

# Ocean and Coastal Frontiers

*Our Nation benefits from the oceans that carry precious natural treasures, carry much of our trade, and provide us with food and recreational opportunities.*

*President George W. Bush  
May 31, 2007*



The world's oceans are vast, their complexities not fully comprehended, and effective management of ocean resources often eludes us. Our 2009 budget includes a \$7.9 million increase for an Ocean and Coastal Frontiers initiative to address information gaps and improve integrated ocean and coastal management to protect communities, economies, and wildlife. The initiative seeks three objectives:

- Provide an information base to facilitate establishing the limits of the Nation's extended continental shelf, beginning with the Arctic.
- Launch a marine debris campaign and protect coral reefs.
- Expand the frontiers of scientific information in collaboration with others.

## INTERIOR'S OCEAN AND COASTAL RESPONSIBILITIES

The United States has extensive ocean and coastal lands, seabeds, and resources in the Arctic, Pacific, and Atlantic Oceans as well as the Great Lakes and Gulf of Mexico. The Nation relies on these oceans for transportation, commerce, food, energy, and recreation. More than half of the U.S. population lives within fifty miles of the coast. Most of the Nation's large cities are located in the coastal zone. The Nation's rivers tie the inland population to the coasts and oceans.

The economic value of oceans is significant, including more than 95 percent of U.S. overseas trade by

volume, which contributes \$740 billion annually to the Nation's Gross Domestic Product. Coastal and marine waters support over 28 million jobs, while providing tourist destinations for 189 million Americans each year. The U.S. consumers spend over \$55 billion for fishery products annually. The Outer Continental Shelf generates about 27 percent of the oil and 15 percent of the natural gas produced in this country, and the oceans are a critical component of the Earth's climate system. Wetlands, coastal forests, barrier islands, and submerged habitats protect coastal communities and people from the ravages of hurricanes and other natural disasters, and the coasts provide essential habitat for 85 percent of U.S. waterfowl and other birds.



The Interior Department has certain substantial mission responsibilities for the management of ocean and coastal resources and for the development of ocean and coastal science and information. Specifically, Interior manages 35,000 miles of coastline, including 5,000 miles of beaches; 177 island and coastal refuges; 92 million coral reef ecosystem acres

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with approximately 3.5 million acres of coral reefs; 34 million acres in 74 coastal parks; and 1.8 billion underwater acres of outer continental shelf lands. Interior assists in the management of 3.6 million square miles of ocean in the U.S. Territories and Freely Associated States.

## CHALLENGES AND OPPORTUNITIES

With these responsibilities come challenges. Gaps in coastal maps inhibit effective responses to coastal disasters and responsible management of coastal and ocean resources. Information is needed for the United States to make decisions regarding staking seabed claims under the Law of the Sea provisions to secure rights to minerals and energy.

The Interior Department and the Nation face significant challenges in managing ocean and coastal resources. Marine debris threatens 267 species of birds and other wildlife and litters beaches throughout the Pacific, including the 89 million acre Papahānaumokuākea Marine National Monument in the Hawaiian Islands.

To address these and other challenges, the Department has joined with other Federal agencies, States, and others in implementing the President's Ocean Action Plan. Through the plan, Interior is enhancing ocean leadership and coordination by supporting regional ocean governance efforts led by the States. The Department's scientists are working with other partners to advance understanding of the oceans, coasts, and Great Lakes, and supplying the information needed for better decisions. The Department is also working closely with others to enhance the use, conservation, and management of ocean resources.

The 2009 request significant resources to support the Department's diverse ocean, coastal, and Great Lakes program activities and to implement the U.S. Ocean Action Plan, approximately \$1 billion annually.



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## OCEAN AND COASTAL FRONTIERS INITIATIVE — THE DETAILS

Within the overall funding for implementing the President's U.S. Ocean Action Plan, Interior proposes an Ocean and Coastal Frontiers initiative in 2009 totaling \$7.9 million in targeted increases to:

- Expand the frontiers of scientific information to facilitate establishing the limits of the Nation's extended continental shelf, beginning with the Arctic, and continue to implement the President's priorities in the Ocean Action Plan for conducting sea floor mapping, implementing models to forecast responses to extreme weather events along coastal areas, and implement a water quality monitoring network
- Advance environmental protection of wildlife and habitat in ocean environments from marine debris and improve coral reef protection.
- Improve ocean and coastal resources through collaboration in developing science-based tools for decisionmaking.

### EXPANDING THE FRONTIERS OF SCIENTIFIC INFORMATION

Through the Ocean and Coastal Frontiers initiative, Interior will increase mapping to collect data needed to secure rights to mineral and energy resources in the extended continental shelf and to complete mapping and monitoring for effective management of marine resources and to assure effective responses to coastal disasters.

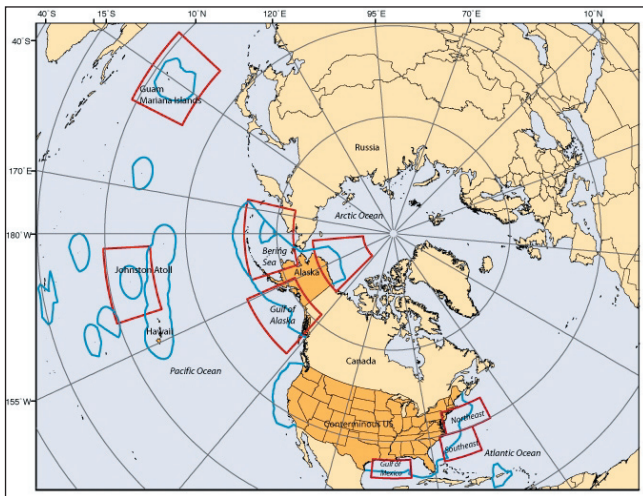
**Extended Continental Shelf**—The United Nation's Convention on the Law of the Sea includes provisions for coastal nations to determine limits for their extended continental shelf beyond the 200-mile limit of the exclusive economic zone.

Under the Law of the Sea, Interior has ten years to gather the data and establish its boundaries for the extended continental shelf in the U.S. Atlantic, Arctic, and Pacific oceans. While the United States is not a party to UNCLOS, accession to it is an Administration priority. Mapping of the seabed and underlying geology is critically important in light of the economic value of the resources, and it is in the



U.S. national interest to collect accurate and precise data on the outer limits of its continental shelf in preparation for an eventual extended continental shelf submission. The extended continental shelf is estimated to exceed 247 million acres, with the potential to increase the U.S. exclusive economic zone by about 20 percent. The area includes energy and mineral resources with an estimated value in excess of \$1 trillion.

The initiative includes \$4.0 million for USGS to conduct the necessary geologic and geophysical data collection and interpretation in the Arctic region in collaboration with the National Oceanic and Atmospheric Administration. This region is the priority region for initial mapping efforts of the extended continental shelf as it potentially contains large hydrocarbon-bearing formations. Geological data collection by USGS, when combined with the bathymetric data collected by NOAA, will form the basis for successful establishment of the U.S. extended continental shelf.



The 2009 funding will:

- Provide regional geological expertise, from both Federal and academic sources, for planning, implementation, and analysis of data collection efforts.
- Integrate appropriate legal and scientific expertise to identify potential extended continental shelf areas, evaluate dates, and develop information to submit jurisdictional claims.

- Evaluate submissions from other nations and the deliberations of the United Nations Commission to inform U.S. strategies and plans.
- Develop specialized analytic capabilities, including training and technical support staff.
- Develop and maintain data management systems to support development and testing of alternative legal and scientific interpretations.

The Department and NOAA will work collaboratively to determine extended continental shelf boundaries for submission under UNCLOS. Extended continental shelf boundaries are determined through bathymetric and geological data analysis. The NOAA is responsible for bathymetry, understanding the depth profile and the shape of the seafloor. Interior is responsible for geological data collection and analysis, which requires determining the thickness of the sediments and the method of the shelf's formation. Both bathymetry and geological data are expected to be critical to a successful United States submission under UNCLOS. The bathymetric data alone will not be enough to support a valid submission, as the United Nations Environment Program has stated that nations "must collect and interpret large volumes of geophysical data describing the shape of the continental margin, measuring sediment thickness and locating the 'foot of slope' of the continental shelf." The NOAA received \$8.0 million in funding in 2008 for ocean exploration efforts related to this work.

The Extended Continental Shelf Task Force, chaired by the State Department, with co-vice chairs from the Department of the Interior and NOAA, will share responsibility for data management, legal interpretation, and other issues necessary to support a U.S. submission and assess those made by other nations. The requested increase will provide the necessary scientific expertise and technical skill vital to making a submission that is in the long-term economic interests of the U.S.

**Mapping and Monitoring** — Development of baseline data for ecosystem-based management at a national level is a part of the President's Ocean Action Plan. With an increase of \$2.0 million provided in 2008, USGS is conducting sea floor mapping studies, evaluating and implementing models to forecast response to extreme weather events, and developing a water quality and ecological monitoring network.

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In 2009 an increase of \$1.0 million will be used to expand these activities for a total of \$3.0 million.

### MARINE DEBRIS AND CORAL REEFS

Through a global marine debris and coral reef campaign, Interior will collaborate with the National Fish and Wildlife Foundation to assess the sources and disposition of debris and augment clean up efforts to remove debris from beaches on the new Papahānaumokuākea Marine National Monument. Tons of debris annually threaten albatross and other bird populations at the monument, with some 85 percent of marine debris originating from sources onshore.

**Marine Debris** — The Nation’s coasts and oceans are littered with marine debris ranging from soda cans and small plastic objects to derelict fishing gear and abandoned vessels. Every year, marine debris injures and kills marine life, interferes with navigation safety, has adverse economic impacts to shipping and coastal industries, and poses a threat to human health. It affects marine ecosystems and the living resources that inhabit them.

*We became very fond of these funny little birds that we watched, but we also saw the carcasses of infant Laysan Albatross, because when their parents fish, they fish on the surface for squid, and that's where the plastic floats. And so they eat plastic and then feed their babies...every single type of plastic that we all know we use every day.*

*First Lady Laura Bush  
November 2, 2007*



Marine debris is particularly prevalent in the Papahānaumokuākea Marine National Monument. All of the marine debris that accumulates in the

Monument comes from outside sources, and the amount may be increasing. Recent studies demonstrate increases in marine debris in the Northwest Hawaiian Islands during El Niño years.



On a regular basis, staff and volunteers at Midway Atoll National Wildlife Refuge conduct reef and beach cleanup to remove large entanglement hazards. Since 1999, over 100,000 pounds of derelict fishing nets and ropes have been removed from Midway’s reefs and beaches. Coming from North America and Asia, floating debris is caught in the Pacific gyre of ocean currents, with many objects deposited on Midway National Wildlife Refuge’s otherwise pristine beaches. Feeding albatross inadvertently pick up this debris while feeding at sea and feed them to chicks at Midway and elsewhere in the monument. Annually, more than 9,000 pounds of plastic alone are brought to Midway by albatross and fed to their chicks. Current marine debris cleanup efforts do not include debris-reduction actions nor address the problem at the source.

As part of a marine debris initiative announced in 2007, the Fish and Wildlife Service is establishing new partnerships to combat this problem, with positive results. Dow Chemical will contribute funding in 2008 to perform forensic analysis on marine debris to identify its sources. While NOAA works to remove submerged marine debris from coral reefs, FWS is helping to clean up debris that is washed ashore.

The 2009 budget includes \$500,000 to develop a marine debris research and monitoring program and remove marine debris from the monument. Funding will expand current efforts and be used to raise awareness of this national marine resource management challenge and invest in partnership efforts with the National Fish and Wildlife Founda-



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tion, international corporations, and co-trustees to study the debris and track its origin and movements through ocean currents and gyres.

**Coral Reefs** — Through collaborative efforts of multiple bureaus and the Office of Insular Affairs, Interior manages 92 million coral reef ecosystem acres, in which there are approximately 3.5 million acres of coral reef in 24 parks and refuges. These vast responsibilities include the 89 million-acre Papahānaumokuākea Marine National Monument, which is managed jointly by Interior, NOAA, and the State of Hawaii. The Department also conducts pioneering scientific research, monitoring, and habitat mapping, which identifies the function, status, and condition of coral reefs and factors influencing reef health. This information is essential to informed management of coral reefs. Technical and financial assistance are provided to U.S. insular areas, which contain the largest coral reef areas under U.S. jurisdiction. The Department enforces laws to prevent illegal importation of coral products and provides scientific support and oil and gas regulatory protections for the Flower Garden Banks in the Gulf of Mexico. Interior also co-chairs the 22-member, Federal, State, territorial, and Freely Associated States U.S. Coral Reef Task Force.

To improve coral reef protection, the Administration's budget includes \$400,000 for the Palmyra Atoll Research Consortium, a unique partnership between FWS, USGS, The Nature Conservancy, and researchers from around the globe. The partnership will develop a comprehensive conservation plan, conduct a contaminant investigation of the effects of shipwrecks and other submerged debris on coral reefs, and develop a remediation feasibility study. The partners will also conduct a feasibility study to determine the best approach to restore 35 acres of Palmyra Atoll lagoon and coral reef affected by World War II.

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## IMPROVING OCEAN AND COASTAL RESOURCES THROUGH COLLABORATION AND PARTNERSHIPS

The President's U.S. Ocean Action Plan sets forth a pioneering vision for ocean management—one premised on effective science, regional partnerships, State leadership, and Federal coordination. The success of the regional partnerships will depend upon implementation of priority projects identified by States, which must be conducted based on the best available science. The 2009 budget includes \$2.0 million to fund USGS research to address the most compelling issues in key areas of interaction between society and the ocean.

Through the initiative, the Department will address broad, national, merit-based research priorities where they intersect with priorities established by regional and local entities to provide the information needed to achieve on-the-ground resource management outcomes. National priorities advanced by this initiative were established in the Ocean Research Priorities Plan and are a part of the President's U.S. Ocean Action Plan and the Coral Reef Task Force. Regional priorities have been established in several areas around the country through multi-State Governor-led partnerships, including the Gulf of Mexico Alliance, Northeast Regional Ocean Council, Great Lake Regional Collaboration, and the West Coast Governor's Agreement on Ocean Health. Funding for specific projects will be determined through a merit-based process.

Working with the States and Tribes, and in particular the regional ocean governance partnerships, research conducted through the Ocean and Coastal Frontiers initiative will ensure Interior-managed resources provide ecosystem-scale benefits that help provide a way to more effectively balance conservation and other societal needs.



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## OCEAN RESEARCH PRIORITIES PLAN

The Ocean Action Plan called for the National Science and Technology Council's Joint Subcommittee on Ocean Science and Technology to prepare an Ocean Research Priorities Plan and Implementation Strategy. A transparent process that included input from the ocean research community culminated in the release of the plan, *Charting the Course for Ocean Science in the United States for the Next Decade*, on January 26, 2007. The plan presents national research priorities that focus on the most compelling issues in key areas of interaction between society and the ocean. It also provides guidance on how the various ocean science sectors can and should be engaged, individually or through partnerships, to address the areas of greatest research priority and opportunity.

