

## CHANGING OCEANS, CHANGING WORLD

### Ocean Policy Priorities for a New Administration and Congress: Recommendations from the Joint Ocean Commission Initiative

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America is a nation intrinsically connected to and immensely reliant upon our oceans. In fact, our economy, national security, environment, recreation and health are all dramatically affected by our coasts and oceans. Despite their importance to our everyday lives and well-being, however, we have been neglecting our oceans for decades and ignoring the growing threats from climate change and pollution.

The new administration must lead Congress and the states toward immediate action and real solutions to the challenges facing our coasts and Great Lakes, reestablishing the United States as the preeminent steward of ocean health and vitality.

Our oceans are in crisis. We must act soon to avoid putting our oceans, health and economy in further jeopardy. Massive coral reef loss, the destruction of coastal wetlands, severe decreases in some major fish populations, an increase in the size and frequency of dead zones and the contamination of seafood are some of the major warning signs. Climate change is further exacerbating the decline of our ocean and coastal economies. Warming temperatures and increased acidity of ocean water is melting Arctic sea ice, accelerating sea level rise and increasing the frequency of coastal storms.

*Only 3.7 percent of the world's vast oceans remain untouched by humans, while more than a third has suffered serious human impacts.*

Although states and regions have shown leadership in implementing ocean-focused initiatives, their capacity to respond to these challenges is being compromised by the lack of coordination among federal ocean programs, as well as a chronic underfunding of ocean science and management at all levels of government. It is imperative that the next administration pursue a coherent strategy for managing federal ocean programs and substantially increase investment in ocean science so that our public and private leaders have the knowledge and resources necessary to make informed decisions. Finally, given the global scope of ocean problems, and their importance to our national and economic security, it is essential that the United States reclaim its role as a leader in international ocean issues.

The Joint Ocean Commission Initiative—a bipartisan collaborative effort of the U.S. Commission on Ocean Policy and the Pew Oceans Commission—makes the following recommendations to catalyze meaningful ocean policy reform. We strongly urge the incoming administration as one of its earliest initiatives to adopt the following agenda for action.

1. **Establish a coherent national ocean policy and improve federal coordination of ocean science and resource management in order to protect, maintain, and restore ocean health and enhance economic opportunities.**
2. **Invest in ocean science to rebuild capacity for research so that we can better understand and predict climate change and its impacts on oceans and coastal economies.**
3. **Bolster U.S. international leadership by acceding to the Law of the Sea Convention in order to secure the country's economic and national security and reestablish the United States as the preeminent steward of ocean health.**

### OCEANS AND CLIMATE CHANGE: A TWO-WAY STREET

Oceans profoundly influence the planet, our lives and livelihood. Functioning as a reservoir and conduit for carbon dioxide and heat, oceans are the engine driving climate change. Their circulation systems impact weather patterns, agricultural production and transportation activities.

At the same time, our oceans are under chronic assault from climate change, among other human activities. Two fundamental climate-driven changes in the oceans are of paramount concern: the increasing acidity and increasing temperature of ocean waters. These changes are impacting the health of marine ecosystems, driving shifts in ocean circulation patterns, causing the record melting of Arctic sea ice, accelerating the rate of sea level rise and increasing the frequency and intensity of coastal storms that threaten public and private infrastructure located along our coasts.

When overlaid on the existing challenges of chemical and nutrient pollution, habitat degradation, poorly planned coastal development, invasive species and unsustainable fishing practices, the health and resiliency of our oceans, coastal ecosystems and coastal communities become increasingly vulnerable. If we are to be successful in our effort to minimize the costs and consequences of climate change, we must recognize the important role oceans play in climate change, as well as their relevance to our health and the vitality of our economy.

**INVESTMENT IN OUR OCEANS IS A CRITICAL INVESTMENT IN THE AMERICAN ECONOMY.**

- *Ocean-dependent industries contribute 2.5 times more to the U.S. economy than the agricultural industry.*
- *Ocean-dependent industries generate approximately \$138 billion for the United States every year.*
- *Coastal watershed counties alone contribute approximately 50 percent of the nation's GDP.*
- *About 30 percent of the country's oil supply and 25 percent of its natural gas supply are currently produced from offshore areas.*

## A DEFICIT OF KNOWLEDGE AND INVESTMENT

Technical and organizational challenges within the ocean community have hindered U.S. efforts to implement a coherent response to climate change. Emerging legislative initiatives, however, call for changes that will help decision makers address the threats of climate change. If implemented, they will require a greater emphasis on enhancing our understanding of climate change impacts both globally

*More than 750,000 salmon reached the Sacramento River to spawn in 2002. Five years later, that number dropped to 68,000, forcing the unprecedented closure of salmon fisheries up and down the West Coast.*

*The cumulative effects of climate change, pollution and overfishing have caused a 90 percent decline in the ocean's big fish population, including sharks and tuna.*

and at home. Communities are hungry for information that will allow them to minimize and adapt to these changes. Unfortunately, efforts to improve the accuracy of climate change forecasts and predictions at the regional scale are limited due to a lack of adequate investment in research, monitoring, computer resources and ways to merge science data with management tools. These issues can be solved, however, with increased funding support for science, management programs and related infrastructure at the National Oceanic and Atmospheric Administration, the National

Aeronautics and Space Administration and the National Science Foundation.

In order to understand the effects of climate change on our oceans, and reduce the risks to our economy and health, we need to adopt a new approach that can overcome entrenched bureaucracies and transcend agency boundaries. Failure to do so will put at risk trillions of dollars of national assets and compromise the health and safety of citizens, particularly along our coasts. With these objectives in mind, the Joint Initiative offers additional details on the three high-priority recommendations.

## RECOMMENDATIONS FOR ACTION

### 1. ESTABLISH A NATIONAL OCEAN POLICY AND IMPROVE FEDERAL COORDINATION

Oceans are managed by 140 different federal laws and implemented by 18 federal agencies, with no overarching policy or coordinated implementation to carry out that policy. Each of these laws is important and is targeted to an individual goal, resource, or area. The implementation of one law, however, is largely disconnected from the implementation of the others, often with a disproportionate focus on policy development and limited resources for execution. As a result, the federal government has struggled to address the big picture of ocean health.

*Almost 26,000 American beaches were temporarily closed or under advisory because of pollution in 2007.*

Climate change involves complex interactions among the atmosphere, oceans, land and human activities. The complexity and breadth of issues associated with climate change make it essential that

our nation develop an integrated strategy capable of addressing this new multidimensional challenge. This strategy must respond to climate change impacts across a wide array of sectors, from oceans and natural resources, to food, water, housing, transportation, public health and others.

A national ocean policy and improved coordination among federal ocean agencies, in both budget planning and execution, would greatly enhance the effectiveness of ocean and coastal resource management, including our ability to address impacts of climate change.

### *Specific Policy Steps*

**Create a national ocean policy.** Establish that it is the policy of the United States to protect, maintain, and restore the health of ocean ecosystems and enhance the sustainability of ocean and coastal economies and require that federal agencies administer U.S. policies and laws to the fullest extent possible consistent with this national policy.

**Strengthen federal leadership and coordination.** Establish a National Ocean Advisor to the President and an interagency Committee on Ocean Policy to improve coordination and strengthen leadership in support of a national ocean policy and implementation of a broader climate change strategy.

**Codify and reorganize NOAA.** Codify the National Oceanic and Atmospheric Administration (NOAA) as the lead federal civilian agency with responsibility for coasts, oceans and Great Lakes. Consideration should be given to reorganizing the agency along its primary functions—assessment, prediction and operations; resource and area management; and scientific research and education—to enhance the agency’s capacity for providing climate-related services, coordinate federal ocean science, management, and education programs, provide support for regional and state ocean management efforts, and improve efforts to respond to climate change.

**Support regional approaches.** Support regional solutions and improved coordination across all levels of government to promote more integrated approaches and coordination among federal, state and local governments around the goal of ocean ecosystem health.

**Establish a national ocean trust fund.** Create an ocean trust fund, incorporating revenues generated by economic activities occurring in federal waters on the Outer Continental Shelf, to support federal, state and local activities related to understanding and managing our oceans, coasts and Great Lakes.

## **2. REBUILD THE OCEAN SCIENCE ENTERPRISE**

As a nation heavily reliant on our oceans, it is imperative that we enhance our understanding of oceans and coasts, particularly given their influence on climate processes. Of equal concern is the need to understand and address the ecological and economic consequences associated with these processes. These include the deterioration of important marine ecosystems associated with increasing acidification, warming of the seas, melting Arctic ice and shifts in ocean circulation patterns, which have direct economic consequences resulting from rising sea levels, the rapid loss of coral reefs and impacts on fish stocks. These consequences,

which are compounded by the chronic pollution of coastal waters, are reaching a crisis point and demand our immediate attention.

*Nearly 40 percent of the scientific instruments on the country's environmental satellites are expected to stop operating by 2010.*

Unfortunately, as the nation struggles to address one of its greatest economic and ecological challenges—climate change—it does so with only a rudimentary understanding of the complex and highly dynamic relationship between oceans and climate. This is largely due to the chronic underfunding of ocean science and infrastructure. The lack of understanding of basic ocean and coastal processes, the inadequacy of observation systems, and our limited capacity to integrate information and data gathered from across scientific disciplines significantly compromises our ability to forecast future climate and environmental

trends. The resulting uncertainty prevents us from fully understanding the rate and extent of climate change impacts on our economy, health and environment, and is hampering efforts to refine models to enhance our understanding of change at the regional level.

Thus, a renewed commitment to and investment in ocean and coastal science is essential to providing information to policy makers, business leaders and individuals so that they can make informed and balanced decisions regarding strategies to mitigate and adapt to climate change.

Thankfully, the ocean community has developed a comprehensive strategy to address the most compelling issues in the ocean and coastal sciences, built on the recommendations of the two major ocean commissions, the National Academies, and the input of scientists from the public, private and academic sectors. However, this strategy demands funding to implement its recommendations and to support technological and informational advances that will greatly enhance our knowledge and understanding of ocean science and the consequences of climate change.

### *Specific Policy Steps*

**Develop the capability to understand and forecast key ocean-related processes and phenomena.**

Enhancing our understanding of ocean and coastal processes is essential to improving climate-related forecast capabilities. Improved knowledge of complex, dynamic ocean processes is the foundation needed to understand and translate observation data into integrated assessments and forecasts.

**Expand deployment of ocean observing systems.** Ocean observing systems are the infrastructure that provides a continuous flow of physical, biological and chemical information, which, when integrated and analyzed, will greatly enhance our understanding of the complex processes occurring in, on and above the ocean. These operational data collection systems underpin the effort to enhance our forecast capabilities for environmental change, including those used to minimize and adapt to climate change impacts.

**Enhance scientific support for ecosystem-based management.** While oceans, coasts and watersheds function as a sophisticated system, we do not manage or study them as such. Additional resources and emphasis must be directed at enhancing our understanding of ocean and coastal ecosystem processes—particularly those influencing and being impacted by climate change—determining which interactions

are most critical, and assessing the dynamics of the natural and human factors affecting these interactions.

### 3. BOLSTER U.S. INTERNATIONAL LEADERSHIP

By virtue of having the largest Exclusive Economic Zone in the world, the United States must be a strong leader in international ocean dialogue to ensure protection of our national economic and security interests as well as our valuable marine resources. Therefore, the United States must make it a priority to accede to the Law of the Sea Convention. There are enormous benefits to U.S. participation in the Law of the Sea. First and foremost, it would give the United States a seat at the table and a leadership role in international negotiations that would immediately enhance and protect our national and economic security interests. The influence of the Convention on international activities, such as those surrounding commercial, military and environmental activities in the Arctic, is growing. However, as virtually the sole industrialized nation not party to the treaty—to which 155 nations and the European Union belong—the United States remains sidelined.

*Ice cover in the Arctic Ocean reached a record low level during the summer of 2007, raising concern about climate change and accelerating efforts by Arctic nations to secure rights over extensive natural resources in the region.*

#### *Specific Policy Steps*

**Accede to the Law of the Sea Convention.** Climate change is already affecting ocean ecosystems in this country and around the world, as seen in the Arctic where melting sea ice is opening new areas for commerce and resource exploitation. By not acceding to the Convention, we are putting our national security and economic interests at stake. The U.S. Senate needs to expeditiously provide its advice and consent to the Law of the Sea Convention to secure our seat at the table as a partner and participant in international negotiations and decisions.

#### CONCLUSION

The next administration and Congress have a unique opportunity to reestablish U.S. leadership on ocean issues. The degraded state of our nation’s oceans, coasts and Great Lakes demands immediate attention, particularly in light of their connection to the U.S. economy, their role as a key driver of climate change and their vulnerability to impacts associated with this change.

Shortly after the release of the two ocean commission reports in 2003 and 2004, ocean issues enjoyed increased attention at the federal level. President Bush created the Committee on Ocean Policy under the administration’s Council on Environmental Quality. He also issued the U.S. Ocean Action Plan, later releasing the Ocean Research Priorities Plan and Implementation Strategy. However, these structures alone have not been able to tackle the burgeoning crises facing the oceans. Good policy

requires action, leadership, and funding, all of which have been lacking during the current administration and Congress.

In the absence of federal action, states have led the way in ocean reforms and collaborative measures. More than 20 states have established their own initiatives or participated in regional alliances to protect our coasts, oceans, and Great Lakes. Alaska, California, Florida, Hawaii, Massachusetts, New Jersey, New York, Louisiana, Oregon and Washington have all taken on the challenge of ocean policy reform. Furthermore, regional collaborations have addressed ocean and coastal concerns in the Gulf of Mexico, Great Lakes, West Coast, and other parts of the country. Nonetheless, the lack of a comprehensive national ocean policy prevents these state and regional efforts from reaching their full potential.

The next president should make ocean health in the context of climate change and governance reform one of the earliest priorities of a new administration. A constituency of governors, state legislators, federal agencies, researchers, and citizens of coastal communities await a signal from the federal government that these ocean issues will indeed garner the attention and action they deserve. This same constituency stands poised to support and complement the invigorated leadership and informed actions of a new administration and Congress.

*The number of “dead zones” in the world’s oceans has doubled every 10 years since the 1960s, now covering a combined area larger than the state of Oregon.*

It is imperative that we dedicate time and resources to resolving these problems, and follow the recommendations of the Joint Initiative and the two commissions it represents. Doing so will greatly advance our understanding and ability to respond to climate change, as well as the suite of other challenges that continue to compromise the health, productivity, and economic viability of our oceans, coasts, and Great Lakes.