER BUS. TRIB. NEWS, Oct. 10, 2001, available at 2001 WL 28743116. As one Bolinas fisherman has eloquently explained, "There is no doubt we need to protect ourselves from ourselves." Id.

132. NATIONAL RESEARCH COUNCIL, SUSTAINING MARINE FISHERIES 85 (1999). See also Polakovic, supra note 97 (quoting scientist Jane Lubchenko: "This Is not a real hard
The NRC's wait for baseline data and new research appears to be over. The Council fully endorsed no-take zones in a recently-published report, stating that "[a] growing body of literature documents the effectiveness of marine reserves for conserving habitats, fostering the recovery of overexploited species, and maintaining marine communities." That "growing body of literature" includes "hundreds of published scientific papers on marine reserves from around the world" and at least thirty-two studies specifically estimating marine reserve area requirements. The average body size of fish is approximately one-third more than that of species in fished areas, and the number of species is one-third greater inside reserves.

Most importantly, a statement released in February 2001 and signed by 161 of the world's leading marine scientists concluded that there is now compelling evidence that fully protected marine reserves help conserve fisheries and preserve ocean biodiversity. The study of more than seventy reserve areas around the world by the American Association for the Advancement of Science found that after only one to two years of protection:

- population densities of fish and other marine creatures increased an average of ninety-one percent;
- their biomass increased 192 percent;
- their average size increased thirty-one percent; and
- species diversity increased twenty-three percent.

The Association's study made headlines around the world, and undeniably "demonstrates that there is now an international consensus among marine scientists that a network of marine reserves presents the most powerful tool for enhancing biodiversity and mitigating damage to marine ecosystems."

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133. NATIONAL RESEARCH COUNCIL, supra note 2, at 175.
135. NATIONAL RESEARCH COUNCIL, supra note 2, at 247-56.
137. See Bacon, supra note 137.
The oldest and best-managed reserves have demonstrated even greater gains than those identified in the 2001 study. Inside New Zealand’s 1.5-square-nautical-mile Cape Rodney Okakari Point Reserve off Auckland, established in 1975, the density of snapper and other prized fish is now forty times higher than in similar fished areas.\textsuperscript{140} Snappers and lobsters are up to fifteen times more abundant inside New Zealand’s twenty-two-year-old Leigh reserve than in surrounding waters.\textsuperscript{141} In the fourteen-year-old Hol Chan Marine Reserve in Belize, the biomass of snapper and other commercially targeted species is almost double that of nearby fishing grounds, and it is ten times larger within certain areas of the reserve.\textsuperscript{142} Even after just a two-year closure of fishing in Florida’s Looe Key NMS, the abundance of snappers nearly doubled and the density of groupers more than quadrupled.\textsuperscript{143} Increasing numbers of scientific accounts show that, regardless of the nation or continent, even a short-term ban on fishing can result in a dramatic transformation of the undersea environment.\textsuperscript{144}

Marine reserves benefit fishing stocks in several interrelated ways. Perhaps most importantly, marine reserves provide insurance against stock collapse. Stocks collapse for a variety of reasons beyond overfishing, including disease, natural disasters, and pollution.\textsuperscript{145} If a stock collapses for any of these reasons, reserves act as a reservoir for rebuilding a stock at a faster rate

\begin{itemize}
\item \textsuperscript{141} Polakovic, \textit{supra} note 97 (quoting Bill Ballantine, marine biologist, University of Auckland).
\item \textsuperscript{142} Higgins, \textit{supra} note 136.
\item \textsuperscript{143} J.R. Clark et al., \textit{Benefits from Coral Reef Protection: Looe Key Reef, Florida}, in \textit{COASTAL ZONE '89. PROCEEDINGS OF THE 6\textsuperscript{th} SYMPOSIUM ON COASTAL AND OCEAN MANAGEMENT, HELD IN CHARLESTON, SOUTH CAROLINA, 11-14 JULY 1989} (O.T. Magoon et al., eds., 1989). Similarly, within three years after no-take zones were implemented at Soufriere Marine Management Area, a coral-reef park off the Caribbean island of St. Lucia, the density of commercially important fish stocks swelled inside the protected areas and spilled over, doubling within areas just outside the reserves. Raloff, \textit{supra} note 140.
\item \textsuperscript{144} See \textit{NATIONAL RESEARCH COUNCIL}, \textit{supra} note 2, at 79-81. While creeping along California’s Central Coast in a submarine, UC Santa Barbara scientist Milton Love recently discovered a spot that fishermen haven’t found. He reported that:
\begin{quote}
The surprise I felt was like a paleontologist walking into Griffith Park and seeing a bunch of mammoths walking around. I almost soiled my clothes. There were no little fish, but there were a lot of big fish. We’ve never seen anything like that in 150 submarine trips off the California coast. This is probably what every place looked like 500 years ago.
\end{quote}
See Polakovic, \textit{supra} note 97.
\item \textsuperscript{145} See Bohnsack, \textit{supra} note 112, at 69.
\end{itemize}
than would otherwise be possible. Marine reserves are uniquely valuable for their ability to protect and preserve breeding, nursery, and recruitment areas, and they allow more juvenile and medium-size fish to live long enough to serve as mature brood stock. These larger fish are essential to stock reproduction because fish reproduction actually increases exponentially with size. A mature red snapper, for example, produces nearly two million eggs per year, eighteen times more than an adolescent fish, and a fifteen-pound snapper will produce as many eggs as 212 approximately three pound fish. The Pacific Fishery Management Council notes that marine reserves are even paying dividends in the devastated New England cod, haddock, and flounder fisheries. The groundfish spawning stock biomass has increased steadily since the 1995 closure of the fisheries, and the harvestable biomass of scallops has increased fourteen-fold within the closures.

Marine reserves also provide direct economic benefits to nations and local communities. Oahu's Hanauma Bay, the oldest no-take refuge in U.S. waters, is home to 420 different kinds of colorful reef fish and attracts more than 1.5 million visitors a year. Approximately 100,000 people, many of them schoolchildren, visit New Zealand's Leigh Reserve every year.

146. D.J. Brunckhorst & P.B. Bridgewater, A Novel Approach to Identify and Select Core Reserve Areas, and to Apply UNESCO Biosphere Reserve Principles to the Coastal Marine Realm, in MARINE PROTECTED AREAS AND BIOSPHERE RESERVES: TOWARDS A NEW PARADIGM, supra note 43.

147. Marine reserves can thus be seen as merely an extension of the "essential fish habitat" (EFH) regulatory process created under the 1996 amendments to the Magnuson Act. See 16 U.S.C. §§ 1801-1833. The Act finds that a national program is necessary "to facilitate long-term protection of essential fish habitats," defined to mean "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." 16 U.S.C. §§ 1801(a)(6), 1802(10) (1996). Although NMFS has declared all U.S. national marine sanctuaries to be essential fish habitat, both users and NMFS officials claim it is legal to damage a federally-designated EFH. See Donald Sutherland, National Marine Sanctuaries Not Safe for Fish, ENV'T NEWS SERV., 2000 WL 7838885, June 16, 2000. See generally Eldon V.C. Greenberg, "Essential Fish Habitat" Regulatory Morass or Paper Tiger?, SE55 ALI-ABA 459 (2000).

148. Polakovic, supra note 97.

149. Bacon, supra note 137.


152. NATIONAL RESEARCH COUNCIL, supra note 2, at 170.

153. Polakovic, supra note 97.
In addition, and most excitingly for commercial and sport fishers, recent studies have also reconfirmed that increased size and abundance within a reserve may lead to a spillover effect, increasing fish abundance and fishery yield in nearby waters.\textsuperscript{154}

Marine reserves produce a number of other benefits that are no less important but can be harder for agencies and governments to quantify. Reserves protect and enhance the gene pools and biodiversity of the oceans, often providing a haven for vulnerable species and saving them from potential extinction.\textsuperscript{155} Marine reserves also restore habitat and protect ecosystems from the damaging effects of trawl nets and dredging.\textsuperscript{156} In addition, reserves attract underwater photographers, naturalists, and ecotourists, and allow scientists and researchers a rare opportunity to monitor long-term environmental changes.\textsuperscript{157} Finally, and perhaps most importantly, marine reserves confer all these benefits and are yet dramatically easier—and cheaper—for government to implement and monitor than other fishery regulations and management programs.\textsuperscript{158} Marine reserves may thus represent the best of all possible worlds—substantial protection of fishery stocks and underwater habitat combined with direct economic benefits and drastically reduced monitoring and enforcement costs.

IV

CHOOSING THE PROPER LEGAL PLATFORM FOR ESTABLISHING MARINE RESERVES IN THE UNITED STATES

Despite the widespread success of fishery and ecological reserves across the globe and the need for such reserves in the U.S., the United States is home to very few marine reserves, with almost none at the federal level. Although Washington,\textsuperscript{159}

\begin{footnotesize}
\begin{enumerate}
\item[155.] \textit{NATIONAL RESEARCH COUNCIL}, \textit{supra note 2}, at 81-84.
\item[156.] \textit{NATIONAL RESEARCH COUNCIL}, \textit{supra note 2}, at 22, 96.
\item[157.] See Bohnsack, \textit{supra note 112}, at 69.
\item[158.] \textit{NATIONAL RESEARCH COUNCIL}, \textit{supra note 2}, at 59 (noting that enforcement of marine reserves is "relatively efficient" vis-à-vis other management regimes, especially as fishers become aware of reserve boundaries).
\item[159.] Washington allows no consumptive uses in Edmonds Underwater Park. \textit{See} M.R. Murray, \textit{The Status of Marine Protected Areas in Puget Sound}, Number 8, 1998, \textit{available at} http://www.wa.gov/puget_sound/shared/volume1/intro.html. In addition, in a rare example of pluralistic cooperation, fishermen joined scientists in
\end{enumerate}
\end{footnotesize}
California, and a few other coastal states have implemented MPAs with marine reserve components, the federal government has initiated only a few species-specific no-take zones and only two small ecological reserves. In total, only 125 square nautical miles of U.S. marine waters are no-take refuges, out of a whopping 3.36 million square nautical miles in the EEZ.

As scientific research and political momentum coalesce behind marine reserves, however, federal no-take zones are being seriously explored on four separate fronts—at the state level, at Regional Fishery Management Councils, through presidential Executive Orders, and, most notably, under the auspices of the National Marine Sanctuary Program and the NMSA. This section examines the effectiveness of each of these approaches in turn.

A. The National Marine Sanctuaries Act

Although it may have promise for managing MPAs, the National Marine Sanctuaries program is an odd legal platform for establishing marine reserves, since the Act neither mentions no-take zones nor establishes a procedure for establishing protected areas. Several commentators have in fact noted that “sanctuary”

1997 to persuade San Juan County to create eight voluntary no-take refuges to halt dramatic declines of rockfish and greenlings. See Polakovic, supra note 97.

160. California has an extensive system of MPAs, including three “marine reserve protection areas,” three “marine life reserves,” and four “ecological reserves” in which the taking of all species of marine life is prohibited. See California Department of Fish & Game, Existing State MPAs, March 22, 2000, at http://www.dfg.ca.gov/mrd/mlpa/mpa.html.

161. For example, the near-shore Bristol Bay closure area off Alaska protects king crab aggregations and habitat, see 50 C.F.R. § 622.35(c) (2001), and the Virgin Islands National Park protects coral reef habitat and sea-turtle nesting areas. See National Parks Service, Coral Reefs Under National Parks Service Jurisdiction: Overview of Areas, Protection, and Management Issues (1998), at http://www1.nature.nps.gov/wv/coral/Coralnew-02.htm#TopOfPage.

162. Fagatele Bay NMS (the smallest and most remote sanctuary, located in American Samoa) has banned all commercial fishing in the half of the bay/sanctuary, to protect a diverse network of coral reefs. See 15 C.F.R. § 922.102(b)(2) (2001); 51 Fed. Reg. 15,878, 15,879 (NOAA, April 29, 1986). In addition, as discussed in detail below, Florida Keys NMS contains a network of twenty-three no-take zones, including one ecological reserve. See 65 Fed. Reg. 31,634 (NOAA, May 18, 2000).

163. Raloff, supra note 140.

164. This political momentum includes President Clinton’s May, 2000 executive order calling on federal agencies to strengthen the management, protection, and conservation of national MPAs. Exec. Order No. 13,158, 65 Fed. Reg. 34,909 (May 26, 2000). Although the order only requires federal agencies to “develop a national system of MPAs” and take “appropriate actions” to enhance or protect existing MPAs, it has introduced “marine protected areas” to the lexicon of American law and policy and raised public awareness of the need for expanded ocean protections. The order has also led to the development of a particularly informative website, at http://mpa.gov.
is a bit of a misnomer in the marine reserve context—the NMSA trumpets multipurpose use, and permissible activities vary considerably from sanctuary to sanctuary.¹⁶⁵ Commercial fishing is permitted in all but one of the U.S. national marine sanctuaries, and bottom trawling and dredging are also frequently allowed.¹⁶⁶ Because the legislative history, statutory language, and underlying policy of the NMSA all fail to speak directly to the concept of marine reserves, the push to develop no-take zones at marine sanctuaries has depended upon dubious coalitions between reserve proponents and opponent groups like commercial fishers. As discussed below, long, consensus-based negotiations have failed at both Florida Keys and Channel Islands NMS, and had success at Dry Tortugas only because of the area's unique geographical and economic situation, and only after decades of debate and the dissemination of scientific information. Discussion, the re-education of local fishers, and consensus-building certainly have value. Any reserves that emerge from this process will enjoy greater political support over a longer period of time than any no-take zone imposed unilaterally. In the end, however, these discussions will continue to fail to designate any controversial or potentially expensive marine reserves unless and until environmentalists and conservation groups are given a hammer—a threat that reserves will be imposed unilaterally unless industry groups truly endeavor to reach a compromise.

1. Two Case Studies—Marine Reserves at Florida Keys and Channel Islands National Marine Sanctuaries

a. Florida Keys National Marine Sanctuary

The seven-year effort to develop marine reserves in the Florida Keys NMS provides a sobering and disquieting lesson about the ability of single-issue, self-interested industry groups to derail plans and projects backed by anything less than scientific unanimity.

The Florida Keys are one of the most complex ecosystems on Earth. More than 6,000 species of plants, fishes, and invertebrates live within 3,674 square miles of seagrass beds,

¹⁶⁶ Sutherland, supra note 147.
mangrove forests, and coral reefs.\textsuperscript{167} As Congress noted in 1990, these environments are the marine equivalent of tropical rain forests; they support high levels of biological diversity, are fragile and easily susceptible to damage from human activities, and, perhaps most important politically, possess high value to human beings if properly conserved.\textsuperscript{168} The area attracts three million visitors a year to boat, snorkel, scuba dive, and bird watch, and tourist dollars support half of the $853 million local economy.\textsuperscript{169}

Unfortunately for sanctuary planners, Florida Keys NMS is also home to the most complex and contentious political climate of any MPA in the county.\textsuperscript{170} After its designation as a marine sanctuary in 1990, the sanctuary’s scientists and planners spent the next seven years trying to develop and build a consensus for an official management plan.\textsuperscript{171} Until the very end, it appeared as though these planners and scientists had succeeded in developing a workable blueprint for the sanctuary, despite an amazing outpouring of public comment and criticism. The plan required more than 100 public meetings, and approximately 6,400 people submitted comments in response to the draft management plan and EIS.\textsuperscript{172}

At the eleventh hour, however, public opposition crystallized around the plan’s proposed no-take zones. The sanctuary initially proposed five strategically spaced marine reserves encompassing twenty percent of the sanctuary.\textsuperscript{173} Each reserve would be a cross-section of habitats — including patch reef, seagrass bed, rubble zone, and deep reef — set aside to preserve biodiversity. Commercial fishing organizations, “wise use” groups, and other opponents seized on the scientific uncertainty over marine reserves and the causes of reef decline to argue that water quality concerns should be addressed first and fishing left alone.\textsuperscript{174} Fishers argued that the reserves would deny them traditional access to marine areas for commercial and

\begin{footnotesize}
\textsuperscript{169} Baker, supra note 167, at 174.
\textsuperscript{170} See Deneen, supra note 156, at 17.
\textsuperscript{171} Baker, supra note 167, at 174.
\textsuperscript{172} Id.
\textsuperscript{173} The scientific community has long identified twenty percent as a kind of magic number in establishing marine reserves. It is an estimate extrapolated from experience with wildlife populations on land and from studies showing that fish stocks crash when populations dip below twenty percent of their level before the depletion began. See Polakovic, supra note 97.
\textsuperscript{174} Baker, supra note 167, at 174.
\end{footnotesize}
recreational fishing, and that the scientific understanding of the functioning and effectiveness of marine reserves was incomplete.\textsuperscript{175}

The resulting political debate quickly became characterized by inflamed rhetoric\textsuperscript{176} and featured "barroom brawl, no holds barred" tactics by the adversaries of the sanctuary and marine reserve.\textsuperscript{177} Opponent groups distributed "Say No to NOAA!" bumper stickers and signs, threw coconuts at sanctuary supporters, and hung sanctuary manager Bill Causey in effigy.\textsuperscript{178} The Federal Bureau of Investigation questioned one opponent of no-take zones after he "reminded" Florida Representative Peter Deutsch of the three "boxes" available to American citizens: the soap box, the ballot box, and the ammunition box.\textsuperscript{179}

After a nonbinding referendum in Monroe County, Florida, revealed that fifty-five percent of voters opposed the sanctuary's entire marine zoning proposal, the proposed protected area was reduced to three reserves encompassing ten percent of the sanctuary, then to three reserves encompassing six percent, and finally to one sanctuary encompassing less than 0.5 percent of the sanctuary.\textsuperscript{180} The surviving no-take zone, the Western Sambos Ecological Reserve, is only nine square nautical miles and is not even permanent, but rather the subject of a five-year "trial period."\textsuperscript{181} As one marine ecologist involved in the process stated, "We shed a lot of blood to come up with the original network of four ecological reserves . . . [and] we just barely got a scrap of what's needed."\textsuperscript{182}


\textsuperscript{176} Reserve opponents described sanctuary managers as "Big Brother," argued that even small reserves were really only "part of a foot-in-the-door approach to eliminating commercial fishing," and maintained that they were "fighting for what it means to be an American." Sean Paige, \textit{NOAA's Disputed Archipelago}, \textit{Insight on the News}, May 4, 1998, at 18-20.

\textsuperscript{177} \textit{Id.} at 18.

\textsuperscript{178} \textit{Id.} at 18-20; Deneen, \textit{supra} note 156, at 17.

\textsuperscript{179} Paige, \textit{supra} note 177, at 20.

\textsuperscript{180} Baker, \textit{supra} note 167, at 175; Ogden, \textit{supra} note 175, at 1414.

\textsuperscript{181} Baker, \textit{supra} note 167, at 175. The sanctuary also features eighteen small, no-take areas, each less than one square nautical mile, called Sanctuary Preservation Areas, where snorkeling and diving are permitted. Florida Keys NMS also has four small research-only zones that can be entered only with a permit. \textit{Id.}

\textsuperscript{182} Schmidt, \textit{supra} note 4, at 490 (quoting Rod Fujita, marine ecologist, Environmental Defense Fund).
b. Channel Islands National Marine Sanctuary

The three-year effort to designate marine reserves at Channel Islands NMS has thus far mirrored the bitter and unproductive process first experienced at Florida Keys, with the push for unilateral consensus giving way to a disappointing drive to the lowest-common denominator.

Channel Islands NMS encompasses the waters that surround Anacapa, Santa Cruz, Santa Rosa, San Miguel, and Santa Barbara Islands, extending from mean high tide to six nautical miles offshore around each of the five islands. The first three miles of each island "ring" is an area of overlapping and complimentary state and federal jurisdiction. The State of California has already established ecological reserves around San Miguel, Santa Barbara, and Anacapa Islands, which extend out to one mile from shore and are administered by the California Department of Fish and Game.

From an ecological standpoint, the Channel Islands are the ideal location to initiate marine reserves. More than 200 fish species—about forty-four percent of all species reported in California's coastal waters—can be found in the waters around the islands, along with forty percent of the kelp in Southern California. The islands are home to thirty-three species of marine mammals, including at least seven endangered whale species, as well as sixty-four species of marine birds, one of the most abundant and diverse collections in the United States. Finally, the islands house one of the largest pinniped populations in the world: approximately 100,000 seals and sea lions produce nearly 15,000 pups in the islands. Despite this tremendous biological diversity, however, surveys show alarming...

183. The Channel Islands have also been designated as a national park, which encompasses all the land of each of the five islands and submerged lands out to one mile from shore. Park administrators have no jurisdiction over the submerged resources in this one-mile ring, however. Hierta, supra note 113, at 25.
184. Hierta, supra note 113, at 25. The evidence suggests that even these small reserves have paid large dividends. Inside the small, existing Anacapa Island Marine Reserve, for example, there are twelve times as many kelp bass and fifteen times as many sheephead as in adjacent waters. Brian Trautwein, Ventura County Perspective Channel Islands Marine Reserve Would Help Fishermen and Fish, L.A. TIMES, Jan. 1, 2001. available at 2001 WL 2454149.
186. Id. The endangered whale species include the Pacific right, sperm, finback, sei, humpback, blue, and gray. Id.
187. Id.
declines in the populations of sea urchins, abalone, and other species because of harvesting in waters around the islands.\textsuperscript{188}

On the other hand, the economics of the Channel Islands make the area perhaps the most controversial and problematic location in which to plan and discuss marine no-take zones. Fifteen percent of the coastal fish caught commercially for the entire state of California are taken from inside park boundaries.\textsuperscript{189} The Channel Islands are the source of eighty percent of California's annual squid harvest—the largest and most lucrative fishery stock in the state—as well as twenty-five percent of California's highly profitable kelp harvest.\textsuperscript{190} Major commercial fishers are not the only players with an economic stake in the matter; sport fishers, small-time lobster trappers, and representatives of the area's burgeoning sport diving and tourism industries have also demanded a seat at the table, multiplying the number of interests that need to be satisfied for any agreement to survive.

In 1999, the sanctuary initiated a multi-party, consensus-driven process to investigate and implement marine reserves at the sanctuary. First, a specially-formed scientific panel\textsuperscript{191} suggested setting aside thirty to fifty percent of the sanctuary in as many as six reserves spread across four of the park's five island rings. This striking scientific proposal was turned over to the Marine Reserves Working Group ("MRWG"), an ad hoc, seventeen-person committee with representatives ranging from commercial and recreational fishers to government, environmental, and public interest groups.\textsuperscript{192} The MRWG met every month for two years to receive and integrate advice from its technical advisors and the general public, and to develop a single, unanimous recommendation for marine reserves at Channel Islands.\textsuperscript{193} The Working Group also churned out a

\begin{itemize}
\item \textsuperscript{188} Polakovic, supra note 97.
\item \textsuperscript{189} Hierta, supra note 113, at 25.
\item \textsuperscript{190} Personal Interview with Sean Hastings, Policy Program Specialist, Channel Islands National Marine Sanctuary, January 3, 2001.
\item \textsuperscript{191} The Channel Islands NMS convened a panel of sixteen physical and biological scientists from a variety of nearby universities and state and federal administrative agencies. The panel's membership list is available at http://www.cinms.nos.noaa.gov/SPmembreserves.html.
\item \textsuperscript{192} Channel Islands National Marine Sanctuary, Sanctuary Advisory Council, Marine Reserves Working Group, Aug. 6, 2001, at 1, available at http://www.cinms.nos.noaa.gov/WGmembreserves.html. The Working Group included four representatives of consumptive and non-consumptive interest groups, as well as representatives from a variety of state and federal agencies, among others. See id.
\item \textsuperscript{193} See id. at 1-2.
\end{itemize}
variety of positive-sounding documents in two years, including a
set of ground rules, a mission and problem statement, issues of
concern, goals and objectives for reserves, implementation
recommendations, and more than thirty potential marine
reserves maps.194

After two years of evaluating the scientific panel’s
recommendation and working to build consensus, the Working
Group failed to reach a final percentage number.
Environmentalists proposed setting aside twenty-eight percent of
the sanctuary, while representatives of commercial and sport
fishing organizations would only agree to twelve percent and
would only agree on a set of areas that are already virtual no-
take zones because of their remoteness and rough weather.195
The group instead passed the buck to the Sanctuary Advisory
Council (“SAC”), a twenty-member NOAA-appointed advisory
body, which includes members representing the general public,
tourism, business, recreation, fishing, education, research and
conservation interests, as well as local, state and federal
government agencies.196 The Council could not reconcile the
dispute and promptly voted 17-1 to pass the full public record on
to the Sanctuary manager and the California Department of Fish
and Game marine region manager to make a decision.197

After three years of debate and discussion, repeated rounds
of public input, and significant local and national media
attention, there are no more marine reserves at Channel Islands
than there were in 1999. The process is still technically alive: the
state Department of Fish and Game Commission is scheduled to
consider seven separate reserve alternatives, which range from
closing twelve percent to twenty-nine percent of the sanctuary,
sometime in 2002.198 Standing in the Commission’s way are
petitions containing more than 40,000 signatures from California
anglers who oppose any marine reserves at Channel Islands.199

194. Id.
195. See Matt Surman, Ventura County Panel Deadlocks on Size, Sites of No-
Drouin Keith, California Fishermen, Environmentalists Can’t Agree on No-Fish Zones,
196. See Channel Islands National Marine Sanctuary Advisory Council
Information and News, The Sanctuary Advisory Council, available at
197. See Commission Hands Off Sanctuary Fishing Ban Decision, ASSOCIATED
PRESS NEWSWIRES, June 20, 2001.
198. Ed Zieralski, F&G Sides With Fishermen on Marine-Protected Areas, SAN
199. Zieralski, supra note 198.
At stake is the fate of marine reserves in the United States — officials at marine parks and sanctuaries across the country are waiting to see whether the Channel Islands process succeeds before seeking permission to consider their own no-take zones. As one Channel Islands scientist stated in 2001, "It's taken two years to get to this point and a fair amount of money. If this fails, for whatever reason, it will put a chill on community-based consensus decisions."  

**c. Florida Keys Redux**

Despite the extremely discouraging results at Florida Keys and Channel Islands NMS, there is still some hope that marine reserves can be designed and implemented at national marine sanctuaries, and it has come from the most unlikely location—the Florida Keys. In April 2001, Governor Jeb Bush and his Cabinet agreed to the creation of what is now the nation's biggest marine reserve, protecting 151 square miles near the dry Tortugas National Park. The Tortugas area, which is 70 miles west of Key West, contains dynamic coral reef formations and is a unique spawning area for fish and lobsters. Larvae spawned from adult populations in the Tortugas spread throughout the Florida Keys and south Florida by a persistent system of unique currents and eddies, helping replenish fish and spiny lobster populations throughout the region. The Tortugas is also home to Sherwood Forest and Riley's Hump, two coral reef areas of unusual biological diversity and abundance.

The Tortugas Reserve, which will prohibit anchoring, fishing, and the taking of all other marine life, and restrict vessel discharges and the placement of mooring buoys, was developed through a process similar to the earlier failed efforts at Florida Keys and Channel Islands NMS. An ad hoc, twenty-five-
member Working Group of the SAC met five times from April 1998 to June 1999, narrowed its search from twelve alternatives to two, and eventually unanimously endorsed a single compromise proposal. The SAC also voted unanimously to adopt the recommended alternative, and forwarded the recommendation to NOAA and the State of Florida, which similarly endorsed the plan. The largest marine reserve in the United States thus appears to have been drafted, debated, and implemented with nary a discouraging word from the extractive industries, much less the anger and threats of violence that accompanied the first Florida Keys effort.

Several factors account for the vast difference between the two Florida Keys processes. Ten years of scientific research, debate, and the dissemination of information clearly softened the attitudes of some commercial fisherman. As one local fisherman said: "When we first heard about marine reserves, there was a lot of fear. But once people got involved in the Tortugas project, the fear started to fade away. I'm now convinced that the Tortugas Reserve will help deal with overfishing and protect a critical breeding ground for the fish." Given a decade to learn more about marine reserves, it seems clear that many fishermen felt less fear and anger and became more accepting of new fishing regulations and marine reserves.

Far more importantly, however, the stakes were simply lower at Tortugas than at Florida Keys or Channel Islands NMS. Unlike Florida Keys or Channel Islands, the Tortugas is located in a remote location, seventy miles west of Key West and more than 140 miles from mainland Florida, out of the immediate view of the general public. In addition, no-take zones at Tortugas did not represent the same short-term economic threat to commercial fishing interests as at Florida Keys or Channel Islands. Fish and lobster populations had already been significantly depleted at Tortugas, and the Sanctuary Working

208. See id.
Group determined in 1999 that only 105-110 commercial fishermen were using the area.\(^{212}\) NOAA determined that implementation of the reserve would displace only three percent of commercial fishing activity, causing a short-term revenue loss of, at most, only 6.3 percent.\(^{213}\) In addition, unlike the earlier Florida Keys proposal, which united both fishers and the general public in opposition, at Tortugas NOAA determined that:

the overall affect (sic) on the local economies would be so small they (sic) would not be noticed. Harvest revenue potentially affected was only 1.16% of all harvest revenue of catch landed in Monroe County. In addition, this lost revenue would translate... into only fractions of a percent of the total Monroe County economy: 0.0596% of total output, 0.0779% of total income and 0.0785% of total employment.\(^{214}\)

Finally, the fishers hit hardest by the Tortugas proposal were the least likely to protest vigorously. NOAA determined that “the fishermen potentially affected by all alternatives had significantly lower participation rates in the Conch Coalition, the Organized Fishermen of Florida (OFF) and in the Monroe County Commercial Fishermen, Inc. (MCCF), but had a significantly higher participation rates in environmental organizations.”\(^{215}\)

The very positive outcome of the Tortugas process must therefore be tempered by the knowledge that the geography and economics of Tortugas guaranteed a less controversial negotiation that at Florida Keys or Channel Islands. Positive environmental programs are always easier to negotiate and implement when they will not cause significant economic costs or raise the political ire of powerful interest groups.

2. **Obstacles to Using the NMSA to Establish Marine Reserves**

Despite the NMSA’s value as a potential legal foundation for establishing and managing MPAs, the experiences at Florida Keys and Channel Islands NMS demonstrate a number of severe legal and political impediments to the successful implementation of marine reserves at new and existing sanctuaries.

\(^{212}\) *Id.* at 31,638. Ninety fishermen caught more than ninety percent of the total harvest from the Tortugas. *Id.*

\(^{213}\) *Id.* at 31,657. Implementation of the reserve could also cause a revenue loss of 26.6 percent for diving for lobsters, and twenty percent for spearfishing. *Id.* NOAA determined that these losses would likely be mitigated as local fishermen and lobster trappers moved to nearby areas. *Id.* at 31,663 (noting that it is “highly likely” that lobster and shrimp fishermen “would be able to replace lost catch from other sites”).

\(^{214}\) *Id.* at 31,660.

\(^{215}\) *Id.*
a. Legal Obstacles

The legal barriers to using the NMSA as the platform for a national system of marine reserves are manifold and substantial. First, as previously noted, neither the language nor the legislative history of the Act contains any reference to no-take zones, giving opponents an immediate leg up in any legal challenge to proposed marine reserves. While the Act does not explicitly bar the creation of marine reserves (and the Secretary of Commerce is in fact empowered to regulate any activity listed in a sanctuary's Designation Document), it is unclear whether using it in this way impermissibly stretches the NMSA beyond the powers Congress delegated. Furthermore, if fishing is not listed in the Designation Document, as is the case at Channel Islands NMS, Sanctuary managers will be required to hold more public hearings and risk additional Congressional oversight and a potential state veto.\(^216\) The lack of express authority also raises a more subtle problem. By failing to mention marine reserves entirely, the Act fails to outline a procedure for creating reserves in a consistent fashion. As a result, marine reserve proposals have proceeded along ad hoc, drawn-out, and unbounded negotiations sessions that have exacerbated the obstructionist power of certain interest groups.

The limitations of the Act discussed in Section III in the context of MPAs apply with even more force in the marine reserve context. The multiple access points that can be used to block new sanctuary proposals will almost certainly be employed to block new designations that include controversial reserves. Also, creating "no-take zones" seems pointless if other federal agencies remain completely free to degrade the resources of the reserve. Finally, it is once again important to note that the Commerce Department has far less experience in developing and managing natural resource areas than the Department of the Interior.

b. Political Obstacles

The legal obstacles to marine reserve creation, although clearly significant, pale in comparison to the political battles that have accompanied nearly every no-take proposal to date. The politics of marine reserves are really a microcosm of a larger problem that haunts many areas of environmental law and policy—how to build a strong consensus and establish a feeling

of local ownership over a novel regulatory program in the face of pre-existing, politically powerful user groups that will surely face short-term economic losses if any conservation program is enacted. Or, to put in more colloquially, how can government convince the most powerful groups in the room to gore their own ox, even if only in the short term?

The scientific community has reached consensus on a number of issues related to marine reserves, and one particular position has engendered near-unanimity from both academics and analysts—"[e]ffective implementation of marine reserves and protected areas depends on participation by the community of stakeholders in developing the management plan."\textsuperscript{217} This position obviously makes a great deal of sense, especially in a nation as dedicated to the pluralistic ideal as the United States. Not only do stakeholders possess information that is invaluable to the management process, but explicitly involving them is often the only way to avoid severe conflicts and eventually lawsuits.\textsuperscript{218} Without community involvement, there is neither local ownership of the program, nor a local group to serve as advocates and ambassadors for the plan to the media, governmental bodies, and outside interest groups.

It is thus hard to fault the Florida Keys or Channel Islands NMS for establishing stakeholder-balanced, consensus-based approaches to develop and evaluate marine reserve proposals. Both sanctuaries created multi-party Sanctuary Advisory Councils to report directly to the sanctuary managers\textsuperscript{219} and similarly balanced Working Groups to evaluate marine reserves and report back to the SAC.\textsuperscript{220} This two-stage process was the best either Sanctuary could do under existing law, and it at least created a forum for serious discussions and brought parties together who might never have spoken with one another otherwise.\textsuperscript{221}

Unfortunately, this multi-party process of negotiation and consensus is fraught with a variety of inherent dangers and has repeatedly failed. The largest and most visible potential obstacle has been resistance and opposition by user groups, and

\textsuperscript{217} National Research Council, supra note 2, at 4.
\textsuperscript{218} See Charles N. Ehler & Daniel J. Basta, Integrated Management of Coastal Areas and Marine Sanctuaries: A New Paradigm, OCEANUS, Fall 1993, at 6, 10.
\textsuperscript{219} See, e.g., Channel Islands NMS, Background Information on the Joint Federal and State Process to Consider Marine Reserves in the Channel Islands National Marine Sanctuary, at http://www.cinms.nos.noaa.gov/nmptreserves.html.
\textsuperscript{220} See id.; Florida Keys National Marine Sanctuary, supra note 206, at xiii.
\textsuperscript{221} Hastings, supra note 190.
especially by commercial fishers, who had the most political power and the most to lose by a change in the status quo at both Florida Keys and Channel Islands. For fishing interests at both locations, and elsewhere across the country, closing vast tracts of water is a political nonstarter. Fishers almost universally resist regulation of virtually any kind, and especially oppose reserves that include their favorite fishing spot. Even leaders of fairly moderate and mainstream fisher groups like the Pacific Coast Federation of Fisherman's Associations concede that "[s]ome of our members say, "Don't agree to anything," and note that proposed California state reserves caused recreational and commercial fisheries to "go[] ballistic at seeing some of their prime areas closed off." One manager involved in the Florida Keys marine reserve process has admitted to learning a painful lesson: "We learned that while you can propose the design of a series of marine reserves based on good science, it isn't good science that will get them accepted by the public—it's politics."

Consensus-building approaches need more than the support (or at least lack of outright opposition) of powerful user groups. Several other factors are also critically important, including the involvement of government officials "who exhibit risk taking and non-typical bureaucratic behavior." Once negotiating groups are formed, success is only likely if the parties consider the resources within "a long-term time frame" and "the broader context of coastal-marine functional systems." Finally, consensus is possible only when the "control of land and sea is under the same agency," and when the group is equipped with "real biological and physical data."

These requirements cast a long shadow on the effort to design and implement marine reserves at national sanctuaries. The Working Groups at Channel Islands and Florida Keys NMS

223. See Bohnsack, supra note 112, at 70.
228. Id.
229. Id.
faced incomplete and ambiguous biological data sets, shared control with both states and the National Park Service, and likely viewed the creation of reserves as local issues without ties to the long-term health of national coastal marine systems. In addition, national legal and political systems are not conducive to "risk taking and non-typical bureaucratic behavior." New or revolutionary administrative solutions are more susceptible to legal challenge, and bureaucrats who stand out from the crowd are the first ones to be released in the wake of failed programs, budget cuts, or negative media attention.230

The process of consensus-building and mutual education is undeniably important in a number of environmental and political contexts, but it has simply failed in the marine reserve context. The problems of fishery collapse and resource degradation in this country demand fast, bold, innovative solutions—not the delayed, compromised recommendations that inevitably emerge from seemingly endless committee meetings in which every party has veto power.231 “Consensus” has really meant “unanimity” in marine reserves negotiations, and unanimity has proven impossible to attain for any controversial or contested reserve proposal. The representatives of opposition groups will only seek to weaken and limit proposed reserves, and will then vote against any type of “compromise” proposal, regardless of their personal insights or sympathies. As one fisherman said in the middle of the Channel Islands process, “My goose is already cooked with the hardline guys. They’re already going to say I’m a sellout.”232 There is clearly power in numbers, in agreement, and in a successful effort to create coalitions and take dramatic steps through consensus. In the end, however, as one Channel Islands participant noted, “[w]here we are is not consensus, it’s the lowest common denominator.”233

B. Regional Fishery Management Councils

Given the failures at Florida Keys and Channel Islands NMS, marine reserve advocates naturally have turned their attention to lobbying other regulatory bodies with the power to establish

231. One Channel Islands panel member has correctly noted that “[i]t’s difficult to negotiate when everyone has veto power.” Surman, supra note 195 (quoting Channel Islands Marine Resource Restoration Committee member Steve Roberson).
232. Drouin Keith, supra note 195 (quoting Chris Miller).
233. Id. (quoting Greg Helms of the Center for Marine Conservation).
marine reserves. These bodies include the eight Regional Councils established under the Magnuson-Stevens Fishery Conservation and Management Act ("Magnuson Act") to implement the goals of the Act, prepare fishery management plans, and allocate resources among various and often competing users. Although these councils have traditionally resisted all innovative or potentially restrictive management approaches, at least two councils have seriously considered breaking with the past and establishing substantial marine reserves. Unfortunately, as explained in detail below, these efforts have eerily paralleled those of the sanctuaries—one western Council has dithered, delayed, and concentrated on process (much like Channel Islands NMS), while one southeastern Council has repeatedly pared back proposed reserves under intense political pressure (much like Florida Keys NMS).

The first of these two Councils is the Pacific Fishery Management Council (PFMC), which is charged with implementing the Magnuson Act off the coasts of Washington, Oregon and California. The estimated biomass of the majority of West Coast groundfish species has long-term downward trends, and five council-managed species (bocaccio, lingcod, Pacific Ocean perch, cowcod, and canary rockfish) are currently considered overfished. Even in the absence of verifiable stock assessments, the PFMC has assumed that another eighty-three species are experiencing similar declines in biomass, acknowledging that "traditional management efforts alone are not successfully protecting and sustaining many of our coastal groundfish populations and habitats." Despite these downward trends and the recognized failure of traditional management efforts, the PFMC eventually decided against establishing specific reserves, and is instead currently seeking $4.5 million in federal funds to come up with a process for developing specific proposals over the next three years.

235. Hsu & Wilen, supra note 222, at 803-804 ("Councils have not overcome industry pressures to increase harvest targets, sometimes justified by directives that weaken the mandate to set clear biological targets with vague admonitions to consider economic or social factors.").
237. Id.
238. Bacon, supra note 137.
Similarly, the South Atlantic Fishery Management Council, which regulates fishing from the Carolinas to the Florida Keys, has recently pared back a list of possible no-fishing zones off the coast of North Carolina from six to two amid complaints from charter-boat captains and commercial fishermen. In May 2001, an advisory panel recommended creating five 100-square-mile reserves and one four-square-mile zone off southern North Carolina. After discussion (and the application of political pressure by commercial fishing groups), the Council left only two of the proposed zones: one 10-by-10-mile block, and an even tinier, "experimental" 2-by-2-mile zone. The Council has made similar cuts to proposals to create marine reserves off the coasts of Florida and Georgia.

As these two examples vividly illustrate, Regional Fishery Councils are highly unlikely to be viable long-term players in the development of proactive, ecosystem-based marine reserves. Regional councils are simply not equipped with the legislative mandate or the desire to proactively research, designate, and manage a system of reserves to protect juvenile fish populations or significant undersea habitats. The Magnuson Act is even less suited to the development of a national reserve system than the NMSA, and all the energy and expertise of the Regional Councils is currently focused on a mandate—finding the optimal sustainable yield of commercial fish stocks—that is wholly divergent from a goal of positively setting aside whole areas of the ocean. While Regional Councils can play a valuable reactive role in setting up reserves once species have collapsed or crashed, they are unsuited to the task of creating an entirely new wilderness system in the oceans.

C. States

Marine reserve efforts have also been initiated at the state level, and especially in California, which has a long history of enacting progressive and groundbreaking coastal protection laws. Unfortunately, as described in detail below, the California process has been marked by the same intensive opposition and agency delay that has doomed reserve proposals almost everywhere else in the United States.

The California Marine Life Protection Act ("MLPA"), passed in 1999, requires the state Department of Fish and Game to

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240. Id.
prepare a master plan for MPAs and marine reserves. One-fifth of one percent of state waters are currently closed to all fishing activity;\textsuperscript{241} the new law calls for an increase in three categories of protected areas. In addition to true no-take marine reserves, the MLPA would expand marine parks, which would ban commercial fishing but not most recreational fishing, and marine conservation areas, which would allow some kinds of commercial and recreational fishing.\textsuperscript{242} Although the MLPA is a potentially powerful piece of legislation, the Act is inherently limited in several ways. The MLPA—like all state laws—applies only to state waters (within three miles of the coast). In addition, the Act does not actually require that reserves be established, only that the agency recommend reserves that meet the statute's goals and can be designed in accordance with the Act's guidelines.\textsuperscript{243}

Implementation of the MLPA got off to a rocky start because initial draft documents discussed as many as seventeen potential reserves totaling more than seventy-five nautical miles, and included several popular sport and commercial fishing grounds.\textsuperscript{244} Distrust and bad blood between fishermen and scientists marked the first public hearings. Some of the meetings "just degenerated into screaming matches," said one University of California scientist.\textsuperscript{245} "I have been called more names in the last [few] months than I would care to mention," said one state biologist.\textsuperscript{246} Some angry fishermen have expressed their opposition to reserves by throwing fish at the scientists presenting the plan.\textsuperscript{247} A later hearing was attended by 400-450 fishers, some with signs on bright pink poster board reading: "Stop These Environmental Nazis."\textsuperscript{248} The fishers have heckled, booed, and chanted "No closures! No closures! No closures!"\textsuperscript{249} One fisherman described marine reserves as "the Alamo for

\begin{itemize}
\item \textsuperscript{243} Cal. Fish & Game Code § 2856(a)(2)(D) (1999).
\item \textsuperscript{244} Fletcher, \textit{supra} note 131.
\item \textsuperscript{245} Id. (quoting Milton Love, a biologist at the University of California, Santa Barbara).
\item \textsuperscript{246} Id. (quoting John Ugoretz, a Department of Fish and Game biologist).
\item \textsuperscript{247} Id.
\end{itemize}
sportfishing," while other opponents have argued that MLPA has been co-opted by "environmental exclusionists" who do not represent the majority of Californians.  

These tactics are hardly new. Nor is the industry's claim that decisionmakers are unfit to regulate fishing because "[t]hey haven't been out there on the water," and should instead wait for improved science. As one Ventura County supervisor has correctly observed, however, putting too much credence in the fishing industry's arguments is a recipe for disaster:

It's the argument that we should sacrifice the long-term health of the fish stocks for short-term profits. They always say 'Prove we're overfishing,' and then when you try to get the federal government to do a comprehensive study, they fight the study because they really don't want that.... It's the same argument that has been used around the country, heavily on the East Coast, and the net result is always the collapse of whatever species was in question.

Unfortunately, resource users often see little incentive to push for beneficial, long-term changes when there are still short-term profits to be had.

The California MLPA process has perhaps predictably dissolved into a pattern of delay and shrinking reserve proposals. Instead of seventeen reserves totaling seventy-five nautical miles, the state backpedaled to a dozen ocean areas totaling only twenty-six square miles. Then, in a stunning development in January 2002, the Department of Fish and Game tossed the proposal "into the trash can," calling it an "ill-fated concept" and starting over with six regional panels represented by a broad spectrum of interests. In addition, the state legislature passed a bill in September 2001, pushing back the master plan deadline for sixteen months. At present, the delayed, compromised final plan must be approved by Dec. 1, 2003.

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251. Surman, supra note 231 (quoting Tom Raftican, president of United Anglers).
255. Strege, supra note 254.
D. Presidential Executive Orders

Presidential executive orders represent yet a fourth method of sparking the creation of new marine reserves. But although unilateral actions can play an essential role in breaking Congressional and interest-group gridlock, the inherent limitations of executive orders make them incapable of carrying the marine reserve burden alone.

On December 4, 2000, President Bill Clinton issued an executive order calling for the establishment of the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. The eighty-four million-acre reserve would be the largest protected area ever created in the United States and would encompass roughly seventy percent of the coral reefs within U.S. waters. The Order also contains a proposal to create fifteen permanent "Reserve Protection Areas," in which no commercial fishing would be allowed and all recreational fishing would be capped at current levels. If the reserve areas are made permanent (a process President Clinton initiated before leaving office), Executive Order 13178 will have led to the creation of the largest network of marine reserves in the United States in one fell swoop, without the potentially disruptive input of Congress or user groups.

Unfortunately, executive orders have no real legally binding authority of their own. While affected agencies ignore them at their own risk during the issuing President's term in office, executive orders create no independently enforceable right and can be ignored at the whim of any future administration. The best Executive Order 13178 could do was to require the Secretary of Commerce to "initiate the process to designate the Reserve as a national marine sanctuary" pursuant to the National Marine Sanctuaries Act. As a result, while President Clinton's executive order captured attention and focused new

258. Bottomfishing will be allowed to continue in eight of the fifteen reserves. Exec. Order No. 13,178, supra note 256.
260. Much like Executive Order 13158, Executive Order 13178 again stated 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." Exec. Order No. 13,178, 65 Fed. Reg. 76,903 (Dec. 4, 2000).
261. Id.
resources on human impacts to national coral reef resources, it clearly does not represent a significant step in establishing a new avenue to the creation and management of marine reserves. All roads instead appear to lead to the National Marine Sanctuary program.

While the new Bush administration has ratified the new Clinton rules for protecting MPAs, it did not endorse no-take marine reserves. Instead, administration officials have lauded the Dry Tortugas Marine Protected Area as a model for others in that it "followed a well-planned process and secured grass-roots support," and stated that the Hawaiian Islands Coral Reef Ecosystem Reserve "is still under review."\textsuperscript{262}

\section{The Solution—The Antiquities Act}

As the preceding analysis makes clear, neither the NMSA, the Magnuson Act, state law, nor presidential executive orders has proven sufficient to ensure the creation of marine reserves that are politically controversial or economically damaging in the short term. The collaborative processes undertaken under the NMSA aegis have experienced some success at Dry Tortugas, but the unanimity requirement doomed similar efforts at Florida Keys and Channel Islands NMS. The experiences of the Pacific and South Atlantic Fishery Management Councils and at the state of California level further demonstrate that this is simply not an area of law and policy in which seeking compromise, negotiation, and consensus with local interests is likely to consistently produce meaningful results. There are simply not enough tradeoffs to be made over marine reserves. Fishermen are asked to bear the full costs of reserves—in the form of concrete, quantifiable lost profits—while the benefits remain nebulous, difficult to quantify, and spread thinly across the general public and future generations. The working groups established at the sanctuaries are not truly negotiating parties, since environmentalists have little to offer in exchange for fisher sacrifices. Conservation groups have instead been left with the unenviable task of re-educating the entire commercial and sport fishing industries, and of convincing fishers that the patterns they have followed for generations must be abandoned or altered to save both the oceans and their economic livelihood.

\textsuperscript{262} Weiss. \textit{supra} note 36.
This effort has proven immensely problematic for a number of reasons, but it has primarily failed because of three undeniable truths. First, there will always be hold-outs in any negotiation, hard-liners who refuse to participate in good faith and refuse to adopt any proposed solution. The larger the negotiating group, the more hold-outs one can expect; and the commercial and recreational fishing communities are very large indeed. Second, the best alternative to a negotiated agreement for local fishers is usually the status quo, which they may not view as perfect, but which has always put food on their tables and with which they are likely to be accustomed and comfortable. By contrast, environmentalists and other pro-reserve groups have no alternative whatsoever. This third factor is the most important of all. If commercial and recreational fishing groups refuse to come to the table or refuse to compromise, there is simply nothing environmentalists can do—there is no hammer, no court, no chief executive who threatens a more draconian solution that that being proposed. Without that threat, conservation groups have been forced to depend on the political will of local agencies and officials, which often starts out weak and quickly erodes under the pressure of loud protests, flying fish, and threats of physical violence.

The real solution, then, is to initiate and continue local negotiations, but to empower the President to slice through deadlock and delay and unilaterally establish marine reserves. Some of that power lies in the President's power to issue executive orders, but, as discussed above, executive orders require the time, money, and political will of others, and are thus too easily overturned or abandoned by future administrators. A better solution involves the expanded use of the Antiquities Act, which has been used to set aside 123 national monuments over its ninety-six year history.

263. This is not to say that all fishers angrily and unequivocally oppose all progressive marine reforms. The Pacific Coast Federation of Fishermen's Associations ("PCFFA"), for example, is currently represented by Earthjustice Legal Defense Fund in a lawsuit aimed at stopping an effort by the Bush administration to strip essential protections from endangered and threatened west coast salmon and steelhead. See Commercial Fishermen Fight Attempt to Strip Salmon Protections, U.S. NEWSWIRE, Mar. 14, 2002, available at 2002 WL 4575421. Even these more moderate fishing groups look skeptically upon marine reserves, however. PCFFA President Zeke Grader has stated that marine reserves merely represent "the latest fad in fisheries. There's a lot of rhetoric and very little science behind it." Polavicki, supra note 97.

Passed in 1906, the Antiquities Act is brief and simple, yet its broad language delegates substantial power to the executive branch. Section Two provides:

The President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situation upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

Unlike the NMSA and the Magnuson Act, the Antiquities Act includes neither requirements for notice or public participation nor processes for facilitating congressional oversight. Any action proclaiming a monument also is not subject to the National Environmental Policy Act ("NEPA") or other environmental processes. Nor is a monument designation vulnerable to judicial review. One author has noted that there has never been a successful legal challenge to any use of the Antiquities Act, and the judiciary has interpreted the Act broadly. Each of the four published federal cases addressing the propriety of national monument designation has upheld the designation at stake.

Nor would the designation of marine environments as national monuments be wholly novel or unprecedented. The Antiquities Act has been used as far back as 1938 to protect federal lands and waters in marine environments, such as the

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265. See id. at 539.
267. Ranchod, supra note 265, at 540.
268. Id.
269. Id. at 549.
270. See id.; Cameron v. United States, 252 U.S. 450, 455 (1920) (upholding the designation of the Grand Canyon as "an object of unusual scientific interest"); Wyoming v. Franke, 58 F. Supp. 890, 896 (D. Wyo. 1945) (upholding the designation of Jackson Hole National Monument, and concluding that "this seems to be a controversy between the legislative and executive branches of the government in which, under the evidence presented here, the court cannot interfere"); Alaska v. Carter, 462 F. Supp. 1155, 1160 (D. Alaska 1978) (finding that the argument that the President's involvement of the Secretary of the Interior in advising and recommending a designation triggered the NEPA requirement "approaches the absurd"); Anaconda Copper Co. v. Andrus, 14 Env't Rep. Cas. (BNA) 1853, 1853 (D. Alaska 1980) (upholding a designation despite the recognition that the lands designated were in excess of the amount necessary to achieve the purported purpose).
Channel Islands National Monument,\textsuperscript{271} Santa Rosa Island National Monument in Florida,\textsuperscript{272} and Buck Island Reef National Monument in the Virgin Islands.\textsuperscript{273} The Act has been reasonably and logically interpreted to authorize protection of areas composed of federal lands and waters, and can be read to authorize protection of the water column above submerged lands as well.\textsuperscript{274} Buck Island Reef National Monument protects submerged coral reefs in addition to lands above the high water mark,\textsuperscript{275} and the Virgin Island Coral Reef National Monument, designated by President Clinton in his final week in office, explicitly protects federal waters as well as the lands above mean high tide.\textsuperscript{276}

The Antiquities Act is far from a perfect solution. National monument designations do not carry the full weight of law and are not permanent.\textsuperscript{277} Congress can change the size, use, and management of a monument, or reverse a designation entirely.\textsuperscript{278} In reality, however, very few monuments have ever been undone by Congress.\textsuperscript{279} The handful of exceptions have involved very small areas of little national significance that were either turned over to state or local governments, or put back into national forest status.\textsuperscript{276} It is difficult for Congress to change a monument without presidential approval, and few presidents will sign legislation weakening or abolishing a designation he or she created. Congress can wait until a new president takes office, of course, but by then controversy and opposition to the designation may have faded, and many legislators may lack the

\begin{footnotes}
\item[271.] Proclamation No. 2281, 52 Stat. 1541 (Apr. 26, 1938). The monument was redesignated Channel Islands National Park in 1960.
\item[272.] Proclamation No. 2337, 3 C.F.R. 88 (1938-1943).
\item[274.] See Cappaert v. United States, 426 U.S. 128, 138-42 (1976) (holding that the Antiquities Act authorizes reservation of waters located on or over federal lands); Ranchod, supra note 265, at 578-79.
\item[275.] Ranchod, supra note 265, at 579.
\item[277.] See Ranchod, supra note 265, at 552.
\item[280.] See Ranchod, supra note 265, at 552; John D. Leshy, Shaping the Modern West: The Role of the Executive Branch, 72 U. COLO. L. REV. 287, 297 (2001).
\end{footnotes}
political will to alter a monument's status.\textsuperscript{281} That is the key difference between national monument designations and executive orders, such as 13178, which are intended to lead to sanctuary designation. While Executive Order 13178 will require the continued hard work and good will of the Secretary of Commerce and other key players to become a reality, the designation of a monument becomes the status quo the moment it is signed.\textsuperscript{282} As one author has explained, the primary "obstacle for those opposed to the monuments is that significant delay after designation of the targeted monument will weaken political will to alter the monument. Delay allows new constituencies supporting the status quo to emerge, which can be expected to fight attempts to weaken the monument.\textsuperscript{283} Reversing the status quo is much more difficult than allowing a new program or executive order to wither away for lack of funding or attention.

The Antiquities Act is only one part of the solution. Negotiation, education, and consensus-building must continue in order to provide the President with the political will to act and the Congress with the support to fund and strengthen the management of new marine monuments. In addition, reserves created by and with the support of a local committee of disparate interest groups are far more likely to garner long-term political support and survive political shifts and budgetary shortfalls. In the end, however, experience has shown that recreational and commercial fishers will never truly seek to create meaningful marine reserves without the threat of unilateral executive action. Although neither is perfect alone, the Antiquities Act and the National Marine Sanctuary Act, used in concert, may serve as the foundation of a set of new, groundbreaking underwater wilderness areas in the United States.

CONCLUSION

For more than hundred years, the United States has pursued a steady and ambitious policy of setting aside vast chunks of federal lands for the use and enjoyment of future generations. It is now time to extend this extraordinary effort to

\textsuperscript{281} See Rasband, supra note 278, at 628 ("Even if President Bush could act to modify or revoke some of President Clinton's monument designations, the political demographics suggest that he is unlikely to do so.").

\textsuperscript{282} See id. at 630 ("President Bush understands that monuments are popular and that there are more voters to be had in urban areas of the west than in rural areas.").

\textsuperscript{283} See Ranchod, supra note 264, at 553.
the seas, which continue to be (mis)managed by a melange of state and federal regulatory authorities and are rapidly being drained of the resources all Americans would like to leave to their children and grandchildren.

The National Marine Sanctuaries Act appears to represent the best option for consolidating these management regimes and establishing a new, unified system of marine protected areas in the United States. The Act is clearly flawed—there are too many ways to derail proposed designations and far too little money and legal authority to properly police existing sanctuaries. As discussed above, however, the NMSA at least provides a structure for creating MPAs, a process for receiving and incorporating public comment, and a designation term—sanctuary—that invokes something more powerful, more dignified, and more important than "marine park" or "marine protected area." Executive Order 13158 and the federal government's renewed funding for the marine sanctuary program represent important first steps in the effort to better designate and manage MPAs. If the federal government continues to prioritize the sanctuary program, and amends the NMSA in the few key ways discussed above, it will be possible to create and effectively protect an enviable system of United States marine sanctuaries.

Despite the NMSA's potential to solidify the MPA system, however, the Act has proven incapable of spurring the creation of no-take marine reserves, which the scientific community nearly universally regards as essential to the replenishment of stressed fish stocks and the preservation of unique undersea environments. As discussed above, environmentalists and conservation groups educating and negotiating with commercial and recreational fishing groups under the auspices of the NMSA, the Magnuson Act, or any number of state laws have found it impossible to reach a unanimous consensus for any controversial or potentially expensive marine reserves. What is needed is the threat of quick and decisive action to protect failing stocks and and exceptional habitats—the kind of hammer traditionally provided, on land, by the Antiquities Act of 1906. Negotiation and education must continue, for they are really the only ways to bring about a new environmental paradigm for the seas. In the end, however, the most valuable weapons in the fight to develop marine reserves are the expanded use of the Antiquities Act and the increased willingness of chief executives to rise above the fray of parochialism and self-interest and designate permanent no-take marine reserves single-handedly.
The fate of marine reserves in the United States appears to stand at a crossroads. Commercial and recreational fishermen stand poised to defend the status quo through protests, political pressure, and legislation such as the "Freedom to Fish Act," a bill sponsored by Sen. Kay Bailey Hutchinson (R-TX) that would strip marine sanctuaries of the right to regulate fishing and bar regional fishery management councils from closing areas to recreational fishing in nearly all circumstances. On the other side is time and clear scientific evidence, which have worn down local opposition at every location in which marine reserves have been implemented. For example, New Zealand's system of marine reserves faced great public opposition when introduced in 1977, but resistance quickly diminished and marine reserves gained strong and widespread support.

Finally, even some fisher groups in the United States appear to have warmed, however slightly, to the idea of marine reserves and other novel management approaches. As Tom Raftican, president of the California's largest sportfishing group, stated, "[w]e are looking for much better marine management. Unless we make some changes, our kids and grandkids aren't going to have any fish out there."

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284. The bill would specifically amend the NMSA to state that:

The Secretary shall provide the appropriate Regional Fishery Management Council with the opportunity to propose, and revise from time to time, all regulations applicable to fishing within designated marine sanctuaries, according to the standards and procedures of the Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. § 1801 et. seq.

It would then amend Section 303(a) of the Magnuson Act, 16 U.S.C. § 1853(a) (1994), to state that regional councils:

may not establish areas closed to recreational fishing unless—

There is a clear indication that recreational fishermen are the cause of a specific conservation problem and that less severe conservation measures, such as gear restrictions, possession limits, size restrictions, quotas, or closed seasons will not adequately provide for conservation and management of the affected stocks of fish. The closed area regulation includes specific measurable criteria to determine the conservation benefit of the closed area on the affected stocks of fish and provides a timetable for periodic review of the continued need for the closed area at least once every three years.

For the full text of the bill, see http://www.joincaa.org/html/positions/ffa.htm.

285. See Bohnsack, supra note 112, at 70.

286. Polakovic, supra note 97 (quoting Tom Raftican, president, United Anglers of Southern California).