National Marine Sanctuaries
National Oceanic and Atmospheric Administration

NATIONAL MARINE SANCTUARIES

2009 ACCOMPLISHMENTS

http://sanctuaries.noaa.gov

AMERICA'S UNDERWATER TREASURES

Photo: John Crofts

National Marine Sanctuaries — Preservation, Education and Innovation

Our national marine sanctuaries have been recognized around the world as a model for marine conservation management, adaptive management and extensive community involvement. NOAA's Office of National Marine Sanctuaries is recognized as an integrated approach to resolving many of the critical problems of our time — sustainable economies, energy independence, climate change and adaptation, barriers between cultures that prevent collective solutions, and national security.

National marine sanctuaries represent a diverse tapestry of marine ecosystems around the country. Each sanctuary is important in its own right, but as a system they make up the nation's only integrated collection of marine protected areas.

Sanctuaries connect the American people with the ocean and the rest of NOAA. The 14 sites in the National Marine Sanctuary System are visible in more than 600 communities — accounting for 18 percent of urban communities in the U.S. — while the system's 25 field offices provide a physical connection between many of those communities and NOAA's mission.

Sanctuaries are ideal places to develop an overall baseline of the health of our marine environment. They are sentinel sites for monitoring climate change, for conducting ocean-related science and research, and for understanding, preserving and honoring our heritage.

This report looks back on the Office of National Marine Sanctuaries' accomplishments over the past year. Each site has contributed to the achievements of the National Marine Sanctuary System, as have our many partners. Americans depend on a healthy ocean for food, recreation, weather and livelihood. We also understand that communities, economies and the issues of our time play an enormous role in how we manage our resources. National marine sanctuaries are places where nature and communities live and act in concert.

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COVER PHOTO: A humpback whale surfaces with a mouthful of food in Stellwagen Bank National Marine Sanctuary. The photo was taken during a research cruise in which suction-cup tags were attached to the backs of whales to study their underwater behavior. This whale is feasting on sand lance, a small schooling fish, as a whale watch vessel stands by. It is estimated that upwards of 1 million people go whale watching in the sanctuary each year.

COVER PHOTO CREDIT:
Ari Friedlaender, Duke University

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National Marine Sanctuaries

NATIONAL MARINE

Olympic Coast National Marine Sanctuary spans 3,310 square miles of marine waters off the rugged Olympic Peninsula. The sanctuary is home to many marine mammals and seabirds, diverse populations of kelp and intertidal algae, and thriving invertebrate communities. This sanctuary is also rich in cultural resources, with more than 180 documented historical shipwrecks and the vibrant contemporary cultures of the Makah, Hoh and Quileute Tribes and the Quinault Indian Nation. *Established July 16, 1994.*

Cordell Bank National Marine Sanctuary gets its name from the underwater mountain that rises to within 115 feet of the ocean's surface off Point Reyes, Calif. Upwelling of nutrient-rich deep water supports a flourishing ecosystem on and around Cordell Bank, making the 529-square-mile sanctuary a productive feeding destination for diverse marine creatures. Common sanctuary inhabitants and migratory visitors include whales, dolphins, sea lions, seabirds, rockfish and Pacific salmon. *Established May 24, 1989.*

Gulf of the Farallones National Marine Sanctuary covers nearly 1,300 square miles of coastal and ocean wilderness west of San Francisco. The sanctuary is home to some of the largest concentrations of white sharks and blue whales on Earth, along with one-fifth of California's breeding harbor seals and hundred of thousands of breeding seabirds. The sanctuary also protects numerous estuaries, bays and beaches for the public to enjoy. *Established Jan. 16, 1981.*

Monterey Bay National Marine Sanctuary is the nation's largest marine sanctuary, spanning more than 6,000 square miles of coastal waters off central California. Within its boundaries — which were expanded to include the Davidson Seamount in 2009 — are a variety of habitats, from rocky shores and lush kelp forests to an underwater canyon over 10,000 feet deep. The sanctuary's diverse marine life includes 33 species of marine mammals, 94 species of seabirds, 345 species of fish and thousands of invertebrates. *Established Sept. 18, 1992.*

Papahānaumokuākea Marine National Monument contains one of the last large-scale, predator-dominated coral reef ecosystems on the planet. The monument's waters are home to more than 7,000 marine species — a quarter of which are found only in the Northwestern Hawaiian Islands — including endangered and threatened species like Hawaiian monk seals and green sea turtles. Encompassing nearly 140,000 square miles of ocean and coral reefs, the monument has great cultural significance to Native Hawaiians and blends the management of terrestrial, marine and cultural resources with a focus on the connections between land and sea. *Established June 15, 2006.*

Channel Islands National Marine Sanctuary encompasses the waters surrounding San Miguel, Santa Rosa, Santa Cruz, Anacapa and Santa Barbara islands off the coast of California. The combination of warm and cold water currents around the Channel Islands results in a great variety of plants and animals, including large forests of giant kelp, flourishing populations of fish and invertebrates, and abundant and diverse populations of whales, dolphins, sea lions, harbor seals and seabirds. *Established Sept. 22, 1980.*

Hawaiian Islands Humpback Whale National Marine Sanctuary lies within the shallow, warm waters surrounding the main Hawaiian Islands and is one of the most important humpback whale habitats in the world. Scientists estimate that two-thirds of the entire North Pacific humpback whale population migrate to Hawaiian waters each winter to breed, calve and nurse their young. The continued protection of humpback whales and their habitat is crucial to the long-term recovery of this endangered species. *Established Nov. 4, 1992.*

SANCTUARY SYSTEM

Thunder Bay National Marine Sanctuary boasts nearly 100 shipwrecks preserved by the cold, fresh waters of Lake Huron within its 448-square-mile boundary. Thunder Bay's unpredictable weather and treacherous shoals have earned it the nickname "Shipwreck Alley," and its collection of wrecks represents a cross-section of the diverse vessels that have traveled the Great Lakes since the 19th century. From wooden schooners to modern freighters, these cultural treasures provide a window into the region's rich maritime history. *Established Oct. 7, 2000.*

Gerry E. Studds Stellwagen Bank National Marine Sanctuary sits at the mouth of Massachusetts Bay, just 25 miles from the busy port of Boston. The 842-square-mile sanctuary is one of the world's premier whale watching destinations and a historically important fishing ground. Its waters support a rich assortment of marine life, including the critically endangered North Atlantic right whale and the economically important Atlantic cod. A plethora of shipwrecks representing more than 400 years of maritime travel rest on the sanctuary seafloor. *Established Nov. 4, 1992.*

Monitor National Marine Sanctuary was designated the nation's first national marine sanctuary in 1975. The site protects the wreck of the famed Civil War ironclad USS *Monitor* off Cape Hatteras, N.C., best known for its battle in 1862 with the Confederate ironclad CSS *Virginia* at Hampton Roads. In partnership with The Mariners' Museum in Newport News, Va., the sanctuary unveiled the $30 million USS *Monitor* Center in 2007, further enhancing efforts to preserve, study and educate the public about this iconic piece of our nation's maritime past. *Established Jan. 30, 1975.*

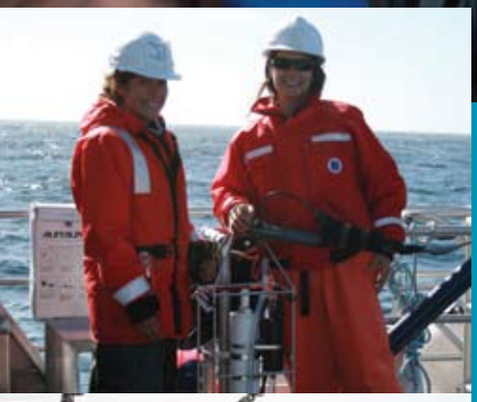
Fagatele Bay National Marine Sanctuary embraces a fringing coral reef ecosystem contained within an eroded volcanic crater in American Samoa. Fagatele Bay is the nation's smallest marine sanctuary at one-quarter square mile and its only true tropical reef. Hundreds of species of corals, colorful reef fish, algae and other invertebrates can be found in the warm waters of the sanctuary, along with sea turtles, dolphins, sharks, giant clams and migratory humpback whales. *Established April 29, 1986.*

Gray's Reef National Marine Sanctuary, surrounds one of the largest live bottom reefs in the southeastern United States, located just off the Georgia coast. The 22-square-mile sanctuary consists of rocky outcroppings separated by sandy troughs, resulting in a complex habitat of ledges covered by a "living carpet" of algae and invertebrates ranging from sponges to sea stars. Gray's Reef also supports loggerhead sea turtles, migrating right whales and a wealth of fish species, making the sanctuary a popular sport fishing and diving destination. *Established Jan. 16, 1981.*

Flower Garden Banks National Marine Sanctuary lies 70 to 115 miles off the Texas-Louisiana coast, where underwater "gardens" emerge from the depths of the Gulf of Mexico. The sanctuary encompasses three submerged features called salt domes that harbor the northernmost coral reefs in the continental United States. These premier diving destinations feature numerous Caribbean reef fish and invertebrate species and are frequented by majestic whale sharks and graceful manta rays. *Established Jan. 17, 1992.*

Florida Keys National Marine Sanctuary surrounds the Florida Keys archipelago and supports one of the most diverse marine ecosystems in North America. The sanctuary is home to the continent's only living coral barrier reef and beckons divers from around the world. The shallow waters of the 2,900-square nautical mile sanctuary also contain mangrove-fringed islands and lush seagrass meadows. Together, these complex ecosystems provide the basis for the valuable tourism and fishing industries that are vital to Florida's economy. *Established Nov. 16, 1990.*

SCIENCE & EXPLORATION



Sanctuary scientists work to understand and predict natural and human-caused changes throughout the National Marine Sanctuary System. From environmental monitoring to development of partnerships that enhance the system's research capacity, science and exploration are essential to the effective management of our special underwater places.

Researchers Study Impacts of Underwater Noise on Whales

Stellwagen Bank National Marine Sanctuary scientists have developed innovative "sound maps" that analyze the impact of underwater noise on marine life such as endangered right whales. The researchers combined three years of whale distribution, ship tracking, recorded sound and environmental data to create the maps, which can be used to study things like right whale communication in areas with intense shipping noise versus those without. Improved understanding of how underwater noise affects marine species will help marine resource managers better protect our sensitive ocean ecosystems. This collaborative research effort involving sanctuary staff, Cornell University, NOAA Fisheries Service and Marine Acoustic Inc. is funded by the National Oceanographic Partnership Program.

Photos (top to bottom): Ben Cowie-Haskell, SBNMS; Shannon Lyday, CBNMS; MBNMS; Greg McFall, GRNMS

NOAA Administrator Jane Lubchenco, Ph.D. (left), discusses an acoustic research program at Stellwagen Bank National Marine Sanctuary with sanctuary staff. One of the project's acoustic buoys, located in the Boston shipping lanes, sits in the water off the stern of the R/V *Auk*.

Deep-Diving Technology Leads to Species Discoveries

Research divers working off the NOAA ship *Hi'ialakai* in the Papahānaumokuākea Marine National Monument made several exciting discoveries as they tested advanced deep-diving technology in fall 2009. The scientists documented at least a dozen new fish in the Northwestern Hawaiian Islands, collected an undescribed species of butterflyfish, and documented previously unknown deepwater nursery habitats for reef fishes. Over the course of a month, the researchers conducted 111 dives to depths of 275 feet, demonstrating the safety and usefulness of the technology for future deep-sea scientific exploration. This technology will enhance our ability to learn more about the poorly understood environment deep below the ocean's surface.

Reports Provide Baseline of Sanctuary Site Resources

NOAA's Office of National Marine Sanctuaries completed "condition reports" for five sites in the National Marine Sanctuary System in 2009. Condition reports provide a summary of sanctuary resources, pressures on those resources, the current condition and trends, and management responses. The reports include information on the status and trends of water quality, habitat, living and maritime archaeological resources, and the human activities that affect them. Last year, condition reports were released for Flower Garden Banks, Cordell Bank, Channel Islands and Monterey Bay national marine sanctuaries and the Papahānaumokuākea Marine National Monument. These documents will serve as a baseline for monitoring sanctuary resources and are a vital tool in effective sanctuary management. The reports are available online at http://sanctuaries.noaa.gov/science/condition/.

Sanctuaries Use Technology to Remove Marine Debris

Stetson Bank in Flower Garden Banks National Marine Sanctuary is littered with trawl nets, boat anchors, scraps of metal and fishing line. Marine debris like this poses a serious threat to ecosystems throughout the National Marine Sanctuary System, but it is often located too deep to be reached by standard scuba diving operations. Flower Garden sanctuary staff partnered with expert technical divers, who are trained to descend deeper than standard scuba divers, to remove various debris from Stetson Bank during a five-day expedition funded by the NOAA Marine Debris Program. Elsewhere, Monterey Bay and Cordell Bank national marine sanctuaries successfully teamed up in October 2009 to locate and remove derelict fishing gear from the seafloor using a remotely operated vehicle.

Photo: NOAA

Monitoring and Interpreting Climate Change through Sanctuary Sentinel Sites

The National Marine Sanctuary System provides an ideal venue for studying our world's changing marine environment. Sanctuaries are "sentinel sites" where NOAA scientists and partners can coordinate and focus research on our ocean ecosystems over time. Through collaboration and monitoring in sanctuaries, we can better understand the ways that global climate change impacts our precious underwater resources and the communities that depend on them.

- Staff of Fagatele Bay National Marine Sanctuary developed community-based climate change adaptation strategies and identified education and outreach needs in American Samoa following a socioeconomic study of public perceptions of climate change.
- Cordell Bank and Gulf of the Farallones sanctuary scientists initiated a regional monitoring program to improve our understanding of the central California marine ecosystem, providing the foundation for understanding changes in the ocean environment and a baseline for measuring climate change.
- Gulf of the Farallones National Marine Sanctuary staff completed energy, transportation and waste audits for the site, and are working to reduce their carbon footprint. Additionally, the site's historic buildings are being remodeled and a LEED Gold certification will be sought.
- The Channel Islands National Marine Sanctuary Advisory Council finalized a comprehensive report on ocean acidification, calling out the importance of prioritizing research, monitoring, education and leadership on this issue.

OUR HERITAGE

National marine sanctuaries are places to explore, discover and appreciate our country's maritime and cultural heritage. This rich history comes in many forms, including shipwrecks and prehistoric archaeological sites, archival documents, oral histories, and the traditions of indigenous cultures. Through the study, protection and promotion of this diverse legacy, sanctuaries help Americans become engaged in the stewardship of our shared maritime past.

African-American Divers Explore Seafaring History through Underwater Archaeology Training

In summer 2009, the Office of National Marine Sanctuaries Maritime Heritage Program supported Nautical Archaeology Society training sessions in the Florida Keys National Marine Sanctuary for members of the National Association of Black Scuba Divers (NABS) and sanctuary staff. The course is designed to teach principles and practices of maritime archaeology, and participants learned how to identify cultural resource sites and conduct underwater mapping, conservation and reporting. The course included classroom activities and field sessions at the *City of Washington* shipwreck on the sanctuary's Shipwreck Trail. The training for NABS members is part of a new Office of National Marine Sanctuaries education initiative called "Voyage to Discovery," which will explore the maritime heritage of African-Americans and engage communities in marine conservation. Graduates of the training are expected to take part in future field work through the Voyage to Discovery program.

Photos (top to bottom): Tane Casserley, NOAA; Kekuewa Kikiloi; Courtesy Maine Maritime Museum; Courtesy The Mariners' Museum; NOAA/SBNMS & NURC-UConn

Members of the National Association of Black Scuba Divers participate in an underwater archaeology field training session, hosted by NOAA archaeologists in Florida Keys National Marine Sanctuary. The training was held as part of the Office of National Marine Sanctuaries' "Voyage to Discovery" education and outreach initiative.

Joffre Shipwreck Listed on National Register of Historic Places

Stellwagen Bank National Marine Sanctuary successfully nominated the sunken remains of the *Joffre* to the National Register of Historic Places in March 2009. The *Joffre* is an early 20th-century fishing vessel that represents a period of tremendous technological changes in New England's fishing industry. The 105-foot vessel was launched as a schooner in 1918 from Essex, Mass., and converted in 1939 into a motorized eastern-rig dragger, a type of trawler. The *Joffre* caught fire and sank in 1947 off Gloucester, Mass. During its 29 years of service, its crew landed over 15 million pounds of fish. Scientists from NOAA and the National Undersea Research Center at the University of Connecticut first documented the shipwreck in 2006 with a remotely operated vehicle. The vessel is the first of its kind to be listed on the National Register, the United States' list of historic properties worthy of preservation. The *Joffre* joins four other shipwrecks in the Stellwagen Bank sanctuary already on the National Register.

Archaeological Study Investigates Early Inhabitants of Northwestern Hawaiian Islands

Papahānaumokuākea Marine National Monument archaeologists spent nearly three weeks in August 2009 on isolated, wind-swept Mokumanamana (Necker Island) in the Northwestern Hawaiian Islands. This survey of cultural resources on the island was the most extensive in more than 85 years. The island had no inhabitants when the first Europeans rediscovered it, categorizing it as a "mystery island," but there was evidence of prior human occupation. The archaeological research will help reveal who lived on the island, when and for how long. Researchers are working to determine whether basalt artifacts from Mokumanamana were made locally or brought to the island, suggesting a connection to other Pacific islands. One exciting discovery made during the expedition was a rare "Necker Island stone image," a collection of which was first rediscovered in 1894.

Sanctuary Expedition Discovers Navy Patrol Boat Sunk in WWII

During a summer 2009 research expedition, NOAA archaeologists discovered the remains of a lost U.S. Navy vessel, the YP-*389*, just four miles from Monitor National Marine Sanctuary. The shipwreck's discovery was the result of a collaboration involving staff from the Monitor sanctuary, East Carolina University, the University of North Carolina at Wilmington, and the North Carolina Underwater Archaeology Branch. The team explored the wreck site using a remotely operated vehicle and, with the aid of archival photographs and historical records, positively identified the ship as the YP-*389*. This U.S. Navy vessel's final resting place had been unknown since it was sunk during World War II in 1942 by the German submarine U-*701*.

Hanalei Bay, Kauai

Photo: Hawaii Tourism Authority/Tor Johnson

Sanctuaries Lead Effort to Designate Preserve America Communities

The Office of National Marine Sanctuaries coordinates NOAA's effort for the national Preserve America program to recognize communities that protect and celebrate their heritage, use their historic assets for economic development and community revitalization, and encourage people to experience and appreciate local historic resources through education and heritage tourism programs. Since its conception in 2003, nearly 800 communities across the nation have been designated as Preserve America Communities, about 100 of which are located along the coast.

Coastal communities are the beginning places of American history, and the national marine sanctuaries are natural vehicles for telling these compelling stories. The Office of National Marine Sanctuaries has assisted nearly 20 of these communities in achieving Preserve America designation, including two in 2009: the county of Kauai, which borders the Hawaiian Islands Humpback Whale National Marine Sanctuary, and Falmouth, Mass., adjacent to Stellwagen Bank National Marine Sanctuary. Additionally, through the work of Fagatele Bay National Marine Sanctuary staff, America Samoa is pending designation in 2010.

OUTREACH & EDUCATION

Students participate in the Office of National Marine Sanctuaries' "Ocean for Life" education program in summer 2009. The pilot program brought together nearly 60 high school students from Western and Middle Eastern nations, using the ocean as a place to discover common ground.

Challenges facing the ocean today cross national and ethnic boundaries, and marine sanctuaries serve as places where people can find common ground and discuss solutions. Sanctuary education and outreach efforts link communities through innovative programs and help spread awareness of the ocean's connection to all life.

Ocean for Life: Promoting Cross-Cultural Understanding through Ocean Science

In summer 2009, the Office of National Marine Sanctuaries and the GLOBE Program piloted "Ocean for Life," an immersive education program with the goal of increasing cultural understanding through ocean science. This pilot program brought together 57 high school students from 14 countries, including the United States, Bahrain, Canada, Egypt, France, Morocco, Pakistan and Saudi Arabia, and encouraged the participants to discover common ground in marine science, conservation and how the ocean connects us all. Over the course of two separate two-week field studies, the students explored Florida Keys National Marine Sanctuary, Washington, D.C., and Monterey Bay, Cordell Bank and Gulf of the Farallones national marine sanctuaries along the central California coast. In partnership with American University and National Geographic, the participants created multimedia projects using photos and video they collected during their experiences. They are continuing to collaborate on their ocean stewardship and cultural engagement efforts in their home towns and countries. For more information about the Ocean for Life program, visit www.oceanforlife.org.

Photos (top to bottom): Natividad Chen, Canada (Ocean for Life California); Nicolas Lemoine, France (Ocean for Life Florida); Lindsay McCullough, NGS Photocamp; Samaah Jaffer, Canada (Ocean for Life California)

Multicultural Students Learn Science through Conservation

The Multicultural Education for Resource Issues Threatening Oceans (MERITO) Academy at Channel Islands and Monterey Bay national marine sanctuaries provides hands-on environmental education for Latino students in fourth through eighth grade. During the 2008-09 academic year, sanctuary partners funded training for 65 educators to implement the MERITO Academy curriculum and provide meaningful watershed and ocean experiences for their students. More than 1,300 students participated in the 40-week academies, which focused on increasing science, technology, engineering and mathematic skills. The MERITO Academy consisted of 36 sessions at 30 schools and after-school programs in California.

Sanctuaries Act as Catalysts for Watershed Education

Building on the success of the California Bay-Watershed Education and Training (B-WET) Grants Program, Olympic Coast National Marine Sanctuary was selected by the NOAA Office of Education in spring 2009 to host the new Pacific Northwest B-WET program. B-WET programs in California, Hawaii and the Chesapeake Bay region already provide funds for organizations that engage under-served students in field-based watershed education experiences. Projects offer hands-on learning opportunities to students, teachers and communities, focusing on ocean literacy concepts and human connection to the national marine sanctuaries. Through the B-WET expansion into the Pacific Northwest, sanctuary staff there will be able to serve schools throughout Oregon and Washington, and enhance NOAA's educational outreach efforts in the region. Grants awarded by the B-WET programs in California and the Pacific Northwest in 2009 totaled nearly $2.6 million.

Film Festivals Highlight Sanctuaries from Coast to Coast

The Sixth Annual San Francisco Ocean Film Festival drew an estimated 3,700 ocean enthusiasts in February 2009 to view films on marine science and exploration, conservation, recreation, and coastal cultures. The event featured more than 40 international documentary, fictional and animated films, along with student programs, media arts awards and public discussions. A special session spotlighted Gulf of the Farallones National Marine Sanctuary, a founding partner of the festival, and Cordell Bank National Marine Sanctuary. Across the country, Gray's Reef National Marine Sanctuary hosted the 2009 Blue Ocean Film Festival, a global summit for underwater filmmakers and researchers. Held in Savannah, Ga., in June, the festival received more than 200 entries. The event, which will relocate to Monterey, Calif., in 2010, honored, promoted and shared more than 50 films that inspired people to protect our oceans and the life within. Festivals like these showcase the power of film in promoting ocean conservation, exploration and science, and interaction with our marine environment.

Building New Partnerships with NASA for Distance Learning

Monitor National Marine Sanctuary and NOAA's National Ocean Service, in collaboration with NASA Langley Research Center's Digital Learning Network, hosted a "Tides and Currents" Web cast for teachers in April 2009. The Web cast, one in a series conducted by NASA to help educators bring earth science into the classroom, featured NOS staff broadcasting from NASA Goddard Space Flight Center, sharing NOAA educational resources and answering questions in real time. Monitor sanctuary staff hosted more than 100 teachers from Virginia and North Carolina, who viewed the 1 1/2-hour Web cast broadcast from Hampton, Va. This multi-agency collaboration was the first in a regular series of Web cast for educators and students focusing on ocean and climate literacy principles.

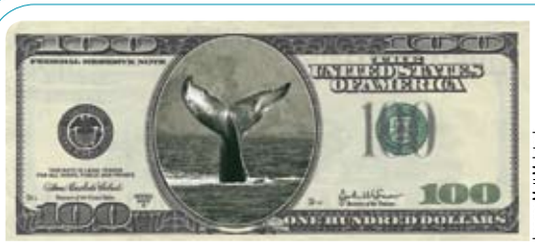


Image: Matt McIntosh

Capitol Hill Ocean Week 2009: Understanding the Blue Economy

NOAA's Office of National Marine Sanctuaries' National Marine Sanctuary Foundation hosted the annual Capitol Hill Ocean Week symposium in June 2009. The event, themed around "The BLUE Economy: Understanding the Ocean's Role in Our Nation's Financial Future," brought together leading government policy makers, scientists, non-governmental groups, industry representatives and federal agency officials to discuss the inextricable link between the ocean and the economy and to suggest tangible ways sound ocean policies might help improve our economy.

The event kicked off with a congressional briefing on "Sanctuaries and the Economy" held by sanctuary staff in the U.S. Capitol Visitor Center. More than 90 people attended the briefing, which was co-hosted by the House Oceans Caucus, the House National Marine Sanctuaries Caucus, and the National Marine Sanctuary Foundation. During the week, leadership from across the National Marine Sanctuary System also provided briefings to two congressional committees and numerous House and Senate members and staff. Year after year, Capitol Hill Ocean Week and the events surrounding it have become a key forum to talk about important ocean and coastal issues with members of Congress, the administration and our stakeholders.

COMMUNITY INVOLVEMENT

Sanctuaries are supported by a network of dedicated and diverse individuals and organizations working to protect our ocean. Throughout the National Marine Sanctuary System, thousands of volunteers make wide-ranging science and education programs possible, community-based advisory groups provide expertise and input on critical issues, and non-profit partners help build support for effective ocean management. Together, these pieces form a strong foundation for the protection of our nation's most treasured underwater places.

Heart of the Sanctuary System: Volunteers Make a Difference

Every year, thousands of citizens volunteer to serve throughout the National Marine Sanctuary System, helping make many of the sanctuaries' most successful programs a reality. Two such programs that rely heavily on volunteer support are the Channel Islands Naturalist Corps and the Sanctuary Ocean Count. The Naturalist Corps, which conducts education and science activities like public outreach and whale identification at Channel Islands National Marine Sanctuary, received more than 25,000 hours from 135 trained volunteers in 2009. Last year also marked the 14th annual Sanctuary Ocean Count at the Hawaiian Islands Humpback Whale National Marine Sanctuary, a project that enlists local residents and tourists to count and observe humpback whales every year. This popular outreach effort continued to grow in 2009 as more than 1,500 volunteers on the islands of Hawaii, Kauai and Oahu donated over 11,000 hours of their time, increasing their appreciation for the ocean while contributing to scientific whale research.

Photos (top to bottom): Paul Wong, HIHWNMS; Emma Hickerson, FGBNMS; Andrew DeVogelaere, MBNMS; Charles Seitz, American Samoa Department of Commerce

Sanctuary volunteers count whales from Lanai Lookout on Oahu as part of the 2009 Sanctuary Ocean Count, held annually in the Hawaiian Islands Humpback Whale National Marine Sanctuary. The volunteer observers donated more than 11,000 hours of their time last year alone.

Advisory Council Actions Focus on Ocean Acidification

Hundreds of people around the nation played an integral role in the management of national marine sanctuaries in 2009 through participation in sanctuary advisory councils. Advisory councils provide a way for local community members to provide recommendations to the sanctuary superintendent and help guide sanctuary activities at each of the 14 sites managed by the Office of National Marine Sanctuaries. Across the sites, more than 740 council and working group members volunteered over 16,000 hours of their time last year. The topic of ocean acidification galvanized councils, with 13 councils taking action by educating council members on the topic, passing resolutions and making recommendations recognizing the threat it poses to sanctuary resources, and urging NOAA to take action at the national, regional and local level.

Sanctuaries Aid in Natural Disaster Recovery Efforts

Recently, nature has tested the readiness of two sites in the National Marine Sanctuary System. On Sept. 29, 2009, an 8.3 magnitude earthquake struck 190 kilometers southwest of American Samoa and generated a tsunami that devastated shorelines throughout the island, where the offices of Fagatele Bay National Marine Sanctuary are located. One year prior, Hurricane Ike passed directly over Flower Garden Banks National Marine Sanctuary, leaving a trail of smashed corals and shifted sand before making landfall at Galveston Island, home to the sanctuary office and staff. While the primary concern in each of these disasters was for the safety of the site staff and their families, following both events sanctuary vessels and staff were deployed to assist local partners with recovery efforts and damage assessments of sanctuary resources. Staff members from the sanctuary system continue to work with other parts of NOAA to identify needs and support the recovery process wherever possible.

Monterey Bay Programs Celebrate 10 Years of Conservation

Monterey Bay National Marine Sanctuary's Water Quality Protection Program had much to celebrate in 2009. Both the Snapshot Day and First Flush water quality monitoring programs have provided resource managers with 10 years of data about the health of local streams and the pollutant concentrations in storm water runoff. With the help of thousands of volunteers and partners, these important programs have established a baseline of information about water flowing from our watersheds into the sanctuary. In addition, the Agriculture Water Quality Alliance celebrated 10 years of collaborative conservation efforts. This unique regional partnership brings together farmers, ranchers, resource conservation agencies, researchers and environmental organizations to protect the health of sanctuary waters. Farmers and ranchers of the central coast are setting an example for other regions by showing that economically viable agriculture is compatible with environmental protection.

Photo: Rob O'Neal/Monroe County Tourist Development Council

Sanctuaries Provide a "NOAA Storefront" in Communities

Through shared assets and community partnerships, sanctuaries showcase NOAA's mission. The sanctuary system continues to expand its visitor facilities — the places where the public learns about sanctuaries and the rest of NOAA. These facilities include seven sanctuary visitor centers that reached more than 190,000 visitors in 2009 alone. Sanctuary exhibits in aquariums and museums around the nation reach millions more. Last year also marked the opening of the new Sanctuary Learning Center in Kihei, Maui, at the Hawaiian Islands Humpback Whale National Marine Sanctuary.

In addition to facilities, sanctuaries are the places where other NOAA assets and expertise are focused. The West Coast Region benefits from a Twin Otter aircraft, operated by NOAA's Aircraft Operations Center. The aircraft maximizes the ability to service the West Coast national marine sanctuaries for resource protection, scientific surveys and enforcement, and to support other NOAA priorities. In partnership with NOAA's Great Lakes Environmental Research Laboratory, Thunder Bay National Marine Sanctuary also acquired the 50-foot research vessel *Storm*, which will provide a platform for archaeological research, remote sensing and mooring buoy deployment. The R/V *Storm* has been converted to a petroleum-free vessel and uses 100-percent soy biodiesel for engine fuel.

PROTECTION & MANAGEMENT

Resource protection and management are at the heart of the Office of National Marine Sanctuaries' mission. Backed by one of the strongest pieces of ocean conservation legislation, the National Marine Sanctuary System uses diverse tools like coastal and marine spatial planning, management plans, regulations, zoning, permitting and interpretive enforcement to ensure that our special underwater places are preserved for the enjoyment of future generations.

This basket star and assorted sponges are just a few of the many species found on the Davidson Seamount, one of the largest underwater mountains in the U.S. In 2009, the boundaries of Monterey Bay National Marine Sanctuary expanded to include the seamount.

Monterey Bay Sanctuary Extends Protection to Underwater Mountain

Monterey Bay National Marine Sanctuary boundaries expanded in 2009 to include the Davidson Seamount, a pristine undersea mountain habitat off the coast of Central California, following seven years of extensive public input and inter-agency collaboration. At 26 miles long and eight miles wide, it is one of the largest known seamounts in U.S. waters. From base to crest, it is nearly 7,500 feet tall, yet its summit still lies more than 4,000 feet below the sea surface. The seamount, which has been called an "oasis in the deep," is populated by diverse deep-sea corals, fish, crabs and sponges, including numerous rare and unidentified species. Davidson Seamount has special national significance for its ecological, scientific, educational and historical qualities, and its inclusion in the Monterey Bay sanctuary is a triumph for ocean conservation.

Papahānaumokuākea Nominated as a UNESCO World Heritage Site

In January 2009, Papahānaumokuākea Marine National Monument was nominated by the United States for inscription as a World Heritage Site for its outstanding natural and cultural attributes. The monument is one of only two sites nominated by the nation in more than 15 years. World Heritage listings are a designation of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and include sites such as the Egyptian pyramids and the Grand Canyon. Papahānaumokuākea is currently being evaluated by UNESCO and will come before the World Heritage Committee for decision in July 2010. Papahānaumokuākea is the first site ever nominated with indigenous cultural connections to the sea. If inscribed to the World Heritage List it would become one of the few marine conservation sites to receive this level of recognition, and one of a handful of sites representing the heritage of Oceania.

Photo: NOAA/MBARI, Map: Chad King, SIMoN/MBNMS

Florida Keys Sanctuary Combats Illegal Poaching

Two of Florida's biggest lobster poaching busts on record came in 2009, both taking place in Florida Keys National Marine Sanctuary. In two separate cases built by sanctuary and state of Florida enforcement officers, poachers were caught harvesting more than 10,000 pounds of lobster while diving on illegal structures known as casitas, or "lobster condos." Casitas are artificial barriers on the seafloor that disrupt the natural migration of lobsters and cause them to gather in places where they are subject to increased poaching and predation. The structures also smother the seafloor underneath and have the potential to damage the environment if displaced by storms. Over the last three years, the NOAA Restoration Center, with support from the NOAA Marine Debris Program, the Florida Keys sanctuary, and other state and federal agencies, oversaw a project that identified and removed 89 tons of casitas and gear from sanctuary waters.

Global Connections Aid Marine Mammal Protection

The Hawaiian Islands Humpback Whale National Marine Sanctuary co-hosted the First International Conference on Marine Mammal Protected Areas in Maui in spring 2009, bringing together marine protected area (MPA) managers and marine mammal experts from around the world. Although over 500 existing or proposed MPAs for marine mammals like whales and dolphins span nearly 90 countries, there had never been a dedicated venue for collaboration and knowledge sharing among them. In an effort to bridge this gap, more than 200 MPA managers, scientists and educators representing 40 countries gathered to discuss issues, establish valuable relationships and explore effective approaches to marine management and conservation. Conference topics included whale sanctuaries, the role of culture in managing MPAs, and the importance of education. Plans are already underway for the next gathering, which will be hosted by France in 2011.

Sanctuaries, Partners Respond to Lionfish Threat

The first sighting of an Indo-Pacific lionfish in Florida Keys National Marine Sanctuary waters was confirmed in January 2009. Around that time, ocean users at Gray's Reef National Marine Sanctuary in Georgia also alerted sanctuary management to lionfish sightings in that area. This invasive, poisonous fish is a voracious predator with no natural predators in the Atlantic and has potential to disrupt the fragile balance of sanctuary ecosystems. Both sanctuaries worked with partners including agencies like NOAA's National Centers for Coastal Ocean Science, non-profit organizations and the public to implement a rapid response plan to help control the spread of this unwelcomed visitor. The plan included public outreach campaigns and training for members of the dive and research communities in lionfish ecology and safe capture techniques. In the Florida Keys, nearly 100 divers received permits to capture and remove these fish from sanctuary preservation areas, which are otherwise no-fishing zones. At Gray's Reef, two days were dedicated to collecting lionfish at sites outside the sanctuary, and at one site 17 lionfish were captured in 14 minutes.

Photo: NOAA

Protecting Your National Marine Sanctuaries

Through the development and periodic review of sanctuary management plans and regulations, the sanctuary system works with partners, sanctuary advisory councils and the public to implement effective coastal and marine spatial planning. During the 2009 fiscal year, management plans were completed for Gulf of the Farallones, Cordell Bank, Monterey Bay, Channel Islands and Thunder Bay national marine sanctuaries, and the Papahānaumokuākea Marine National Monument. Significant regulations passed during the year include the following:

- Final rules to implement the revised management plans for Channel Islands, Monterey Bay, Gulf of the Farallones and Cordell Bank national marine sanctuaries, which included regulations to:
  - enhance protection for white sharks.
  - reduce the potential for introduction of non-native species.
  - update vessel discharge regulations.
- Finalized revisions to Florida Keys National Marine Sanctuary regulations in 2009 to update the definition of coral to include additional species and enhance diving safety.
- Finalized, in coordination with the U.S. Fish and Wildlife Service, the rule establishing a ship reporting system for the Papahānaumokuākea Marine National Monument.

AWARDS, HONORS & SPECIAL RECOGNITION

Our national marine sanctuaries are as diverse as the thousands of staff and volunteers who support them. The success of marine protected areas like sanctuaries depends on the involvement of people from all walks of life, whose dedication and commitment are integral to the conservation and protection of our special ocean places for future generations. The following are some of the men and women who were recognized for their extraordinary service in 2009.

Josh Churchman (right), the National Marine Sanctuary Foundation's 2009 Volunteer of the Year, accepts the award from Office of National Marine Sanctuaries Director Daniel J. Basta. Churchman was honored for his work with Cordell Bank National Marine Sanctuary in California.

Volunteer of the Year

Josh Churchman, Cordell Bank National Marine Sanctuary

Josh Churchman, a commercial fisherman and ocean lover from Bolinas, Calif., was presented with the National Marine Sanctuary Foundation's 2009 Volunteer of the Year Award for his engagement in ocean conservation, public outreach and sustainable fishing efforts at Cordell Bank National Marine Sanctuary. Churchman served on the Cordell Bank sanctuary advisory council for seven years, and his knowledge of the marine environment and the local community has proven tremendously valuable to the sanctuary in countless ways over the years.

Sanctuary Site & Region Volunteers of the Year

Kamala Anthony, Papahānaumokuākea Marine National Monument
Venetia Butler, Gray's Reef National Marine Sanctuary
Jennifer Feere, Stellwagen Bank National Marine Sanctuary
Catherine French, Channel Islands National Marine Sanctuary
Dolly Garlo, Florida Keys National Marine Sanctuary
George Hanks, Flower Garden Banks National Marine Sanctuary
Terri Kirby Hathaway, Monitor National Marine Sanctuary
Jon Hubbard, Monterey Bay National Marine Sanctuary
Dean Hudson, Fagatele Bay National Marine Sanctuary
Jim Jewell, Olympic Coast National Marine Sanctuary
Renee Lackey, Pacific Islands Region
Barbara Meek, Thunder Bay National Marine Sanctuary
Skip & Gloria Snyder, Hawaiian Islands Humpback Whale National Marine Sanctuary
Jason Thompson, Gulf of the Farallones National Marine Sanctuary

Photo: Jamie Windon, Blonde Photography

DEPARTMENT OF COMMERCE AWARDS

Gold Medal

David Wiley, Stellwagen Bank National Marine Sanctuary research coordinator, for leadership in design and implementation of innovative research projects to protect endangered whales that led to the relocation of Boston's shipping lanes and the world's first real-time system for notifying ships about locations of whales in their paths

Bronze Medal

Gulf of the Farallones, Monterey Bay and Cordell Bank national marine sanctuaries; the Farallones Marine Sanctuary Association; Beach Watch volunteers; and NOAA Office of Response and Restoration, for assistance following the M/V *Cosco Busan* oil spill in San Francisco Bay

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION AWARDS

Administrator's Award

Anne Walton, for contributions to the development of international MPA management capacity

OFFICE OF NATIONAL MARINE SANCTUARIES AWARDS

Accomplishment of the Year

Monterey Bay National Marine Sanctuary and West Coast Region staff, for inclusion of the Davidson Seamount within the boundaries of the Monterey Bay sanctuary

Employee of the Year – Administration

Nicole Capps, West Coast Region

Employee of the Year – Nonsupervisory

Sarah Fangman, Southeast Region

Employee of the Year – Operations

Chad Stolka, Florida Keys National Marine Sanctuary

Manager of the Year

Dave Alberg, Monitor National Marine Sanctuary

Partner of the Year

Channel Islands National Marine Sanctuary Advisory Council Conservation Working Group, for their ocean acidification report

Team of the Year:

Hawaiian Islands Humpback Whale National Marine Sanctuary staff, for organizing the first International Marine Mammal Protected Area conference

Innovation of the Year

Michiko Martin, Kate Thompson and Steve Lonhart, for the Wild Earth: Deep Ocean Ride Experience

Photo: Cordell Expeditions

Cordell Bank Celebrates 20 Years of Stewardship

Cordell Bank National Marine Sanctuary celebrated its 20th year by reuniting and honoring the original members of the Cordell Expeditions dive team that discovered the biological oasis on Cordell Bank. Between 1978 and 1985, this team braved challenging scuba diving conditions 20 miles from shore to explore the little known area. Their early work was instrumental in highlighting the ecological significance of the bank, and in 1981 the recommendation was made to NOAA that the site be designated a national marine sanctuary. As part of this celebration, the sanctuary also conducted an oral history interview with five of the original divers to share their colorful and memorable stories.

AWARDS, HONORS & SPECIAL RECOGNITION (CONTINUED)

Stellwagen Bank National Marine Sanctuary Research Coordinator David Wiley was honored with a Department of Commerce Gold Medal in 2009 for his leadership and innovation in developing research to help protect endangered whales off the coast of Massachusetts.

EXTERNAL AWARDS

Department of the Interior Partners in Conservation Award

- Monitor National Marine Sanctuary – 2008 Battle of the Atlantic Expedition
- Flower Garden Banks Long-Term Monitoring Program – one of the longest-running continuous coral reef monitoring programs in the world

Above and Beyond Award, Employer Support of the Guard and Reserve

NOAA's Office of National Marine Sanctuaries, for outstanding service and continued support to the national defense

2009 Ocean Hero Award, Oceana

John Halas, Upper Region manager, Florida Keys National Marine Sanctuary

Leadership in Energy and Environmental Design (LEED) Silver Rating, U.S. Green Building Council

Florida Keys National Marine Sanctuary's Dr. Nancy Foster Florida Keys Environmental Complex

Casper J. Knight Award, Historic Naval Ships Association

Monitor National Marine Sanctuary and NOAA, for preservation and administration of the USS *Monitor* wreck site

Volunteer of the Year, San Francisco Ocean Film Festival

Mary Jane Schramm, Gulf of the Farallones National Marine Sanctuary, for screening films and serving as wildlife and marine protected areas content expert

Ocean Communication Award from Cordell Bank National Marine Sanctuary

KWMR-Community Radio, for coverage of ocean issues and national marine sanctuary news

Award of Appreciation for Outreach, EAA Pilots Association

Sarah Ratzesberger, Gulf of the Farallones National Marine Sanctuary

Photo: NOAA/SBNMS

On the Back Cover…

On July 29, 2009, the research vessel *Fulmar* was traveling north of Point Sur on a scientific expedition in Monterey Bay National Marine Sanctuary when the crew spotted a group of about 15 humpback whales. The team stopped to watch from a safe distance, but two of the whales came over to investigate the vessel. They lingered for nearly 45 minutes, giving sanctuary researcher Steve Lonhart the chance to snap this remarkable close-up photo of the female humpback known as "Shred."

The History of Shred

Named for her recognizable damaged fluke, Shred has been spotted 43 times since 1991, roaming up and down the coast from the Gulf of the Farallones all the way to Central America. In 2003, the whale and her calf swam from Panama to Morro Bay, Calif. — more than 3,000 miles — in just five months. Shred's tail has looked this way ever since researchers first identified her in 1991, although no one knows what caused the damage. Potential explanations include a collision with a ship, marine debris entanglement or killer whale attack.

Protecting Endangered Whales

While the source of Shred's injuries is still a mystery, ship strikes pose a serious — and preventable — threat to humpbacks and other endangered whales around the world. Whale conservation experts advise that boaters use caution around whales in the wild and adhere to the following guidelines to protect both themselves and the animals:

- Reduce speed when whales are in the area.
- Keep a safe distance from the animals (~100 yards from large whales; ~50 yards from dolphins).
- Avoid crossing in front of whales as they are swimming.
- Limit viewing time.
- Never attempt to feed, touch, swim with or interact with whales, for their sake as well as for your own safety.

BACK COVER PHOTO: Dr. Steve Lonhart, NOAA MBNMS
Photo taken in accordance with NOAA viewing guidelines.

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