

AMERICA'S OCEAN FUTURE

ENSURING HEALTHY OCEANS TO
SUPPORT A VIBRANT ECONOMY

June 2011

MESSAGE FROM THE LEADERSHIP COUNCIL

Since 2005, the Joint Ocean Commission Initiative has issued a series of specific recommendations and national report cards to track progress in addressing reforms originally identified by the U.S. Commission on Ocean Policy and the Pew Oceans Commission. In 2009, we published a report, *Changing Oceans, Changing World: Ocean Priorities for the Obama Administration and Congress*, that describes these reforms and key priorities for action, including the need for continued investment to assure the health and productivity of ocean and coastal resources into the future. The Obama Administration took an important step in 2010 when it established the nation's first National Ocean Policy—the National Policy for the Stewardship of the Ocean, Our Coasts, and the Great Lakes. Following the Executive Order, federal agencies were directed to develop strategic action plans to implement the policy in collaboration with states, tribes, and other stakeholders. The National Ocean Policy has the potential to serve as a catalyst for significant improvements in the coordination, effectiveness, and efficiency of how we, as a nation, manage the ocean, coastal, and Great Lakes resources on which the American people rely. This report is focused specifically on maintaining the momentum established by the National Ocean Policy.

We believe that four fundamental components are essential for effective implementation of the National Ocean Policy:

- Robust coordination of federal agency policies and activities in a manner that is transparent, supports predictable and efficient decision making, and is undertaken in close collaboration with regional, state, and tribal entities
- High-quality coastal and ocean observations, sound science and information, and spatially explicit ocean ecosystem assessments to inform decision making at local, state, regional, and national scales
- Implementation of policies that provide for the protection and enhancement of sustainable economic benefits from ocean, coastal, and Great Lakes resources
- Targeted investment in the implementation of the National Ocean Policy and the development of strategies to ensure consistent funding for supporting ocean and coastal science, management, and restoration, including development of a dedicated ocean investment fund

The implementation of these fundamental components will require shared commitment and support from America's leaders in government at all levels, as well as in the private sector and nongovernmental and academic communities. Only with everyone working together can our nation ensure the health of the critical ocean resources on which so many Americans depend for their livelihoods and quality of life.

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EXECUTIVE SUMMARY

Our oceans are in crisis. Ocean ecosystems are declining, threatening the coastal communities and ocean-based economies that depend on healthy marine resources and that are key pillars of the U.S. economy and high quality of life. This decline results in large part from decades of uncoordinated, sector-based management of these resources. In July 2010, President Obama signed Executive Order #13547 establishing the National Policy for the Stewardship of the Ocean, Our Coasts, and the Great Lakes. This is the first National Ocean Policy in U.S. history, and it aims to significantly improve the way we manage these valuable resources. The policy establishes a national commitment with a goal to:

Ensure the protection, maintenance, and restoration of the health of ocean, coastal, and Great Lakes ecosystems and resources, enhance the sustainability of ocean and coastal economies, preserve our maritime heritage, support sustainable uses and access, provide for adaptive management to enhance our understanding of and capacity to respond to climate change and ocean acidification, and coordinate with our national security and foreign policy interests.

If fully implemented, the National Ocean Policy will ensure that our ocean ecosystems are healthy, resilient, and capable of providing the high-quality American jobs and the important goods and services that the American people want and need now and in the future. The establishment of coordinated ocean management and science under a National Ocean Policy was called for by leaders in the governmental, academic, business, and environmental communities for decades. Recommending bodies included the U.S. Commission on Ocean Policy, the Pew Oceans Commission, and, since 2005, the Joint Ocean Commission Initiative.

The National Ocean Policy recognizes that ocean ecosystem health is interconnected with the productivity of ocean-related sectors of the economy and society. While establishment of the National Ocean Policy is a major step forward, the coordination structures and tools needed to effectively implement the policy are still in their infancy. Success will require strong commitment and support from America's leaders at all levels. It will also require adequate funding and should be prioritized, even in this time of economic challenges and fiscal austerity. An important potential mechanism for providing dedicated long-term funding for

ocean science and management is the development of an ocean investment fund supported by revenues from private commercial activities occurring in federal waters. Funding for implementation of the National Ocean Policy should also come through adequate Congressional appropriations and prioritization within existing agency budgets.

The Joint Ocean Commission Initiative is dedicated to helping the U.S. and its leaders focus on ocean policy priorities that will ensure that our oceans and coasts are managed effectively and efficiently going forward. If fully implemented, the following recommended actions would ensure that the National Ocean Policy helps the U.S. achieve important economic, environmental, and societal goals. In 2012, the Joint Ocean Commission Initiative will assess progress on these recommendations publicly, similar to previous U.S. Ocean Policy Report Cards issued by the Joint Initiative.

Recommendations

1. Congress and the Administration should fully implement the National Ocean Policy, taking the following actions in 2011 and 2012:

- The National Ocean Council should be given the resources needed to implement the National Ocean Policy to the fullest extent possible under existing authorities, as directed by Executive Order #13547.
- The National Ocean Council and participating federal agencies should use structures created by the National Ocean Policy to ensure robust coordination with, and support for, regional, state, tribal, and local priorities.
- The National Ocean Council should conduct a comprehensive interagency effort to review and amend ocean-related policies to reduce duplication and inefficiencies in the current ocean management system.

2. The National Ocean Council should ensure effective implementation of the nine national priority objectives. In implementing actions to achieve the objectives, the National Ocean Council should:

- Coordinate and integrate policies and actions across the objectives to the extent possible to avoid duplication, and clearly delineate agencies' responsibilities to assure accountability.
- Look to the Regional Planning Bodies and multi-state regional ocean partnerships to play significant roles in carrying out these responsibilities at the regional and state levels, recognizing that there is significant variation across the regions on priority issues.



3. When implementing Coastal and Marine Spatial Planning, the National Ocean Council and Regional Planning Bodies should ensure that:

- Stakeholder and public input is proactively sought and meaningful at every step.
- Federal agencies provide incentives for state and tribal participation, participate fully in the process, and comply with resulting coastal and marine spatial plans.
- Ecosystem health is the major goal, but current and future commercial activities are not slowed nor halted during the planning process.

4. Congress and the Administration should fund and implement the Integrated Ocean Observing System so that managers can understand how ocean ecosystem changes will affect ocean resources, ocean economies, and the communities that depend on them. They should also support the development of better models for forecasting ocean conditions under various management scenarios.

5. Federal agencies should work with Regional Planning Bodies, states, tribes, and academia to conduct comprehensive regional ocean ecosystem assessments. These assessments should consider ecological, cultural, and economic characteristics and include the study of the value of ocean ecosystem services to society, as well as the contributions that recreational uses of ocean and coastal resources make to the economy. They should be updated regularly and serve as the basis for planning and management activities at all levels of government.

6. Federal agencies should collect high-resolution, locally relevant information so that coastal states and communities can take climate change impact projections into account in decision making.

7. Congress should establish a national climate observing system, integrated with the Integrated Ocean Observing System, that coordinates the work of scientists in the public, private, academic, and nongovernmental sectors, and ensure this system pursues a strong link between ocean and climate change sciences.

8. Federal agencies should coordinate the collection, analysis, and increased accessibility of existing data and information. They should develop tools to assist with sharing, analyzing, and translating data to make more efficient use of federal, state, tribal, local, and private-sector information resources.

9. Congress should immediately invest in the ocean economy by funding implementation of the National Ocean Policy. It should support FY 2012 funding for implementation of the nine national priority objectives identified in the National Ocean Policy and in particular support regional ocean partnerships. The National Ocean Council should prioritize National Ocean Policy implementation within existing agency budgets.

10. Congress should establish an ocean investment fund with revenues dedicated from economic activities taking place on the outer continental shelf. These funds should then be used to improve ocean and coastal science, management, and ecosystem restoration at the federal, state, and local levels.

OCEANS ARE AN ECONOMIC ENGINE

Our oceans, coasts, and Great Lakes provide this nation with food, energy, desirable places to live, recreation, and tourism activities, and are the major avenue for U.S. international trade activities. Continued provision of many of these goods and services is highly dependent on the health of ocean and coastal ecosystems. Among the many benefits of properly functioning ocean and coastal ecosystems are seafood, climate regulation, disease and pest regulation, coastal protection, detoxification, fuel wood, wildlife habitat, sediment trapping, and numerous aesthetic, spiritual, educational, and recreational benefits.

The oceans, coasts, and Great Lakes produce goods and services that support the livelihoods of many Americans every year. In 2007, coastal counties contributed almost \$8 trillion to U.S. gross domestic product and 69 million jobs. Many of these jobs are provided by ocean-dependent sectors, including commercial and recreational fishing, tourism, shipping, offshore energy exploration and production, boating, wildlife watching, beach going, military and national security activities, and scientific and academic endeavors. Many of these are good jobs that depend on close proximity to America's coasts and therefore cannot be shipped abroad.

As illustrated below, our oceans and coasts make a substantial contribution to the U.S. economy:

- From 2007 to 2009, the average annual value of U.S. marine fisheries landings was \$4 billion. In 2010, 1.5 million jobs were associated with the U.S. commercial fishing industry yielding over \$45 billion in income.
- In 2006, saltwater anglers spent more than \$30 billion, representing more than \$80 billion in total economic impact and supporting 500,000 jobs. In the Great Lakes, recreational fishing generated more than \$7 billion in total economic output, \$2 billion in income, and supported more than 58,000 jobs.
- In 2010, the value of imports through U.S. ports was almost \$2 trillion, and in 2008, commercial ports supported 13 million U.S. jobs. Ports that accommodate oceangoing vessels move 99.5 percent of U.S. overseas trade by volume and 64 percent by value. Compared to 2001, total freight moving through U.S. ports will increase by more than 50 percent by 2020.

SHINING SEAS AND SANDS OF CALIFORNIA

Looking down from space, the view of California highlights its 3,400-plus miles of tidal shoreline. Coastal estuarine regions play a significant role in the state's economic activity. As of 2007, more than 85 percent of the state's gross domestic product and nearly 12 million jobs came from economic activity in these coastal estuarine areas. California's beaches are also vital assets to the state's economic resources. Their values range depending on location, but the total value of California beaches is estimated at between \$1.5 and \$3.0 billion per year. The value of beaches in the state is upwards of \$48,000 per acre for benefits like disturbance control, recreation and tourism, and cultural heritage. Furthermore, one study estimates that Californians are willing to pay, on average, \$56 per person for one-time beach protection efforts.

- In 2007, the leisure and hospitality industry in U.S. coastal states supported almost 11 million jobs and more than \$214 billion in wages. The cruise ship industry and its passengers contribute another \$12 billion in spending every year.
- The oceans contain approximately \$8 trillion in oil and gas reserves. Of the 368,000 jobs tied to Gulf of Mexico offshore operations in 2011, coastal states account for about 270,000, with nearly 98,000 jobs in non-coastal states. It is projected that total U.S. Gulf of Mexico spending by the offshore energy industry will be approximately \$41 billion in 2013, 73 percent of which will be in Alabama, Louisiana, and Texas.

Our oceans, coasts, and Great Lakes hold significant untapped potential for new and emerging ventures. Development of offshore renewable energy from wave, wind, tidal, and geothermal sources is a promising area that is expected to see significant growth in the future. Emerging fields such as offshore aquaculture, marine-based research and drug discovery, short sea shipping, and deep seabed mining hold the promise of new jobs and sources of revenue. These fields will impact entire supply chains, including technology developers, engineers, manufacturers, installers, managers, and consumers of energy, seafood, and other goods. Arctic exploration and newly accessible shipping lanes due to melting sea ice will result in new scientific discoveries, faster trade routes, and access to previously unavailable natural resources.

Future scientific and technological innovation, coupled with ecosystem protection and restoration will lead to new and revitalized opportunities for sustainable economic development of our ocean, coastal, and Great Lakes resources. Through implementation of the National Ocean Policy and better integrated management, our oceans, which are held in the public trust for all Americans, will be utilized in a sustainable manner for the benefit of current and future generations.

AVOIDING ENGINE FAILURE AND INVESTING IN PROSPERITY

Research has shown that the health of our oceans has declined sharply, largely as a result of past mismanagement and our failure to invest in the science needed to understand complex ocean and coastal ecosystems. Impacts include poor coastal water quality, stressed commercial and recreational fisheries, degraded habitats for ocean life, and struggling recoveries of threatened and endangered species. In addition, there is growing interest in expanding ocean uses and activities. Sometimes these uses are compatible with one another; often they are not. The current sector-by-sector management system is incapable of providing the integrated, comprehensive, and flexible approach needed to ensure that conflicts among proposed uses are minimized and potential benefits enhanced. Funding for ongoing science and technology is needed to better understand ocean ecosystems and make informed decisions about their management.

To complicate matters further, climate change is predicted to have increasingly significant impacts on coastal communities—impacts such as rising sea levels that threaten coastal infrastructure and habitats. Communities along U.S. coasts are currently experiencing increasing rates of coastal erosion, inundation, and saltwater intrusion into freshwater supplies. As a changing climate leads to the rapid melting of the massive glaciers of Greenland and other major sources of terrestrial ice, the latest science estimates between 3 and 5 feet of average global sea level rise by the end of this century.

In addition, while it is currently not possible to directly link particular weather events to climate change, there is mounting scientific evidence that climate change is leading to wider fluctuations in, and severity of, weather events with negative impacts to communities. There is also evidence that climate change is causing the acidification and warming of ocean waters—impacts with significant implications for ocean and coastal ecosystems and communities that rely on commercial and recreational fishing, whale and bird watching, scuba diving, and other wildlife-based activities.

Successfully addressing the full range of ocean management challenges requires coordinated and effective decision making that is supported by good scientific information, as called for in the National Ocean Policy. It requires that agencies with management responsibilities for disparate activities and resources, including agriculture, marine science, fisheries management, freshwater quality and quantity, energy production, and others work

THE BP DEEPWATER HORIZON OIL SPILL

On April 20, 2010, the Deepwater Horizon offshore oil drilling rig exploded in the Gulf of Mexico, resulting in the deaths of 11 workers, injuries to others, and a ruptured well leaking toxic crude oil into one of the most biologically diverse and resource-rich marine ecosystems in the world. Despite concerted efforts, approximately 200 million gallons of oil flowed into the Gulf of Mexico over the next three months.



The polluted water, soiled beaches, and damaged sea life resulting from the spill led to significant loss of jobs, revenues, and quality of life in the Gulf region. Many jobs dependent on the health of the Gulf ecosystem were lost due to closed fisheries, declining tourism, and public fears about beach contamination and seafood safety. In addition, Gulf residents suffered mental health issues related to stress and loss of livelihood, and spill cleanup workers suffered physical health problems due to exposure to toxic chemicals.

The accident also led to considerable environmental damage, some of which is still poorly understood. It illuminated the limitations of our scientific knowledge about the Gulf ecosystem and the environmental effects of oil contamination and oil dispersants. It also demonstrated an urgent need for better long-term monitoring and efforts to create more innovative cleanup solutions. Finally, the governance shortcomings that allowed the spill to happen in the first place, and the coordination and response challenges in its aftermath, pointed to a need for the reorganization of the federal agencies responsible for offshore drilling oversight.

On May 20, 2010, President Obama created the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling and charged it with investigating the causes of the BP Deepwater Horizon spill specifically and the safety of offshore drilling in the U.S. more generally. The Oil Spill Commission, as it came to be known, released a detailed report in

together in support of national goals for ocean ecosystem health and sustainable economic development. It also requires that regional, state, tribal, local, and federal government entities collaborate with each other, as well as with the private sector, nongovernmental organizations, and the American people.

January 2011 in which it concluded that the spill could have been avoided, and government and industry alike failed to anticipate, prevent, and respond effectively to the crisis. To address these challenges, the Oil Spill Commission issued recommendations to improve the safety of offshore drilling in the United States.

Many of the Oil Spill Commission's recommendations echo recommendations of the Joint Ocean Commission Initiative, the U.S. Commission on Ocean Policy, and the Pew Oceans Commission. These recommendations include a need for better coordination among federal, state, and local government agencies, such as through the use of innovative tools like spatial planning approaches; improved ocean and coastal science and technology; long-term monitoring of ecosystem health; more stable and consistent funding for ocean-related agencies, including use of some portion of outer continental shelf revenues to fund ocean and coastal science and management; and long-term restoration strategies.

The events in the Gulf of Mexico and the resulting recommendations of the Oil Spill Commission underscore the need for more efficient, effective, and coordinated ocean and coastal science and management to help prevent similar disasters and reduce negative impacts to the environment and economy when they do occur. Several proposals have been introduced in Congress to address the BP Deepwater Horizon oil spill. The key recommendations of the Oil Spill Commission should be acted upon immediately.



The Joint Ocean Commission Initiative urges Congress to expeditiously complete its review of the report of the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling and enact appropriate legislation in response to the Commission's recommendations.

THE GULF OF MEXICO: A JOB CREATOR

The Gulf of Mexico states depend economically on the resources and services they glean from their coasts and ocean waters. For example:

- In 2009, the leisure and hospitality industries along the Gulf Coast employed more than 25,000 people in Alabama and 260,000 in Florida.
- Louisiana's commercial fishing industry supports 27,000 jobs.
- Mississippi's seafood industry is valued at \$450 million per year and supports an estimated 1,600 shrimp workers and 1,200 jobs in seafood processing.



Oil and gas exploration and extraction also support a significant number of jobs, and are important industries for the region's economy. Using the mineral resources of the Gulf and protecting the health of the Gulf ecosystem are both critical to the economic vitality of the region. Policies made by Congress and the Administration that affect these vital Gulf resources should take into account the full range of jobs supported by the Gulf of Mexico.

TOWARD BETTER MANAGEMENT: A NEW NATIONAL OCEAN POLICY

The Executive Order that created the new National Ocean Policy also created a new interagency coordinating structure led by a cabinet-level National Ocean Council. Supporting the National Ocean Council are entities that provide interagency coordination on key technical and policy matters at the federal level. In addition, the Executive Order created the Governance Coordinating Committee, a group of state, tribal, and local representatives with a direct line to coordinate with and advise the National Ocean Council. The purpose of these structures is to improve ocean management to be more coordinated, efficient, and forward-looking and engage regional, state, and tribal input in a more meaningful way.

The National Ocean Policy identifies nine national priority objectives, and interagency technical and policy teams are working to develop strategic action plans over the next several months to address each priority. The priority objectives are:

1. Ecosystem-Based Management
2. Coastal and Marine Spatial Planning
3. Inform Decisions and Improve Understanding
4. Coordinate and Support
5. Resiliency and Adaptation to Climate Change and Ocean Acidification
6. Regional Ecosystem Protection and Restoration
7. Water Quality and Sustainable Practices on Land
8. Changing Conditions in the Arctic
9. Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure

The National Ocean Council is currently working with regional, state, and tribal partners to support the development of Coastal and Marine Spatial Planning (CMSP) in the regions, which will help identify the best areas for existing and future uses and will be conducted by Regional Planning Bodies. CMSP is a concept that is not well known to many in the United States. The framework for CMSP set out in the Executive Order makes clear that CMSP

THE GREAT LAKES: KEYS TO MICHIGAN'S ECONOMIC REVIVAL

Michigan has been deeply affected by the economic downturn, in part because of the struggles of the American automobile industry on which the state depends for thousands of



jobs. Fortunately, the state has another important economic resource that helps support its communities: the Great Lakes. Michigan boasts some 2,150 miles of coastline and an active coastal economy. Jobs provided by Great Lakes-influenced industries in 2007 numbered more than 800,000. In addition, Great Lakes-influenced jobs pay well in comparison to the average job in the state: 15 percent of all Michigan jobs are associated with the Great Lakes, and they make up 23 percent of the total Michigan payroll. Comprehensive restoration of the Great Lakes could improve Michigan's economy by contributing to new technological development, better quality of life, more tourism and recreation, and an increase in the number of qualified workers who move to and stay in the state.

creates no new authority and is not an additional layer of review, nor is it, as some have described, "ocean zoning" through a top-down federal process. Rather, CMSP is a decision support tool and planning process that will provide a platform for gathering the best information available and ensuring greater transparency.

CMSP provides a framework for engaging stakeholder groups and the public to analyze human activities in marine areas, facilitate coordination and participation, and take an ecosystem-based, future-oriented, and adaptive approach to decision making about activities in our oceans. It identifies areas potentially suitable for various categories of activities in order to reduce conflicts and facilitate compatibility. It also can foster coordination among various levels of government and collaboration with stakeholders to meet society's economic, environmental, and security objectives.

THE NATIONAL OCEAN POLICY: FURTHERING PROGRESS AND PROSPERITY IN STATES AND REGIONS

At present, more than 50 percent of the U.S. population lives in coastal counties, although such counties make up only 17 percent of the total land area of the United States, excluding Alaska. The coastal county population is expected to increase by almost 14 million people by 2020. Since coastal areas and adjacent ocean waters are heavily used, they are subject to ecosystem degradation and high levels of conflict among ocean users. Robust state engagement is critical to solving many of the greatest challenges we face in ensuring that our oceans and coasts are healthy, vibrant, and continue to support American jobs and communities.

The National Ocean Policy acknowledges the central importance of states in our national effort to protect and restore the health of ocean ecosystems. An important purpose of the policy is to coordinate federal support of state-level ocean management efforts. The policy calls for support for states that collaborate to identify shared regional ocean and coastal management goals and work together to achieve them. Such regional efforts are essential to successful ocean management, because ocean ecosystems—including the marine species and ocean currents that help define their boundaries—span jurisdictional lines. The CMSP process established under the National Ocean Policy could also facilitate regional collaboration across federal, state, and local scales to support regional priorities. The process gives states a potentially important tool to ensure that federal activities in both state and federal ocean waters are consistent with regional priorities. It also gives the states in a region both the strength in numbers and the political will that comes with collaborative action.

Many coastal states have already begun to collaborate regionally to identify ocean management priorities and strategies to work together to address critical ocean issues in a more coordinated manner. Multi-state partnerships focused on ocean issues have been formed in almost every region of the United States. These partnerships include: the Northeast Regional Ocean Council; the Mid-Atlantic Regional Council on the Ocean; the

Governors' South Atlantic Alliance; the Gulf of Mexico Alliance; the West Coast Governors' Agreement on Ocean Health; and the Great Lakes Regional Collaboration. The potential benefits that these regional partnerships bring to their member states include:

- Coordinated action and leveraged fiscal resources among states working on shared ocean issues, often with coordinated support from relevant federal agencies
- Enhanced federal interagency focus and accountability to address shared state priorities and assure consistency with state goals
- Greater consistency and efficiency in regulatory processes
- Reduction of conflicts among states managing shared resources

As noted in the Joint Ocean Commission Initiative U.S. Ocean Policy Report Cards, many of these existing regional partnerships are making progress on specific ocean issues, such as fostering increased resilience to marine hazards and preparing for and mitigating the coastal impacts of climate change. Some are working on mechanisms for more coordinated ocean governance broadly; others are taking coordinated steps on particular issues such as ocean education, science and data, marine debris, and renewable ocean energy planning.

Some states are making strides on ocean issues individually as well. For example, some have established collaborative processes among state agencies, tribes, counties, and local governments to protect and restore local estuaries and bays—often at watershed scales. Others are moving forward with marine spatial planning in their own state waters through various legislative and policy mechanisms.

Innovative work is being conducted in the states and regions, often through collaborative and coordinated approaches. These efforts are making a difference in ocean and coastal ecosystems and therefore protecting the jobs and quality of life that draw Americans to live, work, and play at our coasts. These efforts can only reach their full potential to support healthy ocean ecosystems and coastal economies with additional effort by the federal government as outlined in the National Ocean Policy. This includes providing coordinated support, management, scientific analysis, data, and funding. This will require federal agencies to coordinate better with one another at the federal and regional levels, and with states, tribes, and local governments. The National Ocean Council should establish mechanisms to ensure these coordination efforts are ongoing and result in better decision making. The new National Ocean Policy provides the foundation for such an effort.

HEALTHY OCEANS, HEALTHY ECONOMY: FUNDAMENTAL COMPONENTS FOR SUCCESS

If implemented effectively, the National Ocean Policy will help to ensure that America enjoys healthy oceans that support good American jobs and vibrant local economies, bring a high quality of life to coastal residents and visitors, and play an ever-critical role in mitigating and adapting to the impacts of climate change. Fundamental components for successful implementation of the National Ocean Policy include coordinated action to address the nine national priority objectives; robust, coordinated, and accessible science and information; and sufficient investment in ocean and coastal science and management now and in the long-term.

Coordinated Implementation of the National Ocean Policy

The bureaucratic complexity and single-sector agency focus that make coordination challenging will only be overcome with sustained leadership and a demonstrated commitment to effective implementation of the National Ocean Policy. To address this need, Executive Order #13547 set up an interagency coordinating structure led by the cabinet-level National Ocean Council. In order for this structure to be successful, the National Ocean Council must be given adequate authority and resources and provide engaged leadership. Federal agencies will need to ensure the actions they take when carrying out their individual mandates are consistent with the National Ocean Policy.

In addition to coordinating the development of new policies, the National Ocean Council should lead the federal agencies in identifying existing agency policies that overlap or conflict. The Council should then require the agencies to make changes to ensure that policies are not conflicting with one another and that they support the goals of the National Ocean Policy.



RECOMMENDATION Congress and the Administration should fully implement the National Ocean Policy, taking the following actions in 2011 and 2012:

- The National Ocean Council should be given the resources needed to implement the National Ocean Policy to the fullest extent possible under existing authorities, as directed by Executive Order #13547.
- The National Ocean Council and participating federal agencies should use structures created by the National Ocean Policy to ensure robust coordination, with and support, for regional, state, tribal, and local priorities.
- The National Ocean Council should conduct a comprehensive interagency effort to review and amend ocean-related policies to reduce duplication and inefficiencies in the current ocean management system.

National Ocean Policy Strategic Actions

The National Ocean Council is currently developing strategic action plans for each of the nine national priority objectives identified by the National Ocean Policy. CMSP will be led at the regional level by Regional Planning Bodies; however, it is unclear what mechanism will be used to coordinate the other eight national priority objectives. All nine priority objectives are highly interconnected and important to the implementation of the National Ocean Policy. The National Ocean Council should look to the Regional Planning Bodies not only for the implementation of CMSP, but also to play important roles in carrying out the other eight priority objectives at the regional level. This should be part of a national effort to shift federal and state interactions on ocean and coastal management issues from consultative processes to proactive planning.

RECOMMENDATION The National Ocean Council should ensure effective implementation of the nine national priority objectives.

In implementing actions to achieve the objectives, the National Ocean Council should:

- Coordinate and integrate policies and actions across the objectives to the extent possible to avoid duplication, and clearly delineate agencies' responsibilities to assure accountability.
- Look to the Regional Planning Bodies and multi-state regional ocean partnerships to play significant roles in carrying out these responsibilities at the regional and state levels, recognizing that there is significant variation across the regions on priority issues.

CMSP: A Tool to Support Regions and States

As envisioned by the National Ocean Council, CMSP is a public process grounded in regional decision making that facilitates coordination, cooperation, and better decision making about current and future uses of ocean space. CMSP will be coordinated at the regional level by the Regional Planning Bodies, which will be composed of representatives from state, tribal, and federal agencies with authority over various aspects of ocean management. With robust stakeholder and public input to identify regional ocean management goals and information needs, these bodies will develop spatially explicit ocean mapping, information, and planning scenarios to assist in identifying appropriate spaces for categories of ocean uses. The key purposes include maximizing the ability of marine resources to support a wide variety of human uses and helping to avoid future conflicts over the use of ocean space.

CMSP would not give federal agencies any new powers or authorities that they do not already have. In fact, the intention is to support and expedite decision making within existing authorities and ensure that federal agencies are coordinated in support of state and regional goals that are consistent with the National Ocean Policy. It is also important to clarify that CMSP should not be considered a management goal, but rather one tool to help managers make better decisions about ocean and coastal resources. If implemented with the support and engagement of state, tribal, local, and national leaders and stakeholders, CMSP could make ocean, coastal, and Great Lakes governance more effective, efficient, and grounded in the needs of local coastal communities. It has the potential to help states and regions identify shared goals and make better decisions about what happens in the ocean waters that affect their economies and quality of life.

Conflicts among ocean users and government agencies are currently resolved via expensive and adversarial win-lose or lose-lose political, legal, and regulatory processes. In fact, in many such situations there is more compatibility among ocean uses than is apparent to those struggling to retain or acquire rights to use ocean space for their particular activity. CMSP could help regulatory authorities, ocean users, and interested parties to identify—and base management decisions on—the compatibilities that do exist, allowing for the more sustainable use of ocean resources.

Several states, including Massachusetts, Rhode Island, California, Oregon, and Washington, have already made progress with spatial planning in their own state waters, and in some cases in adjacent federal waters. The National Ocean Council is planning a national workshop and a series of regional meetings with Regional Planning Bodies and other interested parties to ensure that these experiences inform the regional CMSP process. Federal agencies should ensure robust participation from states and tribes by facilitating their engagement, both politically and in terms of resources expended. Federal agencies can offer participating states and tribes financial incentives, including preferred status for some existing ocean- and coastal-related grants, as well as in-kind benefits such as technical support and staff sharing.

CMSP in the U.S. should be a highly participatory process in which a diversity of stakeholders helps to shape the process, from goal setting to plan implementation. While stakeholders automatically receive opportunities for input at certain points through existing public engagement processes under the National Environmental Policy Act, the Administrative Procedure Act, and other laws, the National Ocean Policy calls on the National Ocean Council and Regional Planning Bodies to go beyond these measures and ensure that stakeholders and members of the public are regularly engaged in meaningful ways throughout the process. This includes seeking participation from stakeholders who traditionally have had less access to the political process than well-funded and highly organized interest groups. Participation opportunities can range from formal advisory bodies to workshops to town hall meetings in affected communities. Engagement should be proactively sought from the outset of CMSP, tailored to local conditions, and result in the integration of stakeholder and public input into planning and decision making.

Maintaining and restoring ocean ecosystem health should be the key objective of any planning process. Giving proper weight and consideration to conservation and non-extractive uses of the ocean, such as recreation and tourism, will support many jobs that depend on vibrant oceans and coasts. In addition, the U.S. has an interest in ensuring that commercial activities in our oceans continue to support the American jobs, economies, and communities that depend on them. The National Ocean Council and Regional Planning Bodies should be aware that some commercial activities are highly resource intensive and require years of planning and preparation before they can commence. For this reason, it is important that the process of developing coastal and marine spatial plans not slow down or halt current or pending actions. The National Ocean Council and Regional Planning Bodies should also ensure that CMSP provides industries with the predictability and transparency they need to make long-term economic investments; this is one of the major potential benefits of the process for the private sector and will be essential for meaningful participation and support by these stakeholders.



RECOMMENDATION When implementing Coastal and Marine Spatial Planning, the National Ocean Council and Regional Planning Bodies should ensure that:

- Stakeholder and public input is proactively sought and meaningful at every step.
- Federal agencies provide incentives for state and tribal participation, participate fully in the process, and comply with resulting coastal and marine spatial plans.
- Ecosystem health is the major goal, but current and future commercial activities are not slowed nor halted during the planning process.

Robust, Coordinated, and Accessible Science and Information

Good decision making about ocean and coastal management must be grounded in high-quality science. This requires strongly supported, improved, and coordinated ocean observation systems, monitoring systems, and modeling and forecasting capabilities. In addition to being collected and analyzed in a coordinated manner, ocean information must be made highly accessible to decision makers and stakeholders. The National Ocean Policy can ensure that federal agencies improve the coordination of data collection, analysis, and

accessibility, and that coordination also occurs across federal, state, and local agencies, nongovernmental organizations, academic institutions, and private industries.

To address the need for better science coordination and prioritization, the administration of President George W. Bush prepared an Ocean Research Priorities Plan and an accompanying implementation strategy. These were completed in 2007. President Barack Obama's administration is currently updating the Plan to help guide decision making related to ocean research in the coming years.

Good ocean science will require consistent and dedicated investment. In this time of fiscal austerity, it may be difficult to find new funds to enhance America's marine science capabilities. But investing in ocean science, research, and education is important to supporting economic as well as environmental well-being. Ocean-related data and information are critical for informed coastal development, efficient marine transportation, safe commercial fishing, and vibrant marine-based recreation and tourism. Communities that rely on these activities—and other goods and services that ocean and coastal ecosystems provide—need to be able to quantify their contribution to the economy so they can make good decisions about their management going forward. Education in ocean and coastal sciences and technology should also be improved as part of the national push to bolster our scientific and technical workforce, so that the U.S. can continue to lead an innovation-based global economy. Supporting a better understanding of our oceans and coasts is a sound economic investment for today and for the future.

Ocean Observation, Monitoring, Modeling, and Assessment

Successful implementation of the National Ocean Policy and its strategic goals will require coordination and investment in ocean and coastal observing, long-term monitoring, modeling, and ecosystem assessment. These programs are essential for understanding the complex problems our ocean and coastal communities face; knowing whether our policies and management systems are meeting environmental, social, and economic goals; identifying how our policies can be improved; and developing new and innovative solutions.

Better decision making and long-term monitoring of the outcomes of those decisions requires a fully developed and supported Integrated Ocean Observing System (IOOS). The IOOS integrates data on what is happening in our oceans—including data from sensors at the bottom of the ocean, from buoys on the ocean's surface, and from satellites with remote-sensing technology high above the Earth. The IOOS allows us to better understand, model, and forecast changes to the planet and its oceans. This in turn allows us to understand how these changes will affect ocean economies and communities that depend on them, improve the safety of marine operations, improve national and homeland security, and mitigate the effects of natural hazards. Unfortunately, these benefits have been limited by insufficient

commitment and investment. In one stark example, the federal government was unable to accurately detect, monitor, or forecast the subsurface oil plume from the Gulf of Mexico spill, which resulted in uninformed management decisions, conflicting scientific predictions, and confusing communications with a concerned public.

In addition to ocean observation and monitoring efforts, there is a strong need for the development of improved ocean-related models. Better models can help managers understand and forecast conditions under various planning scenarios and management approaches. They can improve our understanding of how the physical, biological, chemical, and human elements of ocean ecosystems interact. This is essential for the more integrated, coordinated, and forward-looking management of ocean resources.

Gaining a comprehensive picture of the environmental, cultural, and economic characteristics of ocean and coastal ecosystems will be essential for improving our management of these resources. This includes gaining a better understanding of the contributions that ecosystem services and recreational uses make to our local, state, and national economies. Integrated ecosystem assessments at the regional or sub-regional scales can address this need. These assessments should go beyond a static snapshot and consider ecological, spatial, and temporal variations. They should be coordinated across federal agencies, states, tribes, and academic partners and should be regularly updated to serve as the basis for planning and management actions and a focal point for regional scientific efforts.

RECOMMENDATION Congress and the Administration should fund and implement the Integrated Ocean Observing System so that managers can understand how ocean ecosystem changes will affect ocean resources, ocean economies, and the communities that depend on them. They should also support the development of better models for forecasting ocean conditions under various management scenarios.

RECOMMENDATION Federal agencies should work with Regional Planning Bodies, states, tribes, and academia to conduct comprehensive regional ocean ecosystem assessments. These assessments should consider ecological, cultural, and economic characteristics and include the study of the value of ocean ecosystem services to society, as well as the contributions that recreational uses of ocean and coastal resources make to the economy. They should be updated regularly and serve as the basis for planning and management activities at all levels of government.





Ocean and Climate Science

Our planet's oceans play a central role in its climate system, absorbing, retaining, and transporting across the Earth large amounts of heat, water, and carbon dioxide. Our oceans are also greatly affected by our climate in an intricately linked and dynamic system. As the climate is changing, our oceans and coasts are being impacted in

significant ways. Ocean waters are warming and, because they absorb significant amounts of carbon dioxide from the atmosphere, becoming more acidic. Ocean currents are shifting and sea levels are rising. All of these changes have detrimental implications for the health of our oceans, our economy, national security, and human society.

While we know that the climate and our oceans are changing, we have limited capacity to accurately forecast the size, scope, and time scales for these alterations. Our understanding is limited because scientific inquiry about the connection between oceans and climate and the tools and systems needed to gather the basic information have been underfunded in the United States for decades. Improving our understanding of the connections between our planet's oceans and climate would help to answer important questions about the processes of climate change and thereby illuminate new and innovative solutions.

Ocean observing and monitoring systems are especially vital to understanding the causes and consequences of climate change, including how the oceans absorb and respond to carbon inputs. This information will be essential for developing new and effective mitigation and adaptation strategies. Information about climate impacts will be particularly important for coastal areas with infrastructure that is vulnerable to rising sea levels and strong coastal storms, including communities with naval facilities and transportation and energy infrastructure near the coast. It will also be important for coastal economies sensitive to changes in the distribution and populations of marine life, such as those areas dependent on commercial and recreational fishing, whale watching, and scuba diving.

Local communities currently do not have access to information at the proper scales for making decisions based on likely climate change impacts. Federal, state, and private entities should work to develop locally relevant forecasts of these impacts. To do so, they need high-

resolution topographic and socioeconomic data. They should also ensure the information is accessible to regional, state, tribal, and local decision makers in the public and private sectors.

In addition, in the Gulf of Mexico and other areas of the country where large restoration efforts are underway, a strong understanding of the connection between oceans and climate will allow for climate change impacts, such as sea level rise, to be factored into restoration strategies. For example, in Louisiana, coastal wetland loss has been occurring at an alarming rate of 25 to 35 square miles each year, and by 2050 an additional area the size of Rhode Island will be underwater. Since sea levels will continue to rise for many decades, and many coastal areas are already finding themselves gradually submerged beneath the sea, understanding these impacts is critical for the sound investment of public dollars in large restoration projects.

The coordination of data and information about the connection between oceans and climate is urgently needed across federal agencies and with state agencies, universities, and the private sector. Current efforts at the National Oceanic and Atmospheric Administration (NOAA) to enhance its ability to collect and analyze climate data, as expressed in the President's FY 2012 Budget Proposal, should specifically focus on the critical and inextricable link between oceans and climate. The 2009 National Academies report, *Restructuring Federal Climate Research to Meet the Challenges of Climate Change*, identified the establishment of a U.S. climate observing system as a top priority. A key element of this enterprise should link ocean and climate sciences, through a national ocean climate change research program. This program would be dedicated to better understanding the effects of global climate change on our oceans and vice versa. It would develop the scientific foundation for the U.S. to design resiliency and adaptation strategies for our coastal areas. A recent report published by the National Research Council of the National Academies, called *America's Climate Choices*, provides additional information on the risks that climate change poses to the U.S. and describes how an iterative risk management framework can be used to address the complexities and uncertainties of climate change, including as they relate to our oceans and coasts.

RECOMMENDATION Federal agencies should collect high-resolution, locally relevant information so that coastal states and communities can take climate change impact projections into account in decision making.

RECOMMENDATION Congress should establish a national climate observing system, integrated with the Integrated Ocean Observing System, that coordinates the work of scientists in the public, private, academic, and nongovernmental sectors, and ensure this system pursues a strong link between ocean and climate change sciences.

Regional Coordination for Better Science

Coordinating science, research, and monitoring efforts across federal agencies and levels of government is a chronic need. Coordination on the use of existing data is especially important and requires making the information compatible and comparable among sources, ensuring data is accessible through data-sharing portals, and instituting mechanisms for analyzing and translating information so it is understandable and usable by decision makers and the public. Better coordination can also help scientists in government and private institutions to collect information that is more relevant to decision making. For example, the CMSP process has the potential to help agencies and stakeholders understand what data is still needed—and at what scales—to inform good planning and investment in further research and monitoring. This information can then be used with a number of new decision-support tools that will allow managers in the public and private sectors to make better decisions.

In support of CMSP, several regions have initiated regional-scale data-sharing portals and, as directed by the National Ocean Policy, the federal agencies are working to develop a National Information Management System and prototype data portal. These portals will make finding information that is collected by different federal agencies significantly easier.

RECOMMENDATION Federal agencies should coordinate the collection, analysis, and increased accessibility of existing data and information. They should develop tools to assist with sharing, analyzing, and translating data to make more efficient use of federal, state, tribal, local, and private-sector information resources.

Finding Efficiencies in Government and Investing Wisely

During these difficult economic times, it is important to identify and maximize government efficiencies and ensure that public money is spent wisely on all activities, including on ocean and coastal management. To accomplish this, ocean-related agencies must coordinate their efforts effectively in order to streamline government and allow for simpler solutions and greater regulatory predictability. By emphasizing coordination with regional and state entities, as well as with the public, the National Ocean Policy will streamline decision making, improve environmental protection, and significantly increase predictability and transparency for those who rely upon our ocean and coastal resources for their livelihoods.

Allowing a delay in achieving management efficiencies promised by a robustly implemented National Ocean Policy would be economically counterproductive at a time when long-term deficits and job growth are dominating the attention of our nation and its leaders. In

addition, delaying support for science will further damage our ability to compete in an international economy driven by scientific and technological innovation, as well as our ability to make smart decisions about the ocean and coastal resources upon which many American citizens and businesses rely.

While some additional short-term investments may be required as the U.S. implements the National Ocean Policy and CMSP, the benefits to our ocean resources and the communities that depend upon them will be significant in the long run. Congress should support proposals for direct funding to NOAA for CMSP and the establishment of a competitive grant program called the Regional Ocean Partnership Funding Program. This program is included in the President's budget proposals for FY 2011 and FY 2012 at \$20 million. It represents a modest investment relative to the cost of fully implementing the National Ocean Policy and is needed to launch the effort and demonstrate a national commitment to improving the cost effectiveness of the way ocean and coastal resources are managed. Meanwhile, the National Ocean Council should prioritize key implementation activities and assess agencies' abilities to fund and redistribute existing moneys to accommodate them.

Given today's economic challenges, it makes sense to develop strategies for dedicated, long-term funding now that can be phased in over time. One promising funding opportunity that has been considered by Congress is the development of a dedicated ocean investment fund that would be capitalized with revenues dedicated from economic activities taking place on the outer continental shelf and used to support improved ocean and coastal science and management. The Oil Spill Commission agreed with the U.S. Commission on Ocean Policy and the Joint Ocean Commission Initiative that some portion of offshore revenues should be returned to the American people, whose oceans are being held in trust, and that this funding should be used to improve ocean and coastal science and management.

RECOMMENDATION Congress should immediately invest in the ocean economy by funding implementation of the National Ocean Policy. It should support FY 2012 funding for implementation of the nine national priority objectives identified in the National Ocean Policy and in particular support regional ocean partnerships. The National Ocean Council should prioritize National Ocean Policy implementation within existing agency budgets.

RECOMMENDATION Congress should establish an ocean investment fund with revenues dedicated from economic activities taking place on the outer continental shelf. These funds should then be used to improve ocean and coastal science, management, and ecosystem restoration at the federal, state, and local levels.



ASSESSMENT OF PROGRESS IN 2012

The National Ocean Policy can facilitate the important policy reforms that will lead to effective and efficient ocean governance for our nation. This will require the coordination of federal agencies and close collaboration with regions, states, tribes, and local governments; implementation of the National Ocean Policy national priority objectives, including CMSP; a robust science and information enterprise; and immediate investments to ensure that National Ocean Policy implementation is launched successfully, including the establishment of an ocean investment fund.

Over the coming year, the Joint Ocean Commission Initiative will track progress in implementing the National Ocean Policy according to the vision and recommendations presented in this report. In 2012, we will publicly assess progress on these recommendations, similar to the U.S. Ocean Policy Report Cards issued by the Joint Ocean Commission Initiative in previous years, and identify specific areas of achievement and deficiency. We encourage the leaders of this nation to support vigorous implementation of the National Ocean Policy to facilitate the coordination, science and data, and investment needed to make this historic effort a success. Their dedication to this effort will determine whether our nation's ocean ecosystems, and the critical resources they provide, will be abundant and able to support America's ocean, coastal, and Great Lakes economies and the jobs and communities on which Americans depend.

ABOUT THE JOINT OCEAN COMMISSION INITIATIVE

This report presents priority actions needed to ensure the successful implementation of the National Ocean Policy, as identified by the members of the Joint Ocean Commission Initiative. Established in 2005, the Joint Ocean Commission Initiative promotes and maintains the important work of the U.S. Commission on Ocean Policy and the Pew Oceans Commission. The Joint Ocean Commission Initiative Leadership Council is composed of former members of the two commissions and other experienced individuals from a variety of sectors, including industry, government, academia, and security at the national, state, local, and regional levels.

Throughout the years, the Joint Ocean Commission Initiative has gauged progress made toward achieving the recommendations of the two ocean commissions through the release of annual report cards in 2005, 2006, and 2007. These periodic assessments graded the nation's progress, or lack thereof, in the following categories: National Governance Reform; Regional and State Governance Reform; International Leadership; Research, Science, and Education; Fisheries Management Reform; New Funding for Ocean Policy and Programs; and in 2007, Links Between Oceans and Climate Change. In 2009, the Joint Ocean Commission Initiative released *Changing Oceans, Changing World: Ocean Priorities for the Obama Administration and Congress*, a report that highlighted priority actions for the transitioning Administration. The Joint Initiative plans to release an assessment report in 2012 to gauge progress toward implementing the National Ocean Policy.

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