

# Saving the Oceans

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Two major commissions have proposed far-reaching reform of ocean policy. It's time for Congress to act.

The oceans have been suffering from a variety of escalating insults for decades: excessive and destructive fishing; loss of wetlands and other valuable habitat; pollution from industries, farms, and households; invasion of troublesome species of fish and aquatic plants, and other problems. In addition, climate and atmospheric changes, which many scientists link to the combustion of fossil fuels and other human activities, are melting sea ice, changing ocean pH, stressing corals, killing plankton that are vital to the marine food web, increasing coastal erosion, and threatening to disrupt Earth's temperatures in ways that will alter weather and deplete ocean life. The pervasiveness of these problems finally began to be recognized in the 1990s, symbolized by the United Nations' declaration of 1998 as the Year of the Oceans and the holding of a National Ocean Conference that same year in Monterey, California, with the president and vice president in attendance. Yet the severity of these problems remains generally underappreciated, as reflected in the inadequate and increasingly out-of-date policy responses of the U.S. and other governments.

In an attempt to chart a comprehensive set of policies addressing ocean issues for the United States, two separate ocean commissions spent a number of years considering the state and fate of the seas. The Pew Oceans Commission, an independent body convened by the Pew Charitable Trusts, issued its report in June 2003 ([www.pewoceans.org](http://www.pewoceans.org)). The U.S. Commission on Ocean Policy, established by Congress, issued its preliminary report in April 2004 ([www.oceancommission.gov](http://www.oceancommission.gov)). Its final report was due in September 2004. Both groups agreed on one key set of messages: The oceans are in serious trouble; there is an urgent need for action; and the United States needs to significantly revise its policies related to oceans.

Both commissions set forth major recommendations for change. Although the Pew Commission's proposals are more far-reaching--particularly its ecosystem-protection approach to ocean issues and its call for a new, independent oceans agency--the amount of agreement between the commissions is fairly remarkable. Now, for the first time in a generation, the opportunity exists to make fundamental changes in ocean governance and management. The commissions have done their job. Now it's time for Congress to do its job.

[Loved to death](#)

The Pew Commission focused on living marine resources while the U.S. Commission looked at a broader range of issues, though there was much overlap. The Pew Commission's 18 members came from a variety of fields, including the fishing industry and conservation groups. It mainly examined ocean life and health issues, focusing on fishing, pollution, coastal development, and governance problems. The U.S. Commission's 16 members were appointed by President Bush with congressional input and drawn from academia, industry, and the military, but not from fishing or environmental groups. It covered much of the same ground as the Pew Commission, but also considered shipping, offshore energy development, and physical monitoring. Both groups focused on the ocean areas designated as U.S. exclusive economic zones; that is, the waters out to a distance of 200 miles from the continental United States and its island territories and possessions. These waters make up an area that is nearly 25 percent larger than the U.S. landmass and represent the largest ocean jurisdiction of any country in the world.

The two groups used as their touchstone the fact that the most recent review of U.S. ocean policy was conducted in the late 1960s, more than a generation ago, by the Stratton Commission. As late as the 1970s, oceans were widely viewed as too vast and inexhaustible to be harmed by human activity, and the Stratton Commission viewed the oceans as largely unknown and untapped. Its report spurred some important positive changes, most notably the creation of the National Oceanic and Atmospheric Administration (NOAA) and the passage of the 1972 Coastal Zone Management Act. But it also oriented the United States toward increased exploitation of the oceans and recommended, in particular, the further development of fisheries. Such recommendations reflected the prevailing attitude of the times. But it has now become clear that this mindset contributed to the widespread depletion of fish populations and other problems that must be addressed.

Both of the commissions recognize that the oceans affect and sustain life on Earth. Oceans drive and moderate weather and climate; yield food and a variety of other products, such as pharmaceuticals; aid transportation; provide recreational opportunities; and serve as a buffer that enhances national security. Their monetary contributions are enormous. According to the U.S. Commission, U.S. ports handle \$700 billion worth of goods annually, the cruise industry accounts for \$11 billion in spending, commercial fishing's total value exceeds \$28 billion, and recreational saltwater fishing has been estimated to be worth \$20 billion. The offshore oil and gas industry produces \$25 billion to \$40 billion of product, and it contributes (through royalties and other fees) more than \$4 billion to the U.S. Treasury. In a flourish refreshingly out of character for a government body, the commission notes, "We also love the oceans for their beauty and majesty and for their intrinsic power to relax, rejuvenate, and inspire. Unfortunately, we are starting to love our oceans to death."

This love manifests itself in various ways. More than half of the U.S. population lives in counties along the coast. In the past 30 years, more than 37 million people have moved to coastal areas, and this tide is expected to add another 25 million people by 2015. Coastal recreation and tourism have become two of the top drivers of the national economy. In addition, offshore oil and gas extraction has gone into deeper waters with more sophisticated technology, and marine transportation continues to grow.

Unfortunately, such activities threaten their natural base. Thousands of jobs depend on healthy coastal ecosystems, but many of these ecosystems already have been damaged or lost, as, for example, through the depletion of fish populations. Overall, billions of dollars of investment are threatened by fishery depletions, increased pollution, and the annual loss of 20,000 acres of wetlands.

Although most people recognize that major oil spills threaten marine life, other problems that are even more pervasive do not attract wide public attention. Every eight months, nearly 11 million gallons of oil--the equivalent of the Exxon Valdez oil spill--run off the nation's streets and driveways or are poured into storm drains and enter the nation's waters. Many other pollutants also find their way to sea. Well over half of coastal rivers and bays are moderately to severely degraded by excessive nutrients (many from fertilizers) that wash off the land from farms and households. These nutrients can increase the severity and frequency of harmful algal blooms that, in turn, can cause serious problems. The blooms can deplete oxygen levels in the water, thereby endangering fish and other forms of aquatic life and degrading coral reefs, and they can produce their own toxic chemicals that can directly poison sea life. As evidence of such problems, each summer, nutrient pollution from the Mississippi River creates in the Gulf of Mexico a "dead zone" the size of Massachusetts, where, on a sea floor devoid of oxygen, nothing can live.

Fishing has created its own specific set of problems. This should not be surprising, because fishing, unlike most other ocean-based activities, is specifically intended to kill and remove large numbers of sea creatures. Of the ocean fish populations managed by the federal government, more than one-third of those assessed have been determined to be overfished; that is, they are at unsustainably low levels. Many important species are at historic population lows, and several of them face possible extinction. (There is at least some good news in this regard. A small subset of species is recovering, thanks to legislative and management changes made during the past decade.) Fishing creates problems beyond targeted catch. Incidental mortality in fishing gear is a major contributor to the endangerment of sea turtles, certain marine mammals, and some seabird species, especially albatrosses. Also, a significant proportion of fish--perhaps half--are caught using dragged nets and dredges that actually damage bottom habitat on which fish and other living resources depend. Indeed, fishing is changing relationships among species in food webs, altering the functioning of entire marine ecosystems.

Another problem is that alien invasive species that have become established in coastal waters are increasingly displacing native species and altering food webs and habitats. Some of the species arrive as hitchhikers attached to the hulls of ships or living in the ballast water. Some escape from fish farms, and some are discarded from home aquariums.

Both commissions also acknowledge the role that climate change is having on the health of the oceans, with the Pew Commission paying more attention to this issue.

### [Toward a new ethos](#)

The challenge, then, is to deal comprehensively with the host of threats facing U.S. coastal and ocean waters. The Pew Commission wades in on a hopeful note, saying that proven, workable

solutions exist to "the crisis in our oceans." But successes will remain exceptions until the nation charts a new course for ocean management. "The principal laws to protect our coastal zones, endangered marine mammals, ocean waters, and fisheries were enacted 30 years ago, on a crisis-by-crisis, sector-by-sector basis," the commission says. Further, "We have failed to conceive of the oceans as our largest public domain, to be managed holistically for the greater public good in perpetuity ... U.S. ocean governance is in disarray." It concludes that what is needed is "an ethic of stewardship and responsibility toward the oceans. Most importantly, we must treat our oceans as a public trust."

The Pew Commission lists five overarching objectives that should inform ocean policy. These priorities include developing a unified national policy that is based on protecting ecosystem health and requires sustainable use of ocean resources; implementing comprehensive and coordinated governance at scales appropriate to the problem (the ecosystem scale for fisheries management and the watershed scale for coastal development and pollution control); reorienting fisheries policy to protect and sustain the ecosystems on which the fisheries depend; managing coastal development to minimize damage to habitats and water quality; and controlling pollution, particularly excessive nutrients, that can harm marine ecosystems.

The U.S. Commission also notes the fragmentary nature of current governance and the need for consolidation, declaring: "To be effective, U.S. ocean policy should be grounded in an understanding of ecosystems...Coastal resources should be managed to reflect the relationships among all ecosystem components." It calls for creating a new national ocean policy framework; strengthening science and generating high-quality, accessible information to inform decisionmakers; and enhancing education about the oceans to instill "a stewardship ethic."

This new stewardship ethic highlighted by both commissions is what will be needed for a fundamental transformation. Indeed, both commissions call for redefining the human relationship with the ocean to reflect an understanding of the land-sea connection and ecosystem relationships. Problems have arisen not only because governance was too often ineffective or inefficient, but because governance was too fragmented, with no one accountable for the overall health of ocean ecosystems, and too focused on short-term exploitation at the expense of long-term ocean health and sustainability. Governance change will not likely solve problems unless it is accompanied by a shift to a stewardship ethic and to government accountability for the overall health of ocean ecosystems.

### [Blueprint for action](#)

The commissions offer specific recommendations that have striking parallels and important differences in various issue areas:

**Governance.** Everyone agrees that ocean governance is not working. Indeed, the proof of its inadequacy is that it has not prevented the problems that now need addressing. Both commissions call for major governance changes; their approaches differ in degree.

The Pew Commission calls for an independent national oceans agency. It also proposes a presidential advisor on oceans and a permanent federal interagency oceans council,

supplemented by regional ocean ecosystem councils that would develop enforceable regional ocean governance plans.

The U.S. Commission proposes a National Ocean Council, to be chaired by an assistant to the president, that would receive input from all cabinet members and all directors of agencies involved in ocean-related issues. It also calls for a Presidential Council of Advisors on Ocean Policy, to be located in the Executive Office of the President, to receive input from state, territorial, tribal, and local governments, as well as from nongovernmental, academic, and private-sector entities. The National Ocean Council and Presidential Council of Advisors would be coordinated by a White House Office of Ocean Policy. The U.S. Commission also would create regional ocean councils, albeit voluntary ones, which would be aided and supported by the National Ocean Council. The commission does not call for creating a new oceans agency. Instead, it envisions that each offshore activity would be directed by a designated federal agency, and that the NOAA would be restructured to consolidate overlapping ocean and coastal programs.

The matter of calling for an independent oceans agency, or at least for rescuing NOAA from Commerce, was a slow pitch that the U.S. Commission chose to bunt. It also missed a pitch in not articulating a national ocean policy, leaving the development of such a policy to its proposed National Ocean Council and federal agencies. In this regard, the commission recommendations lag behind current congressional proposals.

**Fishing and seafood farming.** Fishing is the most significant and controllable source of change in the ocean. Its mismanagement has depleted the majority of commercially desirable species globally, with great disruption and devastating economic consequences to fishing communities. Both commissions recognize that the past 30 years of fishery management has overexploited fish, degraded habitats, and disrupted ecosystems and communities.

Recovery of fish populations will depend on overhauled management and new resolve. On this topic, both commissions offered recommendations largely in parallel, with some important differences. Both groups recognize that fisheries problems stem from faulty governance, not inadequate science. Consequently, both call for: separating fishery assessment from allocation decisions by having scientists determine how many fish can be caught and managers determine who gets to catch them; ensuring that existing Regional Fisheries Management Councils reflect a broader range of interests, including the nonfishing public; shifting management from a species-by-species approach to a multispecies and ultimately an ecosystem-based approach; developing regional plans to reduce nontarget fishing mortality or "bycatch"; and exploring the use of "dedicated access privileges," such as individual fishing quotas and community quotas.

The Pew Commission determined that catch-limit analyses and recommendations should be made by independent scientific teams whose work is peer reviewed, and that federal agencies, using those recommendations, should be responsible for making decisions on quotas, bycatch limits, and habitat protection. This is essential. The U.S. Commission would have scientists who are nominated by fisheries management councils and employed by them--not scientists employed outside the councils--setting the catch limits. This is not as strong as the Pew recommendation. The U.S. Commission does recommend that if a fishery management plan is not submitted for

approval in a timely way, fishing on that population of fish should be suspended, a powerful action-forcing mechanism.

The Pew Commission also calls for adoption of fishery conservation and management laws that allow citizens to file lawsuits against fisheries managers in order to hold them accountable for their decisions. The commission maintains that the government should permit fishing activities only after considering how the ecosystem would be affected by fishing, by-catch of nontarget species, and habitat damage caused by fishing gear. It calls for establishing a zoning program that covers use of particular types of fishing gear, with some zones closed to, for example, bottom trawling that can harm the ocean floor.

Both commissions pay considerable attention to aquaculture. Fish farming can cause serious damage to the environment in a number of ways. Some of the consequences include the spread of diseases; genetic contamination of wild fish by nonnative fish that escape from farm pens, along with the increased competition that the escapees pose to wild fish; damage to water quality; destruction of wetlands; killing of natural predators; depletion of wild fish species that are used in large quantities as food for farm-raised species; and contamination of natural waters by antibiotics, hormones, and toxic agents commonly used in aquaculture. The U.S. Commission calls for the use of "best management practices" to minimize such problems, and it recommends that aquaculture operations (unlike fishing) pay for access to public waters. But it falls short of recommending that environmental standards be met as a condition of permit maintenance. It also gives industry the greater responsibility for addressing potential problems, and it implies that highly profitable aquaculture should be balanced against environmental degradation. It does not envision the potential cumulative effects of fish-farm proliferation and fails in this obvious place to call for needed zoning of ocean areas. It would have the federal government largely aid the expansion of aquaculture, thus transferring to fish farming the same service-over-stewardship mentality that has proved so detrimental to fishing.

The Pew Commission saw greater need for sharper, more prescriptive legal guidelines, calling for a moratorium on the expansion of marine fin fish farms until standards and policy are established. Marine aquaculture facilities should be required to meet a strict environmental standard before they are given permits to operate, and the lead government regulatory agency (the new independent ocean agency) should have clear authority to revoke permits and leases or impose new restrictions if facilities do not adhere to the standard. Indeed, preventing the known serious environmental effects--rather than facilitating rapid expansion--should be a major focus of federal activities related to marine aquaculture.

**Water quality.** The U.S. Commission appropriately acknowledges the threats posed by excessive nutrient runoff and other nonpoint sources of pollution (the largest and most intractable source of water pollution in the United States). It highlights the need for more rigorous nutrient removal for wastewater treatment plant discharges into waters already impaired by excessive nutrients such as fertilizers, something that the Clean Water Act requires but that has not been fully implemented. To deal with cumulative effects from nutrients, toxic chemicals, excess sediment, trash, airborne pollution, invasive species, and waterborne diseases, the commission recommends establishing measurable goals covering several types of pollutants and better coordination of government agencies to address water pollution. It also recognizes the

importance of atmospheric deposition of pollutants into water and recommends addressing this by, among other things, creating a national water quality monitoring network to track specific pollutant levels. The commission recommends that Congress give federal agencies authority to impose financial penalties and establish enforceable management measures if a state makes inadequate progress toward meeting water quality standards.

All of these recommendations are sound. But the U.S. Commission also leaves a number of important problems untouched. For example, it fails to call for improved controls on sewer overflows, which put untreated sewage into waterways, and its recommendations for dealing with storm water runoff are weaker than what current law requires. It recognizes the need to have enforceable nonpoint pollution programs but does not recommend that states establish standards for nutrients such as phosphorus and nitrogen, or for sediment contamination.

The Pew Commission devoted considerable thought to watershed-by-watershed control of numerous nonpoint pollution sources, including runoff from farms and roads; air deposition of nitrogen oxides, mercury, and other pollutants; cruise ship-originated pollution; international controls currently being developed for controlling the spread of organisms via ships' ballast water; tracking and permitting imports of live marine species that could escape; and dealing with levels of sound harmful to marine mammals and other marine wildlife.

**Coastal Development.** Coasts are under pressure from humans and nature alike. In many locations, coasts are naturally dynamic, moving with the winds, tides, and currents; are vulnerable to hurricanes; and are the first to experience rising sea levels in the form of erosion. These forces come directly into conflict with the growing number of people living in coastal areas. Inevitable losses to forces of nature are addressed by tax-paid subsidies running into many millions of dollars each year.

The U.S. Commission makes welcome statements about the need to improve coastal management. It calls for a variety of actions, including guiding growth away from sensitive and hazard-prone areas, in part by eliminating subsidies for development that can harm coastal ecosystems; restoring and protecting coastal habitat; strengthening links between coastal and watershed management; and streamlining management policies and practices. Among specific steps, it says that projects conducted by Army Corps of Engineers' Civil Works Program should be subjected to independent cost-benefit analyses and that the public should be given easier access to information about such projects. The government also should reform its National Flood Insurance Program to reduce incentives for development in floodplains and high-erosion areas and to stop issuance of insurance for properties that suffer repetitive losses. In addition, the commission recommends that its proposed National Ocean Council should coordinate a comprehensive program for protecting wetlands.

The Pew Commission also takes note of runaway coastal growth and recommends redirecting federal spending away from subsidizing growth in areas at high risk of flooding. It urges the use of "the broadest possible array of financial tools and incentives" to encourage habitat protection by private landowners.

**Protected areas.** Virtually all of the oceans--even most of those areas officially designated as national marine sanctuaries--are open for a variety of uses, some of which can be harmful to ocean wildlife and habitats. The Pew Commission calls for Congress to issue a directive for establishing a national network of marine reserves and also calls for ocean zoning to be encouraged as a component of regional ecosystem plans. The U.S. Commission omits discussion of ocean zoning or marine reserve networks. Rather, the commission would have its National Ocean Council develop general goals and procedures regarding the designation of marine protected areas and would leave to the voluntary subsidiary councils the actual work of selecting such sites, if any.

**Awareness and education.** Public awareness must precede public support for all needed improvement. Both commissions fall short in their suggestions for improving such awareness. The U.S. Commission does highlight the importance of building national awareness of oceans, and it calls for promoting lifelong education programs conducted in and outside of formal settings. The Pew Commission places less emphasis on education, a disappointment. What is needed, however--and is not explicitly addressed by either commission--is the need not just to teach about the oceans but to instill the love of the sea and the new ocean ethic that both commissions mention, which is fundamental to recovery and stewardship. Such deeper understanding will be fundamental to recovery and stewardship. Classroom teachers, many of whom are already overburdened, may not always be best situated to carrying out enriched ocean education efforts. But setting a national directive could provide funding and spur new ideas and creative efforts in the classroom as well as outside.

**Extracting energy.** Oil and water--seawater in particular--do not mix. But alternative sources of energy will also come from the sea. The Pew Commission recommends continuing the current U.S. moratorium on leasing offshore areas for oil and gas production. The U.S. Commission acknowledges the need to better understand the long-term environmental effects associated with oil and gas production, especially the release of low levels of toxic chemicals that can persist for long periods. But the commission also stresses that the future inevitably will bring commercialization of new sources of energy from the sea, such as methane hydrates found in the seafloor, as well as wind, waves, and ocean thermal energy. (There will be growing demand for minerals mined from the seafloor, too.) It calls for the federal government to adopt fair and streamlined means for licensing these energy facilities and to ensure that the licensing process is understandable to all parties, including the public. The U.S. Commission calls for the private sector to pay rent for new offshore activities (wind energy, fish farming, etc.) to ensure a fair return to the public for the use of marine resources.

**International management.** Of course, the United States alone can do only so much to protect oceans. But it can be a leader, and it can cooperate with international efforts--options it has not consistently chosen. Both the U.S. Commission and the Pew Commission recommend that the United States finally ratify the 1982 U.N. Convention on the Law of the Sea, which is the primary legal framework for addressing international ocean issues.

One area in which such international effort will prove vital is global warming. The U.S. Commission notes that the projected shrinkage of polar ice caps will have a profound effect on global shipping and on the health of the Arctic and Antarctic regions. But it fails to recognize the

environmental, economic, and security implications that all of the world's oceans face because of global warming and climate change caused by human-caused emissions of carbon dioxide and other greenhouse gases. This is an immense gap. The Pew Commission calls for action on climate change through mandated reduction of greenhouse gas emissions.

**Financing.** Even as oceans face increasing problems, the federal government has reduced greatly its spending on ocean research. Spending has fallen from 7 percent of the total federal research budget 25 years ago to 3.5 percent today. The current annual budget stands at only \$650 million. Both commissions recommend doubling the budget for ocean science.

The U.S. Commission estimates that the total cost of implementing its recommendations is \$3.9 billion annually. To pay this, it advocates creating an Ocean Policy Trust Fund, which would be derived mainly from royalties and other fees paid by companies pursuing oil and gas development on the Outer Continental Shelf. (The commission does not say whether the revenues would come from already-approved or future activities.) It should be noted, however, that making ocean management dependent on fossil-fuel development is highly problematic, in that the funding of ocean conservation would therefore hinge on continued exploitation by a polluting industry. Would such a funding mechanism erode controls and actually encourage new offshore oil and gas activity in inappropriate places? At a minimum, revenue from environmentally contentious offshore industrial activities must not create pressure to obtain more revenues by allowing more such activities. The best way to do this is for oil and gas revenues to flow to the general federal treasury, and then have the government draw on the general treasury to support ocean and coastal management. Indeed, the Pew Commission recognized that it is a responsibility of government to use general revenues to support ocean programs.

### [Time for Congress to act](#)

Collectively, the two commissions have crafted a comprehensive set of recommendations for improving the health, viability, and ethical stewardship of the oceans. Fortunately, Congress is beginning to respond.

In June 2004, Rep. Nick J. Rahall (D-W. Va.) and Rep. Sam Farr (D-Calif.), co-chair of the House Oceans Caucus, along with 14 other members of Congress, introduced a bill that would reform the system that manages the nation's fisheries. In July 2004 the leaders of the House Oceans Caucus, Reps. Jim Greenwood (R-Penn.), Sam Farr (D-Calif.), Curt Weldon (R-Penn.), and Tom Allen (D-Me.), introduced the comprehensive "Oceans 21" bill (H.R. 4900) that would establish a national policy to protect, maintain, and restore healthy ocean ecosystems, direct federal agencies to implement that policy in consultation with NOAA, create a cabinet-level National Ocean Council in the White House to coordinate national ocean policy, and create councils to develop regional ecosystem plans. The legislation would also establish a research program for understanding marine ecosystems and improving ecosystem-based management, create an office of education within NOAA, and provide increased funding for ocean education. Also in July 2004, Sen. Ernest Hollings (D-S.C.) introduced the National Ocean Policy and Leadership Act (S. 2647), which would make NOAA an independent agency, give it an overall statutory mission, and create an Office of Ocean Stewardship in the White House (similar in

structure to the Council on Environmental Quality). It is expected that Sen. Barbara Boxer (D-Calif.) will introduce comprehensive oceans legislation in the coming months as well.

These bills represent thoughtful and significant responses to the recommendations of the commissions and, if enacted, would bring major changes in the way oceans are managed. Although there are some elements of these bills that we will work to change (the funding provisions in Oceans 21, for example) and although some of the bills are more comprehensive and ambitious than others, they provide important blueprints for reform of national ocean policy.

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