Ocean Management and Biodiversity

Testimony before the Commission on Ocean Policy concerning Habitat and Living Resources

by
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in
Los Angeles CA
April 19, 2002

Commissioners, fellow panelists and guests, in keeping with the interest of the Commission on Ocean Policy to devise effective and equitable improvements to ocean governance in the United States, I am adopting a format suggested by Commission staff member Laura Cantral in presenting my thoughts to you. In each case, I offer one or more recommendations, explain why these policy changes will make a difference, offer guidance on who should be implementing these recommendations, and provide guidance on costs of implementing these recommendations.

As you will see, there is a unifying thread throughout my recommendations: that the United States, blessed with the world's largest and most biologically diverse Exclusive Economic Zone, must change the way we treat the oceans. It is deeply disappointing for me to report that our nation has woefully mismanaged its marine resources in ways that threaten biodiversity, fisheries, tourism, real estate and economic values, and, ultimately, our national security. The greatest challenge facing the Commission on Ocean Policy is to move national policy away from treating the ocean as a limitless cornucopia and toilet and toward treating it as a living ecosystem and home for wildlife that can support a wide range of human uses. We must move toward a policy of ecosystem-based management instead of single-species management. We must vigorously protect naturally functioning marine ecosystems and ensure that resource extraction is truly sustainable. And we must move aggressively toward policies of recovery and stewardship of ocean ecosystems. To accomplish these ends, we must change not only the way we view oceans but also the way we govern them.

Recommendation 1): The Magnuson-Stevens Fishery Conservation and Management Act should be amended in the following ways:

a) Congress should pass and the President should sign into law the Fisheries Recovery Act, HR 2570, which would make a number of needed reforms including prohibiting overfishing, requiring reduction of bycatch, protecting essential fish habitat, mandating a precautionary approach to fishery management, adopting an ecosystem approach to fishery management and ensuring adequate observer coverage on fishing boats;

b) Congress should pass and the President should sign into law the Ocean Habitat Protection Act, HR 4003, which would ban use of large roller and rockhopper trawls, which threaten to destroy the last safe havens for fish and other marine life in US waters;

c) With guidance from the President, Congress should insert language into Magnuson-Stevens to give it a strong, clear, unambiguous biodiversity conservation mandate, with the primary operating principle to put the resource (not use of the resource) first;

d) With guidance from the President, Congress should change the structure and composition of the regional fishery management councils and their staffs so that fishermen, processors and others in a position to profit from decisions have a major role in determining their advice on allocation of the allowable catch but none on determining allowable catch levels;

e) With guidance from the President, Congress should add a provision to establish strong and clear performance guidelines for the councils, so that councils' recommendations that are implemented but fail to meet biodiversity and economic goals will result in the councils being held fully accountable;

f) With guidance from the President, Congress should add language that states in the clearest possible terms to the National Marine Fisheries Service that the fishery management councils are advisory bodies, and that NMFS must exercise the ultimate regulatory authority over fisheries as required by law; and

g) With guidance from the President, Congress should provide substantially increased funding for the National Marine Fisheries Service to develop and fully implement short-, medium- and long-term components of ecosystem management systems, including scientifically rigorous and adequate research, that will help to recover fish populations and their habitats, and the subsistence, commercial and sport fisheries that are so important to Americans.

Recommendation 2): Congress should pass and the President should sign new stand-alone legislation—the Marine Fisheries Commission Act (**MFCA**)—to establish and fund a federal Fisheries Management Commission to provide needed independent oversight of the fishery management councils.

Why Implementing These Two Recommendations Will Make a Difference: America's fisheries are in crisis: After 26 years of FCMA management:

1) there is a pervasive reduction in commercially important and other fish populations;
2) high-value, large predators (sharks, cod, groupers, swordfish, marlin, tunas) are especially hard-hit;
3) bycatch from commercial fishing operations has devastated sea turtles and other species;
4) recovery rates of many populations are distressingly slow;
5) seafloor habitats continue to be devastated by fishing gears;
6) fishing communities are in economic and social disarray.

Since its original passage in 1976 and the current version passed in 1996, the Magnuson-Stevens Fishery Conservation and Management Act has utterly failed to accomplish its objectives of:

1) stopping overfishing of target species;
2) reducing bycatch of nontarget species to acceptable levels;
3) minimizing harm to habitat essential to commercially important fishes; and

4) sustaining the health of fishing communities by maintaining healthy fish populations and marine ecosystems.

Moreover, because the FCMA functions as the only de-facto marine living resource management law for species other than marine mammals, it gives no meaningful recognition to the overriding national responsibility to conserve the sea's biological diversity. The fact that this did not happen under the FCMA as originally passed is understandable, because it was born when our greatest concern was getting foreign trawlers out of our waters for economic and national security reasons. But today, protecting and restoring biological diversity has become *the* driving force in conservation worldwide, yet, inexplicably, biodiversity conservation is conspicuously absent from the 1996 version of this federal law that is currently in force. I am particularly aware of this absence, because, as the Staff Ecologist of the President's Council on Environmental Quality, I wrote the biological diversity chapter with Roger McManus in CEQ's *Environmental Quality 1980* that first defined biological diversity as a conservation goal.

Although external factors—particularly repeated bipartisan congressional interference in fishery management decisions—have had some influence, the failure of the FCMA to sustain fisheries and to protect biodiversity for 26 years is not primarily due to any external factor. The failure is inherent in the law as it is currently written and implemented. Because the National Marine Fisheries Service, which is entrusted with managing fisheries for the benefit of the American people, defers to the fishery management councils, and the councils consist largely of fishing interests rather than disinterested parties, the councils have presided over steady declines in both fisheries and biodiversity. Fishing industry-dominated management councils have a fundamental conflict of interest that often weights short-term economics more heavily than conservation, with devastating consequences for both the resource itself and the health of the fishing industry that depends on it. No other set of resource users is allowed to regulate itself in this way. While NMFS is ultimately accountable, there are no negative consequences to the councils for making illegal decisions, and correction may take months or years, much too long to be effective management tools.

The majority of US fisheries are now in serious trouble. Whereas it certainly true that some fishermen and fishing organizations—such as the Pacific Coast Federation of Fishermen's Associations—are deeply concerned about overfishing and some kinds of habitat destruction, regrettably, their perspectives and those of public interest conservation organizations have not prevailed during council processes. Moreover, public interests without economic connection to fisheries are woefully underrepresented on the councils.

In contemplating whether the de facto managers of our fisheries and marine biodiversity have accomplished their task satisfactorily, I suggest you try this mental experiment: Ask yourself whether you would be willing to fly in a commercial airliner designed by engineers with the same record of success as our fishery management councils. If the answer is no—if your safety is too important to entrust to those whose handiwork has produced a pervasive pattern of fishery crashes—then we need to dramatically strengthen the Magnuson-Stevens Act. The integrity of America's Oceans is much too important to continue allowing such failures.

The Fisheries Management Commission would ensure that signs of fishery collapse or undesirable levels of collateral damage could not continue unnoticed. It would provide definitive review and guidance to Congress and the President on the scientific soundness of US fishery management. Like its model, the Marine Mammal Commission, at very minimal cost to taxpayers, it would be a scrupulous observer of agency activities that have demonstrably failed for 26 years. It is my hope that, in time, with

a new biodiversity-focused mandate, changing council composition and changing organizational culture at NMFS, the need for the Fisheries Management Commission would diminish.

The changes I recommend would correct these inherent failings by strengthening the mandates and operating principles of fisheries management and establishing a new level of independent oversight by knowledgeable citizens who have no financial stake in fisheries. They would enable and require the National Marine Fisheries Service to manage fisheries in ways that harmonize protection and recovery of America's marine biodiversity with sustainable, viable fisheries.

Who Should Do It: The fishery management councils' membership and staffing should be reconstituted to include a majority with demonstrable expertise in marine conservation and management, who work for academic institutions and public interest nonprofit organizations, and who have no economic interest in the outcome of council decisions. The Fisheries Management Commission should consist of three members appointed by the President, who will select them from a list of individuals knowledgeable in the fields of marine ecology and resource management, and who are not in a position to profit from taking of marine organisms. Such list shall be submitted to the President by the Chairman of the Council on Environmental Quality and unanimously agreed to by that Chairman, the Secretary of the Smithsonian Institution, the Director of the National Science Foundation and the Chairman of the National Academy of Sciences. No member of the Commission should be allowed, during the period of service on the Commission, hold any other position as an officer or employee of the United States except as a retired officer or retired civilian employee of the United States. It should have a small staff and budget, and be backed by a scientific advisory committee of people who, similarly, have no conflict of interest concerning exploitation of marine resources.

Cost: Transitioning from species-by-species management to ecosystem management will alter cost structure in many ways. I am not an economist, and it is not possible for me to provide reasonable estimates of costs at this time, but I can guess that all these changes could be implemented for $50-100 million per year. If we consider all of the costs to American society of declining fisheries and marine biodiversity, the result of these reforms will bring a substantial net savings to the Gross Domestic Product.

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Recommendation 3: Congress should pass and the President should sign into law new legislation to establish a national system of fully protected marine reserves that protect, within biologically sound, viable borders, the "best places" in America's undersea lands and representative samples of all ecosystem types in each of the nation's marine biogeographic regions. The primary purpose of this system is to protect and recover biodiversity within America's Exclusive Economic Zone.

Why Implementing This Recommendation Will Make a Difference: I would like to reinforce what I suspect Dr. Fujita has already explained, namely that there is a strong and growing scientific consensus that marine reserves—areas permanently and fully protected from all preventable impacts—are the most promising tool for conserving marine species and ecosystems. There is no denying that they are particularly effective for conserving biodiversity. There is also a growing body of evidence from around the world that marine reserves can help fisheries, by:

1) providing places to do essential scientific research on healthy and recovering fish populations in their habitats; and

2) producing much larger numbers of young than occurs in fished populations, young that migrate from or are carried out of marine reserves, thereby helping to repopulated surrounding areas.

Marine protected areas—areas permanently protected from at least one preventable impact—and, particularly, marine reserves, should not be seen simply as a fishery management tool. Because there is no denying the utility of fully protected reserves for biodiversity conservation, decisions on allowable uses within marine reserves, first and foremost, should be fully consistent with that purpose. Permanent MPAs that are not fully protected and temporary closures to enhance fisheries are additional tools that are likely to yield benefits.

Unfortunately, the United States, which was the inventor of national parks on land and so many other innovative, enlightened policies, lags far behind nations such as Australia, New Zealand and the Philippines in establishing marine reserves. The 30-year old National Marine Sanctuary System, originally established to protect significant marine ecosystems throughout US waters, has failed to develop a comprehensive set of fully protected sanctuaries comprising all ecosystem types and uniquely important ecosystems. Indeed, because of opposition from sport- and commercial fishermen, there are very few (and mostly tiny) examples of fully protected reserves in US waters. Not only is such opposition in contradiction to the great majority of informed scientific opinion; it is also disingenuous for fishermen to charge that there is no proof that marine reserves work in the USA when they themselves have blocked their full implementation. We need to have an ample system of marine reserves functioning for a long enough time to have any reasonable chance of demonstrating their efficacy to the most dubious members in our society. Fortunately, everything is reversible if reserves can be shown not to work, while the ongoing elimination of species and ecosystems is not so reversible.

In the absence of information about all key components of ecosystems and detailed understanding of how they interact, marine reserves are the most promising currently available ecosystem management tool. But they are not a panacea for all threats to marine resources, and are not simply a replacement for other kinds of management. Rather, they are an integral part of any marine management strategy by providing an insurance policy against management errors of the kind that have pervaded fishery management in the USA. It is likely that the USA will need a mix of fully protected reserves, protected areas within which certain harmful activities (e.g., fishing methods that destroy habitat structure) are banned and experimental research reserves where scientists can do manipulative research to study key processes, along with temporary or rotating fishery closures and areas where other fishery management methods are used.

Who Should Do It: The National Oceanic and Atmospheric Administration, National Park Service, US Fish and Wildlife Service and US Environmental Protection Agency have existing mandates that would allow them to establish fully protected marine reserves, other permanent marine protected areas or temporary closures. The fact that NOAA, NPS and FWS are in two different cabinet-level departments and EPA is an independent agency has both advantages and disadvantages, in that a diversity of approaches to MPAs may be better than a "one-size-fits-all" approach, but lack of coordination among management authorities can be at least as harmful in the sea s on land. However, including these agencies in a cabinet-level Department of Oceans (see **Recommendation 6** below) would probably reduce both the advantages and disadvantages of having different management agencies.

Cost: The USA spends several billion dollars per year to manage National Parks and National Forests. Costs for designating and managing comparable fully protected and partly protected areas in the sea will be much lower because so much of the park budget is consumed by visitor use, which is far less within marine protected areas, and is consumed by roads and buildings, which will not be built in the sea.

Nonetheless, developing a national network or reserves that meet the needs of a broad cross-section of Americans will require at least an order of magnitude more than the $35 million or so currently devoted to the National Marine Sanctuary system. My best guess is starting at $100 million a year, and ramping up to $300 million per year.

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Recommendation 4: Congress should pass and the President should sign into law new legislation titled the Exclusive Economic Zoning Act (**EEZA**), which would establish a mechanism leading to the comprehensive zoning of the United States' 4.4 million square statute mile Exclusive Economic Zone as a means to increase protection for biological resources while providing major classes of users greater assurance of being to operate with minimal or no competition from other classes of users.

Why Implementing This Recommendation Will Make a Difference: The sea is frequently called the last frontier. Those of you who have watched Westerns will recall that, in frontier areas, humans:

1) sharply reduce the abundance of higher trophic level species, thereby shortening food chains;
2) sharply reduce the abundance of structure-forming species;
3) increase the abundance of opportunistic or unusable species;
4) disrupt biogeochemical cycles.
5) have larger and less differentiated jurisdictions than nonfrontier areas;
6) have few laws that effectively constrain human activities;
7) focus mainly on extracting and processing natural resources;
8) practice extensive and wasteful resource use rather than intensive and efficient resource use;
9) have a prevailing social ethic of getting the most resources as quickly as possible; and
10) favor competition over cooperation.

But frontier systems do not continue forever because frontier practices inevitably reduce opportunities for pioneers, opening possibilities for new ways of doing things. There are ubiquitous signs that the sea is near the end of its frontier era. The only logical replacement for our present system of managing the sea as a frontier is zoning.

Zoning is a place-based method of ecosystem management that reduces conflict, uncertainty and costs by specifying how particular areas may be used. The real benefits of zoning emerge when it differentiates uses among jurisdictions. Zoning addresses the pernicious effects of ceaseless competition that results because the sea is available to any and all comers, what policy experts call "The Tragedy of the Commons." The tragedy results because the sea's resources are open to all, creating strong incentive for individuals and groups to exhaust them before someone else does. This ceaseless competition bedevils long-term thinking and planning. Under the current frontier system of US marine management, strife among user groups and with conservationists is inevitable and interminable. For fishes and fishermen alike, this is not a happy picture.

Zoning recognizes that marine ecosystems and their users are heterogeneous, so that different places are best managed with different goals and in different ways. Thus it addresses the needs of both local biological and human communities and oceanographic and biological processes that operate over much larger spatial scales. Zoning can improve both biodiversity protection and fisheries by:

1) creating networks of truly protected marine reserves that encompass sufficient area, thereby maximizing benefits to biodiversity; and

2) having other zones within which fishery uses are compatible with one another and with other uses.

Moreover, zoning can accommodate the entire spectrum of legitimate uses of the sea. Thus, it is a "win-win" system that can replace the "lose-lose" system that has been plaguing the sea and putting conservationists, fishermen, oil and gas producers and other users of the sea at odds. Zoning:

1) offers greatly increased certainty for all interests;
2) replaces "one-size-fits-all" command-and-control regulation with a diversity of management mechanisms that reflect the heterogeneity of marine ecosystems and users;
3) reduces among-group competition by ensuring that all groups with a stake in the health of the sea are recognized and have appropriate say in establishing, monitoring and revising zone boundaries and uses;
4) provides ample opportunities for place-based conservation; and
5) recognizes goes a long way toward accommodating the needs of a broad range of users including commercial fishermen, traditional subsistence fishermen, sportsfishermen, aquaculture operations, recreational divers, whale-watchers and bird-watchers, ocean-related tourism, real estate interests, marine scientists, oil and gas producers, miners, wind farms, tidal and ocean thermal energy conversion power plants, pipeline and fiber-optic cable companies, dredge spoil disposers, shippers, ferries, navies and recreational boaters.

By specifying places in which particular purposes have precedence, zoning provides assurance that those interests can operate with minimal or no competition from incompatible uses within their zones. Spatial separation of, say, shipping lanes, oil production facilities, pot fishing, trawling and marine biodiversity reserves gives all these groups an enormous, unprecedented opportunity: avoiding inter-sectoral competition within their zones. This assurance reduces uncertainty, which is very important for investors who seek to gauge risk and return on investment. Further, it reduces costs that come from conflicting uses such as legal fees and damaged equipment. At a time of increasing competition for the sea's declining wealth, zoning is unique in providing crucial benefits for all sectors.

An essential element in making zoning biologically effective and socioeconomically equitable is determining which uses are compatible within and among zones. Some groups of uses, such as well-regulated oil production and sportfishing, are quite compatible within zones. Others are not. A crucial task in preparing any zoning scheme will be determining the "forbidden combinations" that must be separated. Moreover, because activities within zones can have effects across zone boundaries, it is also essential to determine which zones make "good neighbors" of other particular ones and which do not. One intriguing idea is surrounding fully protected marine reserves with buffer zones that allows any kind of subsistence, commercial and sportsfishing so long as it does not use gear that destroys benthic habitat. This has the benefit of effectively increasing protected area size for species that are not fished.

Ultimately, the kinds of zones and their distribution in a zoning system will need to reflect the number of groups of uses and how society decides to allocate zones among the various interests. This will not be a simple task, and will inevitably reveal new problems that must be addressed to maximize effectiveness and fairness to public and private interests. Establishing zoning systems will undoubtedly take time for research, scoping public attitudes, confidence-building processes, and establishing social and legal mechanisms to ensure compliance. Further, these processes will require adequate funding. But given the demonstrated failure of the existing paradigm and the huge economic costs of losing marine biodiversity and fisheries, there is strong incentive for all groups who face losing what they want to embrace zoning as an alternative paradigm. Indeed, the greatest impediment to zoning is likely to be its unfamiliarity. As most anyone involved in public processes has observed, there are always some people

who will cling to a familiar system, even while complaining bitterly about its failings, rather than being open to trying a new one.

The best-known and fullest expression of zoning over a large area is Australia's Great Barrier Reef Marine Park, which is not a fully protected marine reserve but an integrated complex of different zones managed in different ways that are intended to be consistent with the overarching goal of conserving the natural values of the vast Great Barrier Reef. It serves as a useful model for zoning our EEZ.

Recent polls done for SeaWeb show that 63% of Americans believe that regulations protecting the ocean are not strict enough (versus 2% who think they are too strict), and 75% favor limiting activities that harm marine biodiversity in marine protected areas (versus 10% who oppose this). These remarkably widely held public attitudes provide the needed "cover" for fundamental change in governance of waters under US jurisdiction. The Commission on Ocean Policy has an opportunity to embrace zoning as a visionary system of ocean governance that will benefit Americans for generations to come and be copied around the world.

For zoning to be a true improvement over the current system of ocean governance, the mechanism responsible for assembling zoning plans needs to recognize that:

1) maintaining our biological diversity, economic health and national security are the most important considerations in assembling a comprehensive zoning system in the US EEZ;
2) the US government will remain the owner of the EEZ, and that usage privileges are finite and contingent on the success with which zones are consistent with 1) above;
3) no zoning decision is irrevocable if new information leads to the conclusion that earlier zoning iterations need to be adjusted, and regular (say every seven years) rezoning can address new information as needed;
4) there are many stakeholders whose legitimate interests need to be accommodated to the maximum practicable extent, but zoning means that the EEZ are partitioned, so nobody is going to get it all; and
5) zoning represents a fundamental change from the existing free-for-all system of ocean management, and assembling a mature, comprehensive national zoning system will take several decades.

Who Should Do It: I would like to see establishment of a National Ocean Zoning Board, consisting of three Board Members appointed by the President, who will select them from a list of individuals knowledgeable in the fields of marine ecology and resource management, and who are not in a position to profit from taking of marine organisms. Such list would be submitted to the President by the Chairman of the Council on Environmental Quality and unanimously agreed to by that Chairman, the Secretary of the Smithsonian Institution, the Director of the National Science Foundation and the Chairman of the National Academy of Sciences. No member of the Commission should be allowed, during the period of service on the Commission, hold any other position as an officer or employee of the United States except as a retired officer or retired civilian employee of the United States. The National Ocean Zoning Board should have a small staff and budget, and be backed by a scientific advisory committee of people who, similarly, have no conflict of interest concerning exploitation of marine resources. The role of this Board is to set and oversee adherence to the ground rules by eight regional ocean zoning boards.

The eight regional ocean zoning boards, geographically coincident with the eight regional fishery management councils, should consist of representatives of the states or territories landward of that

portion of the EEZ, and experts who qualify, as above, have no financial interests in zoning decisions and are not federal employees.

Cost: I cannot estimate the cost, but it will be a minuscule fraction of the cost of the current system of frontier management.

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Recommendation 5: The National Science Foundation (**NSF**) and the National Oceanic and Atmospheric Administration (**NOAA**) or the Department of Oceans (**Recommendation 6**, below), if it then established, should initiate and maintain a funding program in marine conservation biology. The program would establish eight academic "Centers of Excellence" in research and training at universities or marine laboratories throughout coastal areas of the US states and territories, and an extramural graduate fellowship program for students at other colleges and universities. In doing so, NSF should make special efforts to increase participation in research and training by minorities who are significantly underrepresented in marine science at present.

Why Implementing This Recommendation Will Make a Difference: The general public and decision makers cannot see what happens beneath the waves, so they depend on scientists to tell them of important trends. Only recently have marine scientists forced public attention seaward: Collapsing fisheries, bleaching corals, dying dolphins and blooms of neurotoxic algae are increasingly difficult to ignore. But our scientific institutions that deal with conservation remain backward-looking and landlocked. Scientific research on conserving marine species and ecosystems lagged two decades behind that on land. Most marine science on living things focuses on managing stocks of commercial fishes while largely ignoring the other vital components of marine ecosystems. Other traditional marine sciences—oceanography, marine ecology, deepsea biology and others—have largely ignored conservation needs of marine species and ecosystems, despite the fact that two scientific symposia on marine conservation biology have attracted a total of nearly 1,000 participants. Thus, there is an ocean-sized gap at the intersection of conservation and marine science.

Our nation needs to make it a national priority to foster development of a new and urgently-needed science–marine conservation biology–to arm policymakers, user groups and citizens with the information they need. Marine conservation biology is a young, multidisciplinary science that examines how to protect, restore and sustainably use marine biological diversity. It combines the expertise of numerous disciplines, including marine systematics, oceanography, ecology, biogeography, behavior, fisheries biology, sociology and economics, to further understanding of how to conserve marine biodiversity.

Current support from federal agencies is not even beginning to meet marine conservation needs: Agencies are not structured to focus on emerging inter- and multidisciplinary conservation sciences such as marine conservation biology. NSF—the most important government funder of scientific research in the United States—traditionally has focused mainly on basic research in a single-discipline framework. Most of this single-discipline research is not directed towards real-world challenges such as conserving life on Earth. At the other end of the spectrum, the National Oceanic and Atmospheric Administration (**NOAA**), is a mission-oriented agency dealing with fisheries management, endangered species protection, marine sanctuaries and coastal zone management. But mission-oriented agencies such as NOAA often are forced to focus their limited research dollars on pressing, narrowly defined issues directly related to a legislatively-defined purpose. This doesn't provide much opportunity to examine

conservation issues that are emerging on the horizon but have not yet attracted political attention, or those that are not clearly connected to agency priorities.

Who Should Do It: NSF and NOAA.

Cost: $25 million per year ($16M for Centers of Excellence, $6M for graduate fellowships, $3M for administration by NSF and NOAA).

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Recommendation 6: Congress should pass and the President should sign into law new legislation establishing a cabinet-level Department of Oceans, to be constituted through reorganization of existing federal departments, agencies and offices wherever practicable, whose purpose is to safeguard biodiversity within the Exclusive Economic Zone, to foster and regulate ecologically sustainable uses, to encourage scientific research and monitoring, and to protect the safety and health of those who use our federal waters. The Department should be governed by an organic act that requires the oceans to be managed on an ecosystem basis, with conservation as its foremost objective and that fosters and regulates extractive and other uses so they are consistent with the foremost objective. This will require consolidation and perhaps elimination of existing single-focus laws now on the books. The organic act should also create an Ocean Coordinating Council (**OCC**) to ensure that other agencies' activities do not conflict with the Department of Oceans.

Why Implementing This Recommendation Will Make a Difference: Authority for managing the oceans is currently spread throughout federal departments and independent agencies, which has lead to confusion over policy priorities, contradictory mandates, insufficient protection for marine biodiversity, failing fisheries, inadequate commitment to scientific research and monitoring, insufficient federal attention to ocean issues and unnecessary costs to taxpayers. A particularly troubling example of this is the existence of the National Oceanic and Atmospheric Administration in the Department of Commerce. When NOAA was on the drawing boards, it was supposed be part of the Department of the Inteior. Its placement in Commerce resulted from President Nixon's anger at then-Interior Secretary Walter Hickle for opposing the war in Vietnam. Commission on Ocean Policy members should note that the Stratton Commission recommended creating a new ocean agency *directly answerable to the President*; part of that proposal remains unfinished.

As a result NOAA's counterintuitive location, there is abundant evidence that it has largely been ignored by the Department of Commerce despite the fact that it is the Department's largest component. No other Department or agency has broadly focused ocean responsibilities (for example, the Minerals Management Service, EPA, Navy, Army Corps of Engineers and Coast Guard have very important responsibilities but much narrower mandates in the ocean). As a result, oceans have little voice at the cabinet level. To illustrate, the Agriculture Department has largely ignored the need to protect marine areas from nutrients originating in Iowa cornfields and North Carolina hog farms. A Department of Oceans would consolidate federal authority, promote conservation of marine resources as its principal mission, and help ensure sustainable use of living resources such as fisheries. If done correctly, establishing a Department of Oceans at the cabinet level would significantly reduce many of these problems.

Establishing the Department of Oceans would best be done with an organic act that defines its purpose broadly to fit our current and changing understanding of and relationship with the sea. The Stratton Commission concluded that a Presidential coordinating council was not enough to address the

problems facing the nation's oceans. Creation of both a cabinet-level Department of Oceans and the Ocean Coordinating Council (which would include agencies whose activities significantly affect our oceans) would be a long-overdue, proud legacy of the once-in-a-generation ocean commissions.

Who Should Do It: The Department of Oceans be assembled from elements including the "blue" part of NOAA (National Ocean Service, National Marine Fisheries Service, Sea Grant and other marine functions of the Office of Atmospheric Research), US Coast Guard, Minerals Management Service, marine programs of the National Park Service, US Fish and Wildlife Service, US Geological Survey and US Environmental Protection Agency. It might or might not be desirable to transfer ocean-related programs or facilities from other agencies, including National Science Foundation, National Aeronautics and Space Administration, Army Corps of Engineers, Department of Energy and others. To preserve their independence, the Marine Mammal Commission and the proposed Fisheries Management Commission (**Recommendation 2** above) should be independent agencies. The Navy clearly will continue to serve US interests best as part of the Department of Defense.

Cost: There will be costs associated with assembling and organizing the Department of Oceans, but reducing bureaucratic redundancy and conflicts among agencies are likely to result in savings on the order of tens to hundreds of millions per year.