
An Oceans Manifesto: The Present Global Crisis

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A generation ago, French explorer and oceanographer Jacques Cousteau warned that the oceans were sick and getting worse every year. Embraced by the public for bringing people on every continent closer to the wonders of nature and for his unvarnished assessment of the state of the oceans, Cousteau was ridiculed by many government officials and scientists as an environmental alarmist. Fortunately, the oceans are not dead; in fact, some areas are teeming with life. Cousteau's concerns, however, were prophetic: serious degradation of coastal and marine ecosystems worldwide continues, driven by global climate change, pollution, overfishing, and the destruction of coastal habitats. Once thought to possess an endless abundance of resources and an unlimited capacity to safely assimilate wastes, the oceans are now forcing us to reconsider many of our previous assumptions.

The oceans are indispensable in sustaining life on earth. They possess a rich diversity of marine life and support systems that affect the entire planet, such as climate, weather, fisheries, and biological productivity. The importance of the oceans cannot be separated from the larger global environment that encompasses the air, land, and freshwater. Nor will solutions to the problems facing them be distinct from broader questions concerning human development and the quality of life on earth.

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Around the world, the daily existence of growing numbers of people is directly affected by the use and management of the oceans and their resources. The fishing industry is a source of protein for a large part of the world's population and a livelihood, directly and indirectly, for hundreds of millions of people. Travel, tourism, and recreation in coastal areas have an even greater effect on national and global economies. Offshore areas account for as much as one third of the world's energy supplies. Maritime transportation and port operations are of paramount importance for world trade. The many ways that the oceans can refresh and enrich the human spirit are as legendary as their awesome terrors, such as the devastating Indian Ocean earthquake and tsunami of December 26, 2004.

Human activities can damage oceans and coasts in numerous ways. Overfishing of large predatory species at the top of the food chain and the industrial harvest of smaller fish on which the predators depend for food wreak havoc on marine ecosystems and threaten the sustainability of fisheries worldwide. One frequently cited study reveals that only 10 percent of all large fish—including open-ocean species such as tuna, swordfish,

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and marlin, and large groundfish such as cod, halibut, skate, and flounder—is left in the sea.¹ Industrial fisheries take only 10 to 15 years to reduce any new fish community they encounter to one-tenth of what it was before. Destructive fishing practices result in the discard of one-fourth of the fish that are caught.

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 Bycatch in long-line fisheries threatens endangered seabirds and turtles. Trawl fisheries destroy seafloor habitat critical to marine wildlife. Sonar used by the military has been increasingly implicated in the beaching and death of whales, dolphins, and porpoises.

Commercial and residential development is paving over a large part of coastal areas while destroying and altering coastal habitats. Landscape change in the coastal zone is one of the biggest threats to water quality. Although many people associate ocean pollution with well-known sources such as tanker spills, beach debris, and cruise ship discharges of raw sewage and toxic wastes, these account for only a small part of the overall problem. In many parts of the world, sewage is discharged directly into coastal waters and results in serious health effects. Oil from city streets and toxic chemicals and pesticides from industry and agriculture located far inland find their way to the oceans through rivers and streams. Nutrient pollution from nitrogen and phosphorus enter coastal waters from farms and urban

runoff. Seasonal “dead zones”—like the nearly lifeless area the size of New Jersey spreading from the mouth of the Mississippi River—are growing both in number and size. Mercury and other toxic air pollutants emitted by utility plants, factories, vehicles, and incinerators blow miles out to sea.

Indeed, about 80 percent of all marine pollution originates on land. Moreover, in the United States, as in other countries, marine environmental quality is not a matter reserved for coastal areas. As Admiral James D. Watkins (retired), chairman of the United States Commission on Ocean Policy, stated presciently: “We are fifty coastal states.”²

More recent concerns—global climate change, the introduction of invasive species into coastal waters, and environmentally harmful aquaculture practices—add to the ecological crisis facing the oceans. Seemingly, no area is off-limits to humankind’s tenacious assault on marine ecosystems. Remote areas of the high seas were once outside the reach of exploitation, are rich in biologic diversity, and could perhaps hold the keys to future medical breakthroughs and other scientific discoveries. These are now under attack by industrial fishing fleets that trawl ocean seamounts in search of ever-diminishing living resources.

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Amid growing alarm, a demand for action in response to environmental assaults has come from many directions, often transcending partisan politics, and leaving little room for equivocation. For example, the United Nations Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) concluded in its seminal report, *A Sea of Troubles*, that “The state of the world’s seas and oceans is deteriorating. Most of the problems identified decades ago have not been resolved, and many are worsening. New threats keep emerging. The traditional benefits of the seas and coasts—and the benefits that humanity gets from them—have been widely undermined.”³ Ocean scientists, economists, conservationists, and senior representatives of governments, corporations, and the mass media concluded in 2003—after a year-long effort called *Defying Ocean’s End*—that “urgent action is needed to address serious ocean concerns, but there is a profound lack of awareness of both the sharp decline in ocean health and the importance of the ocean to human survival.”⁴ The Pew Oceans Commission in 2003 and the U.S. Commission on Ocean Policy the following year painted a similarly disturbing picture of the state of the marine environment in the United States.⁵ And, according to investigations carried out over the last few years and reported in the U.S. Environmental

Protection Agency (EPA) National Coastal Condition Reports, the overall condition of U.S. coastal waters is somewhere between fair and poor, varying from region to region.⁶

AT A CRITICAL JUNCTURE

As one considers this testimony, it is remarkable how casually most governments face the seemingly inexorable slide toward environmental collapse of the 70 percent of the Earth's surface occupied by the oceans. The official nonchalance is especially puzzling when one considers the widespread agreement on the nature and extent of the problem, the availability of remedies at reasonable cost, the clear moral dimension of the issue, the readiness of citizens in many parts of the world to act, and the serious consequences of inaction.

All governments have not entirely turned their backs on the health of the oceans. Some countries, especially in the developed world, have made significant progress in reducing industrial discharges, wastewater, and air pollution. International environmental treaties have reduced operational pollution from oil tankers and eliminated or reduced the ocean dumping of nuclear and other toxic wastes. Governments, often working closely with environmental groups, are establishing marine protected areas that are off-limits to fishing and development. Such achievements, however, can lull governments into complacency that makes it easier to ignore the larger problems and obscures the need to address the health of the oceans in an integrated manner. Ocean advocates have repeatedly noted that what is lacking is sufficient political will—some would say moral courage—to take the steps necessary to bring about change.

We find ourselves locked into a great race against time with a shrinking window of opportunity. National and international efforts to protect and sustain ocean and coastal resources are steadily outpaced by the forces that created the problems and, in some cases, these efforts are making it worse. Business as usual, typified by largely incremental activities, does not offer a great deal of hope in the long run. Present trends toward rapid coastal urbanization on a scale never seen before, increasing demand for marine resources, ever more advanced exploitative technologies, and weak

governance structures in fact strongly suggest that current conservation efforts will continue to fall behind the pace of marine environmental degradation—unless nations act now.

There are ways for the international community to avoid the ecological destruction facing the oceans without diverting attention or draining scarce resources from other pressing national and international concerns.

Aggressive action to protect the oceans, as we will see, can support and enhance broader foreign policy, as well as economic and security interests. An effective strategy will center on both institutions and people, and will come both from the top down and from the bottom up. The oceans' rebirth can build, for the most part, on the existing

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network of international cooperation—if cooperation is managed properly and executed with intelligence and conviction. However, we must rethink many of the fundamental ideas that shape our approach to the protection and sustainable use of oceans and coasts. That begins with a careful look at how nations and the international community define their interests in the oceans and at how they advance those interests through their governments, economic policy, and diplomacy.

DEFINING OCEAN INTERESTS

How we think about the oceans—their place in our lives and the value we assign them in relation to other issues—has a profound effect on their health. It goes far in determining where the oceans are placed in the hierarchy of interests on which governments act and the willingness of citizens to become engaged in decisions affecting the oceans' fate. Despite numerous elements of popular appeal—beaches, whales, and seafood, for example—the oceans' bounty is taken for granted by most people; seemingly remote and lacking immediacy for many, the oceans are easy to ignore. As a matter of public policy, oceans have not received the attention that their importance merits. Failure to take the full measure of the ocean environment in two areas in particular has contributed substantially to its marginalization in public policy. Establishing a better connection between the oceans' health and broader, more visible national and international agendas can help to move ocean issues from the margins of national debate to the mainstream where they belong.

As nations and citizens consider their interests in the oceans, it is important to cultivate a better understanding of the large-scale economic effects of coastal and marine ecosystems on regional, national, and local economies. The economic stakes in the oceans are especially high in much of the developing world, where fish and other marine resources play a large part in meeting basic human needs, including food and income. On a global scale, the world's terrestrial and marine ecosystems provide at least \$33 trillion annually in services. The benefits from ecosystems include food, water, timber, livelihoods, recreation, and cultural values, among many others—almost two thirds of which is contributed by marine systems.⁷ The idea that a healthy and sustainable marine environment is an essential ingredient in the large economic engine of the world must be better understood and conveyed.

Increasing understanding of the national security dimensions of marine environmental quality and their link to poverty reduction in many parts of the world is also crucial. The security and political stability of many countries are increasingly influenced by the ability of governments to manage their natural resources effectively. Environmental mismanagement and the loss or degradation of natural resources contributes to economic decline and political conflict. As

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noted by Africa policy scholar Patricia Kameri-Mbote, "Environmental quality and sustainable natural resources are preconditions for peace and security; and peace and security are preconditions for environmental quality."⁸

Competition and the destruction of scarce resources can ignite hostilities and trigger large-scale migration, as seen in Haiti in the 1970s and 1980s. It can also incite armed conflict, as in Nigeria's oil-rich southern delta region. Competing claims to offshore oil and gas, such as the present dispute between China and Japan in the East China Sea, strain relations between neighboring states. Disagreements about fishing rights—a longstanding source of conflict—are exacerbated by the scarcity of living resources that results from overexploitation and pollution. Parts of the Middle East and the Horn of Africa continue to experience serious political tension over access to scarce supplies of fresh water.

Efforts to advance marine conservation can not only help avoid conflict but also encourage greater constructive engagement among nations.⁹ Cooperation in strengthening scientific, technical, and institutional capacity

for ocean preservation can build bridges among diverse groups and expand the number of government officials, business leaders, scientists, and ordinary citizens who have a stake in healthy, stable, and economically sustainable societies.

Wealthy nations must recognize their environmental responsibilities to others in an ecologically interdependent world. Doing so would engender greater sympathy and support for broader national security interests, such as fighting against terror and building healthy, prosperous, and just societies. Finally, not only has a narrow view of the oceans tended to minimize the importance of their health and sustainability for broader societal interests like economic development and national security; at times, these broader interests have come into direct opposition to environmental values. A more complete picture can help to promote a better understanding of the central importance of environment and sustainability among a wide array of national and international ocean interests encompassing defense, energy, transportation, commerce, scientific research, and conservation. Recognizing the protection and sustainable use of coastal and marine ecosystems as the central organizing principle for ocean policy need not be seen as threatening other interests. On the contrary, it supports virtually all other interests in the oceans that rely heavily on healthy marine ecosystems for their own survival.

THE ROLE OF GOVERNMENT

How political leaders and citizens view the role of government in protecting the environment plays an important part in reversing the decline of the oceans. Despite the popular appeal of calls for less government in some countries, experience tells us that government retrenchment in the environmental arena is a dangerous path to follow. Environmental laws and treaties have typically followed in the wake of failures of business and industry to provide adequate public health and environmental protections on their own. While markets and voluntary measures can be crucial in preventing harm to human health and the environment, their role is limited by human nature and economic reality.

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In the United States, the political aversion to a strong government role in protecting public health and the environment manifests itself in many ways. For example, the United States

remains the only major industrialized country to not have a ministry-level department dedicated to the environment. The failure to elevate the EPA to a cabinet-level department conveys a message to the American people and to the rest of the world that environment is not a high priority for the United States.

The increasing stresses placed on coastal and marine ecosystems by human activity underscore the importance of making a full array of governance options available to decision makers; in fact, some options will depend on a strong government role. Pollution from non-point agricultural sources continues to plague even those countries like the United States that have relatively advanced environmental laws. A significant reduction of these sources in watersheds will likely require concerted government action. It is unrealistic to think that tasks such as targeting levels of nutrient reduction in specific watersheds and ensuring that the targets are met will be achieved primarily through voluntary measures.

Much the same can be said for setting and enforcing water quality standards for nutrients and for toxic chemicals like polychlorinated biphenyls (PCBs) and mercury. In many parts of the developing world, effective controls on industrial and municipal pollution from easily identified point sources do not exist. In the absence of strong regulation and enforcement, point-source pollution in rich and poor countries from such sources as concentrated animal-feeding operations and wastewater discharges from cruise ships have increased. Preventing the introduction of invasive species into coastal and ocean waters requires ballast water treatment and the regulation of vessel discharges. Effective monitoring and assessment of toxic pollution and seafood contamination depend on reliable government action. The present state of world fisheries and the disappearance of wild coastal areas underscore the futility of placing too much trust in market forces.

There is growing consensus that effective action to reverse global climate change—a major threat to the health of coastal and marine environments—will require agreement among governments on setting and enforcing caps on greenhouse gas emissions. If past experience in reducing air pollution, such as acid rain, is any guide, determined state intervention will be necessary to build technical and institutional capacity and to ensure compliance with emission limits. Other measures, such as a carbon tax, will require strong political leadership and government involvement. That many large corporations and small businesses are beginning to take significant action on their own is encouraging. Their willingness to partner with the government will be a big component of the solution, but it does not absolve governments from their responsibilities. Ensuring a healthy environment

for the present and the future is a complex business; it requires deliberate and comprehensive consideration of the strengths and limitations both of the private sector and of governments. Finding solutions for overall success could be a messy but necessary task.

ECONOMICS: THE FORGOTTEN OCEAN SCIENCE

Entrenched ways of thinking about the role of economics in environmental protection can also present obstacles to marine conservation. Environmental action is often misperceived as an impediment to economic activity; medium- and long-term economic and other societal benefits of healthy and sustainable coastal and ocean ecosystems are downplayed or ignored in favor of short-term economic and political considerations. Similarly, the costs of environmental degradation in terms of health, jobs, standard of living, and aesthetic values are frequently minimized.

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There are compelling economic reasons to prevent and reduce pollution, manage fisheries responsibly, and avoid wholesale destruction of coastal habitats by commercial and residential development. First, improvements are needed in the collection and analysis of economic information, including better national income accounting systems. Only a small percentage of the planet is able to gain access to useful data;¹⁰ and the paucity of data on ocean and coastal resources is not reserved to poor countries. According to the National Ocean Economics Program, the U.S. has a flawed and incomplete picture of its ocean and coastal economies. For example, conversion of a coastal wetland to a housing development appears as a positive charge in the national income accounts; and investment in housing stock is measured, but reduction in the stock of coastal habitat is not. In addition, other benefits—such as spending a day at the beach—are not currently measurable in market transactions.¹¹

Better information and accounting on employment, population, and housing in coastal areas will provide a more accurate picture of what constitutes a true national ocean economy. This data enables policymakers to measure trends and changes in the way society uses oceans and coasts, as well as the impacts associated with such uses. Lacking this information, political decisions will continue to be guided by incomplete, simplistic assessments of the value of marine resources.

Second, better integration of economic and environmental policy can be achieved by internalizing the environmental costs of pollution from industry and agriculture. There remains strong resistance in many countries to full integration of economic and environmental policies. As long as environmental regulation is viewed as a burden on economic performance by impeding market forces, the integration necessary for major improvements in coastal and marine ecosystems will not be attained. Making polluters pay for their degradation of coastal and marine resources helps bring natural systems and market systems into greater harmony, as markets be-

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gin to reflect more accurately the true value of natural resources. The ability of governments to internalize the costs of pollution helps determine the effectiveness of prices in advancing good environmental behavior by sending the right signals to producers and consumers.¹² Better integration also includes the reduction or elimination of subsidies, such as the below-market pricing of natural resources or below-market financing costs in energy, agriculture,

and transportation. Some \$30 billion each year is spent by governments for “perverse subsidies” of overcapitalized fishing operations that actually support the catastrophic decline of ocean life.¹³

Third, providing a more accurate picture of the true costs and benefits associated with environmental regulation and other marine protection measures is critical. A clear perspective can help demonstrate that environmental improvements are not a luxury, but rather sound investments in economic health. As William K. Reilly, administrator of the EPA under President George H.W. Bush, has noted, the costs of environmental regulation have been consistently, and often substantially, overestimated throughout the years. Headlines trumpet industry complaints about the economic burdens associated with environmental regulation, but a close look at the facts shows that the opposite is generally true. Not only are upfront costs greatly exaggerated, but longer-term health, environmental, and economic benefits are often ignored.¹⁴ That is a valuable lesson, not only for countries like the United States that have relatively sophisticated environmental regimes in place but also for countries in the developing world that are just starting to examine the relationship between their economic and environmental policies.

Better ocean economics, especially in these three areas, will help to establish the value of the oceans as “capital”¹⁵—that is, their ability to produce income in the future through a sustainable flow of economic value derived from the many activities associated with them. Linking the economy’s health to the oceans’ health will not only underscore the serious consequences of ineffective environmental policies but also give environmental advocates a powerful tool for arguing their case before the public and their elected representatives.

ENVIRONMENTAL DIPLOMACY

Environmental diplomacy to protect the oceans takes a variety of forms, perhaps most importantly in the development and implementation of international conventions and other agreements that set rules and standards to combat particular forms of marine pollution. Several important global and regional agreements are in place that address sources such as the dumping at sea of radioactive and other toxic wastes, accidental and intentional pollution from tankers, and land-based sources of marine pollution. In addition, the 1982 United Nations Convention on the Law of the Sea established general obligations for the protection of the oceans and now provides an overall legal framework for setting and enforcing environmental rules under other treaties.¹⁶

International agreements not only establish the basic environmental rules for activities that affect the oceans but, when widely accepted and effectively applied, help to ensure that individual countries do not enjoy an unfair competitive advantage through behavior that is less environmentally protective than the international norm.

How nations approach the negotiation and implementation of international agreements has an important bearing on their ultimate efficacy. Getting everyone to agree to play by the same set of environmental rules can be a desirable goal, at least in the abstract. The way this negotiating process plays out in practice, however, may present problems if the final result is not commensurate with the magnitude of the problem being addressed. Too often, lowest-common-denominator (or simply

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inadequate) solutions emerge, reflecting more what governments—and the industries advising them—feel they can “live with” rather than what a dispassionate assessment indicates is actually needed. The problem is exacerbated when countries posit that generally accepted international rules and standards set the limit of their responsibility regarding the marine environment.

With regard to certain marine pollution sources, how well international rules protect national environmental interests is now a matter of concern in the United States and in other countries. These include the introduction of alien species into U.S. coastal waters by tank-cleaning operations, air emissions from ships, marine debris, and pollution from cruise ships.¹⁷ For example, vessel emissions of sulfur dioxide and nitrogen oxide, even when in conformance with current international rules, have contributed to serious air pollution in many international ports, especially the ports of Los Angeles and Long Beach in California. With respect to marine debris, the U.S. National Academies recently launched a study that will “examine the effectiveness of international and national measures to prevent and reduce marine debris and its impact.”¹⁸

International environmental agreements can be upgraded. There may be good reasons for doing this, such as the emergence of new scientific evidence bearing on regulation, technological breakthroughs, or a greater sensitivity of governments and citizens to environmental concerns. More often, it is found that much environmental damage and costs (including cost to the regulated industry) could have been avoided by simply getting the agreement right in the first place. The evolution of tanker design and construction standards designed to prevent pollution from accidents demonstrates how the failure of governments and industry to adopt adequate standards early on can result in unnecessary cost and environmental damage.

Only in the last few years have governments embraced an international requirement for double hulls on oil tankers to prevent pollution from groundings and collisions, despite longstanding support for this design feature by experts. For the international community to arrive at this point, it has taken a number of serious tanker accidents, such as the 1967 grounding in the English Channel of the *Torrey Canyon*, which resulted in the largest oil spill up to that time; the spate of accidents in and near U.S. waters in the winter of 1976-77, which triggered the negotiation of the 1978 MARPOL Protocol; the March 1989 grounding of the *Exxon Valdez*, in Alaska’s Prince William Sound; and the environmentally catastrophic accident of the single-hull tanker *Prestige* off the northwest coast of Spain in November 2002. The journey, which has taken place over decades, has entailed many costly and inadequate half-measures.

There are alternatives to such an inefficient system. The first step is more accurate assessments of the nature and extent of marine pollution and conservation problems that require international action, taking into account both future trends and present conditions. Governments often rely heavily for this information on their own ministries, whose priorities may diverge substantially from the problem they are being asked to evaluate. It is difficult, if not impossible, to remove politics and industry pressure entirely from such calculations; but greater reliance for advice on independent scientific advisory bodies, such as the National Academies in the United States, would be a good start.

Second, better analysis of various potential solutions to marine pollution is needed. These solutions may range from legally binding agreements—containing, for example, technology-based requirements or emission limits—to voluntary programs. All too often, what poses as a realistic answer to a particular environmental problem has already been diluted by factoring in real or imagined difficulties (usually economic) expected to attend implementation. Rarely are the medium- and long-term economic, health, and environmental costs of not doing the right thing given serious consideration.

Third, once effective rules have been agreed to, implementation is paramount and cannot be taken for granted. In order to help countries presently lacking the human and material resources necessary to comply with particular treaty obligations, strengthened treaty provisions calling for technical cooperation and assistance are desirable. Innovative approaches to ratification, such as the voluntary “transition period” found in the 1996 London Dumping Protocol (which entered into force in 2006), can attract more widespread membership in treaties and allow new parties to move quickly to implement necessary measures while phasing in full compliance.¹⁹

Concerns related to the acceptance and effective implementation of international environmental agreements are not reserved to developing countries that lack sufficient scientific, technical, and institutional capacity. Large industrialized countries are seldom held accountable by the broader international community for the slow pace at which they too often approach

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the ratification of important international environmental agreements. The failure of the United States to ratify the Law of the Sea Treaty, the 2001 Stockholm Convention on Persistent Organic Pollutants, and the 1996 London Dumping Protocol sends a message of national indifference about the fate of the global commons to the rest of the world. A lesser-known problem concerns the lack of rigor with which some countries—both rich and poor—implement the international environmental agreements to which they are party. Lack of political leadership, legislative hurdles, insufficient resources, pressure from regulated industries, and the mindset of national regulatory authorities can all contribute to weak implementation.

INTERNATIONAL PRIORITIES

There is a remarkable level of agreement among a wide range of national governments, international organizations, NGOs, and expert groups on what needs to be done to restore the oceans to health. Even allowing for inevitable differences in interest and outlook among the diverse groups involved in ocean science, law, policy, and advocacy, something approaching a “common” oceans agenda is not difficult to fashion. The following elements rank highly on many lists:

- Approach marine protection and sustainability as part of larger efforts to reduce poverty and advance economic development in much of the world.
- Integrate management of coastal zones and their watersheds, including freshwater. Pollution prevention and fisheries management should not be viewed in isolation from land-use planning, agricultural practices, and commercial development.
- Address climate change in a timely and effective manner, making use of measures such as mandatory caps on greenhouse gas emissions and a carbon tax.
- Manage regional and global fisheries sustainably, emphasizing ecosystems, conservation, species recovery, and the elimination of destructive fishing practices, including bycatch.
- Accelerate efforts to prevent and reduce marine pollution, especially from land-based sources, such as sewage, pesticides, toxic chemicals, nutrients, altered sediment flows, and air pollution.
- Prevent and reduce habitat destruction and alteration in coastal areas caused by development, pollution, and invasive species.

- Promote preservation of marine biologic diversity in coastal and ocean areas, including the high seas, through greater reliance on ecosystem-based management, the creation of networks of marine protected areas (MPAs), and the development and implementation of programs for large marine ecosystems (LMEs) in high-priority areas.
- Strengthen the scientific and technological aspects of marine protection and sustainability, especially monitoring and assessment capabilities, coastal and ocean observing systems, and disaster preparedness and response.
- Where necessary, develop, strengthen, and implement—with effective enforcement—international conventions and other agreements on the protection and sustainable use of ocean ecosystems.
- Evaluate and initiate appropriate action on new or emerging issues, such as the introduction of alien species, offshore aquaculture, exploration and exploitation of marine genetic resources, ocean sequestration of carbon dioxide, and the protection of underwater cultural heritage.

Most of these elements are already under consideration in a variety of government and private forums that recognize that actions taken by the international community will probably not be effective and must instead be part of a broad, integrated approach to ocean protection and sustainability.²⁰

If results are to be proportional to present and future problems, then political leadership, adequate resources, institutional cohesion and coordination, and motivation of the mass public to demand meaningful action from their elected representatives, the private sector, and other parts of society will be necessary. Two actions in particular would go far toward addressing those deficiencies: the creation of a Global Environment Organization—of which oceans and coasts would constitute an integral part—and intensified grassroots activism for ocean protection and conservation.

A GLOBAL ENVIRONMENT ORGANIZATION

The international community has a great deal of experience combating marine pollution, overfishing, and other forms of coastal and marine environmental degradation. What it does not have is an effective way to coordinate and bring together presently diffused forms of cooperation to support the overarching goal of healthy and sustainable marine ecosystems. Nor does the international community have a forum with sufficient prominence to convey the needed sense of urgency. Present activities move

forward incrementally, nibbling around the edges, rarely taking a big bite out of any environmental problem. What is missing is the means to set and rationalize priorities, to exploit synergies among discrete but related environmental issues, to catalyze action by potentially powerful coalitions of government agencies and private organizations, and to ensure that resources dedicated to the environment provide a good return on investment.

Creating, under the UN system, a Global Environment Organization (GEO) would help overcome these deficiencies. The GEO would be a highly visible advocate for a healthy and sustainable planet. Placing all major international environmental protection and conservation issues—including climate, oceans, wildlife, forests, deserts, and biological diversity—under its organizational umbrella would make it much easier to address the complex relationships between different environmental media. Moreover, the GEO should not have programmatic responsibilities, which can be left to existing agencies.

The GEO would also lessen the dependence on other agencies such as the World Trade Organization (WTO), which has neither the expertise nor the inclination to address complex environmental issues effectively.²¹ The shortcomings of the WTO and regional arrangements like the North American Free Trade Agreement (NAFTA) in integrating environmental policy and practice fully into their economic activities has been disappointing and, arguably, has betrayed a cardinal principle of economic global-

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Critics will question whether the world needs another international bureaucracy. Certainly, the large burden of proof should be placed on any new international agency to answer that question by performing well. The GEO should be able to meet that test if sufficient care is given to its design and operation.

It would need a lean organization of highly competent professionals with a leader of the first order. It must have clearly defined goals and an institutional culture that demands high performance and sets strict standards of accountability for its employees, partners, and member states. Practical operating arrangements would

have to be treated with intelligence and sensitivity, including the selection of a physical location conducive to safety and business efficiency and that would serve as a magnet for attracting top-rate officials and staff.

The mission and organization of a global environment agency deserve careful consideration. Vague mandates and unrealistically expansive agendas have troubled environmental organizations in the past, notably the United Nations Environmental Programme (UNEP) and the UN Committee on Sustainable Development. When determining the value added of the GEO, four core responsibilities emerge: international agreements, science and information exchange, capacity building and technical assistance, and accountability.

First, the organization would be responsible for bringing greater cohesion and efficiency to the development and implementation of international environmental conventions and other agreements. Today, these agreements are administered largely on a sectoral basis by such organizations as the International Maritime Organization (IMO), the Food and Agriculture Organization (FAO), and UNEP, often with little regard to one another's activities. The GEO would evaluate the adequacy of present arrangements and recommend action where needed—such as the strengthening of an existing agreement or the development of new initiatives. Recommendations for improved enforcement of international rules would be advanced where present arrangements prove to be inadequate, particularly on the high seas.

Science-based monitoring and assessment of the long-term sustainability of coastal and marine ecosystems would also be given special attention. Reliable scientific information is needed at all levels of governance on such matters as the ecosystem effects of overfishing and the environmental consequences of global warming. The GEO would identify scientific needs not being addressed and facilitate wider dissemination of information. The leadership and direction provided by the GEO would help to focus and increase scientific efforts. These initiatives could potentially have very significant practical consequences, such as the creation of workable tsunami early-warning systems and a fully operational Global Earth Observing System.

Sound management of coastal and marine resources, the effective implementation of national and international laws and regulations, and the advancement of science in support of healthy and sustainable oceans all depend on the ability of governments and the private sector to carry out effective environmental policies and programs. Ensuring that countries have the scientific, technical, and institutional capacity required is a major

challenge. By sitting at the head of the oceans table, the GEO would be in a strong position to help identify the particular needs of countries and regions, advise where limited resources could be put to best use, and catalyze action by coalitions of governments, international organizations, NGOs, business, and industry.

A final, and critical, responsibility of the GEO would be to ensure that the array of activities and expenditures devoted to international cooperation on the oceans meet strict standards of efficiency, effectiveness, and accountability. That would involve tracking progress and results on the implementation of international agreements, the acquisition and use of science and data needed for informed policy decisions, and the effectiveness of capacity building and technical assistance. Establishing more direct links between investment in environmental programs and environmental improvement should also make the job of selling ocean protection programs to populations and political leaders easier.

INTENSIFIED GRASSROOTS ACTIVISM

Top-down institutional leadership provided by the GEO and other national and international bodies is critical for the oceans' health, but it is not enough. If the state of the world's oceans is to be improved, much of the job of saving them will fall to ordinary citizens at the grassroots level.

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..... These citizens must be well-educated about environmental issues and the political process, whether on the southeast coast of the United States or the west coast of Africa.

..... It has been said repeatedly that the key to improving coastal and marine environmental quality is political will. Without sufficient motivation, political leaders throughout the world become complacent and fall into familiar patterns of thinking and behavior. The tepid public and official response in the United States to the findings of the Pew Oceans Commission and the U.S. Commission on Ocean Policy (both of which make clear the environmental peril that the oceans face) is highly instructive in that regard. So is the reaction of two distinguished former U.S. government officials—at opposite ends of the political spectrum: William D. Ruckelshaus, EPA administrator under Presidents Richard Nixon and Ronald Reagan and appointed by President George W. Bush to serve on the U.S. Commission on

Ocean Policy; and Leon E. Panetta, chief of staff to President Clinton and chairman of the Pew Oceans Commission. With regard to the difficulty of getting the government's attention on ocean issues, both have reached a similar conclusion: the public will have to get angry before anything changes.²²

The public will have to get angry before anything changes.

History bears out such testimony. Many great shifts in American social and political life, such as those prompted by the civil rights movement in the 1950s and 1960s, occurred only after activists, political leaders, and ordinary citizens reached some level of visceral repulsion at what they saw as an unconscionable blight on the moral and social fabric of the nation. For the optimist, a similar environmental turning point was reached on the first Earth Day in 1970, which ushered in a generation of environmental action and improvement in many parts of the world. It is also possible, in light of recent environmental performance, that the watershed event will be seen as a futile last gasp of a world fighting to gain control of its environmental destiny.

There are many ways in which citizen involvement—a bottom-up approach—can advance environmental goals. In contrast with organizations like a GEO, grassroots activities are noteworthy for their independence and spontaneity. Informal networks of NGOs and citizen groups with shared goals but diverse methods have the advantage of speed, proximity to a given problem, and an informal organizational structure that is less likely to incur delay than that of many large organizations.

Grassroots activities make particularly important contributions to citizen environmental awareness and education, which is often handled poorly by large organizations that are far removed from local problems. Schools, religious leaders, civic groups, and the mass media can encourage public involvement and help to teach citizens of all ages how to make sense of the often confusing public debate on environmental issues. Who has the facts straight? Is one side or another exaggerating the problem it faces? Are calls for more science grounded in real scientific shortfalls, or are they being used as codes for delay or inaction? It takes an educated and committed public to sort through the frequently opaque debates on the environment and reach appropriate conclusions on those kinds of questions.

Issue-oriented groups like the Surfrider Foundation in the United States have been successful through their local chapters in preserving coastal areas. Environmental organizations such as Oceana, World Wildlife Fund, IUCN-World Conservation Union, and the Nature Conservancy

are involved in a wide range of activities in the developing world including training and education, capacity building, and the creation of marine reserves. Some NGOs now sit at the table with government and business leaders forging creative environmental partnerships. Charitable organizations like the Gordon and Betty Moore Foundation, the David and Lucile Packard Foundation, and the Pew Charitable Trusts provide startup funds

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for worthwhile local oceans projects in many parts of the world. NGOs and foundations are commissioning their own independent scientific studies, which can fill knowledge gaps not addressed by government and industry and which serve as a reality check on official reports.

Religious leaders can promote respect for the natural environment by stressing the spiritual, moral, and ethical dimensions of environmental protec-

tion and conservation. Most of the world's major religions, belief systems, and indigenous traditions place high value on respect for and preservation of the natural world. One of the most effective environmental leaders in recent times has been the ecumenical patriarch Bartholomew I of the Greek Orthodox Church, whose insistence on the moral dimensions of environmental protection has greatly facilitated his work to preserve the environment of the Black Sea. Similarly, Pope Paul VI, Pope John Paul II, and other Roman Catholic church leaders have called attention since the early 1970s to the moral imperative of environmental protection and its link to broader issues facing humanity, such as the promotion of peace and the reduction in poverty across the globe. Recent efforts by Jewish, Muslim, Buddhist, Hindu, and Christian leaders to forge an alliance between science and religion in preserving the natural world hold promise for greater discourse and engagement on environmental matters at all levels of society.

CONCLUSION

Can the oceans continue to sustain life on Earth in ways that we now take for granted? The two-fold answer lies in both pessimism and hope. If the United States—with its enormous scientific and technical talent, abundant resources, and democratic traditions—cannot do better than maintain its coasts at a level of “fair to poor” environmental quality

or prevent a national treasure like the Chesapeake Bay from slipping into environmental oblivion, what is to be said for the future of many other parts of the world, where each day is a struggle for survival? If the wealthier countries of the world refuse to set an example by good stewardship of their own resources and honest international engagement on issues that affect the entire planet—such as climate change, transboundary pollution of toxic chemicals, and fisheries conservation—what standing do they have in asking others to do their part?

Restoring the oceans to health will not be easy, but it is well within our grasp. Increasing evidence of the links between degraded environmental systems, poor economic performance, and conflict provide compelling reason for action. The emergence of a new generation of young people, educated about the environment and demanding change, offers a great deal of hope. Needed changes in the ways we define our interests in the oceans; the way we think about the political, economic, and diplomatic dimensions of ocean policy; and the way we achieve effective engagement by institutions and by ordinary citizens can point us in the right direction. Ultimately, political leadership will be required to deliver on our promises. ■

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If the wealthier countries of the world refuse to set an example by good stewardship of their own resources and honest international engagement on issues that affect the entire planet, what standing do they have in asking others to do their part?

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ENDNOTES

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