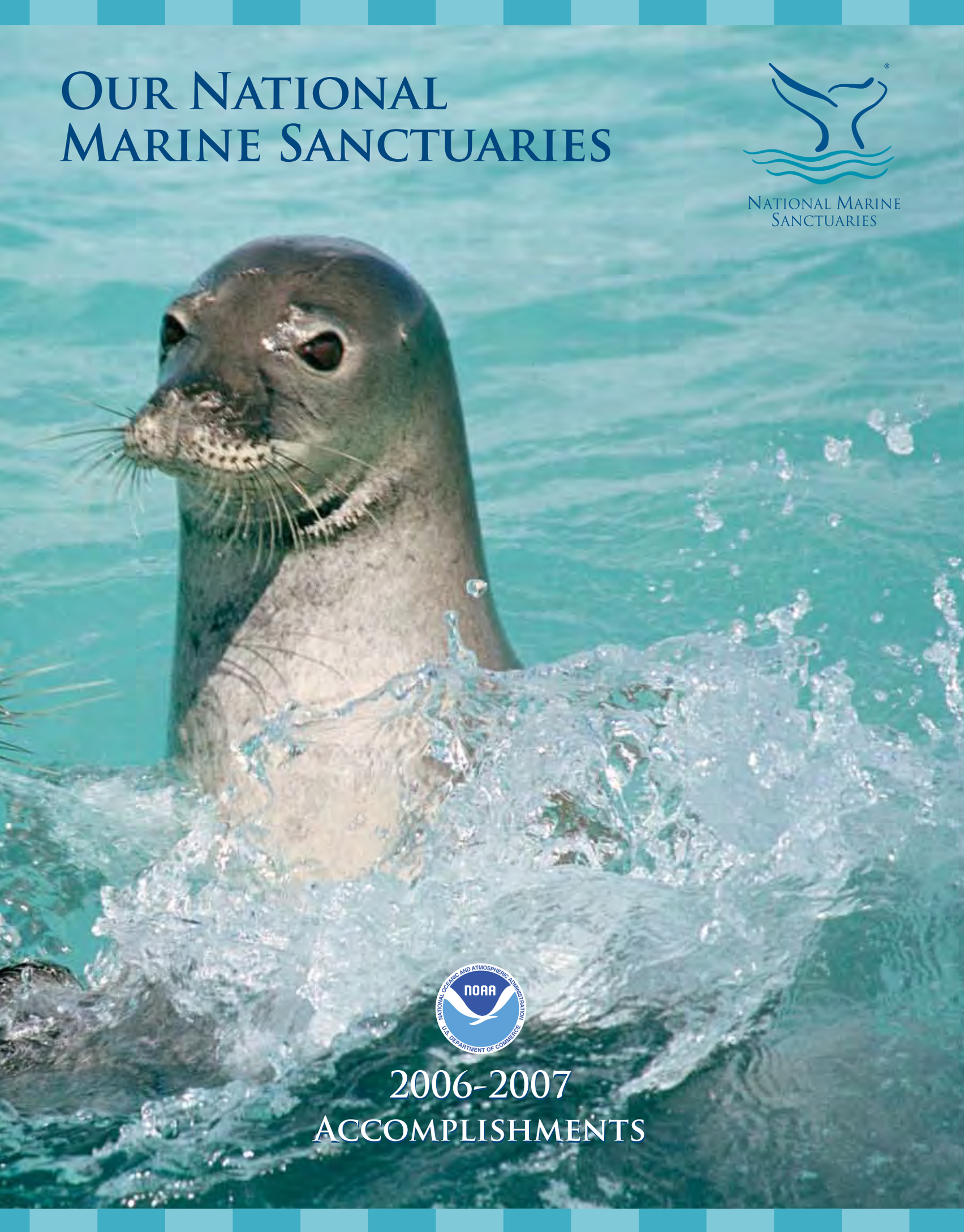
Our National Marine Sanctuaries

National Marine Sanctuaries



NOAA

National Oceanic and Atmospheric Administration

U.S. Department of Commerce

2006-2007 Accomplishments

INTRODUCTION

The National Marine Sanctuary Program is making major strides in developing results-oriented resource protection, science, management and educational programs. This brochure highlights the program's key 2006 accomplishments and our progress towards delivering results in marine conservation.

The year was capped by a presidential proclamation designating the Northwestern Hawaiian Islands Marine National Monument. By doing so, the president created the largest marine protected area in the world.

Other significant accomplishments include discovering new areas of deep-water corals; documenting increases of marine life five years after establishing the Florida Keys Tortugas ecological reserve; initiating a California public ocean awareness campaign; designating two wrecks as national historic places and launching a new marine education Web portal.

A major reason for our accomplishments is the continued involvement and dedication of numerous partners such as aquaria, universities, government agencies, non-profit organizations and countless volunteers who dedicate thousands of hours to ensure continued protection of our fragile ocean ecosystems and maritime heritage. We hope you enjoy this brochure that highlights the dedicated work of people who want to make your national marine sanctuaries a jewel in the crown of ocean conservation. Please visit our Web site to learn more about these accomplishments and how you can be part of the sanctuary team.

Marine National Monument Established

Imagine a place where few humans will ever go.

Teddy Roosevelt first declared the area a wildlife refuge in 1909. President Clinton raised the ante in 2000 and named the region the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. On June 15, 2006, President George W. Bush proclaimed the archipelago a marine national monument, the largest conservation area ever designated in the United States. The monument, which dwarfs Yellowstone, Yosemite and the Grand Canyon combined, encompasses almost 140,000 square miles of coral reef habitat and is home to some of the world's most unique species, a quarter of which are found nowhere else.

What began five years ago as a public process to establish the nation's 14th national marine sanctuary instead became the Northwestern Hawaiian Islands Marine National Monument. The president's action resulted in immediate permanent protection for the islands and culminated a sanctuary designation process that began in 2000. With his proclamation, President Bush entrusted Department of Commerce, Department of the Interior, and the State of Hawaii with one of the nation's most valued ocean ecosystems. This unprecedented action demonstrates confidence in the National Marine Sanctuary Program's capacity to extend its proven formula of partnership and public involvement for ocean governance. Establishing the monument fulfills one of the objectives for ecosystem-based management called for by the President's Ocean Action Plan.

Endangered Hawaiian monk seal, one of the rare species found in monument waters. *Photo: Jim Watt*

Cover Photo:
Susan Miiddleton, © 2006
These Hawaiian Monk Seal pups are one of 300 stunning photos of the native flora and fauna of the remote Northwestern Hawaiian Islands featured in the book *Archipelago: Portraits of Life in the World's Most Remote Island Sanctuary* by David Liittschwager and Susan Middleton. Visit our Web site to learn more about this book.

Resource Protection and Management

Protecting Whales from Ship Strikes and Marine Debris

Each year thousands of whales and other marine mammals fall victim to entanglement or ship strikes. Many of them die. But NOAA staff and volunteers, who dedicate thousands of hours to ocean stewardship, continue to play a key role in whale rescues and marine debris clean-up. Staff research into reducing ship strikes to endangered whales in Stellwagen Bank paid off in a big way when the International Maritime Organization approved a shift in shipping lanes in the region. The move will reduce the risks of strikes to critically endangered right whales by up to 58 percent and to other whale species by up to 81 percent.

Recent decision by the International Maritime Organization will reduce collisions with whales.
Photo: Stellwagen Bank file photo (#981-1707)

Rescue team release an entangled humpback off the Hawaiian islands.
Photo: NOAA (#932-1489)

In Hawai`i, whale rescue experts from NOAA Fisheries and the sanctuary program untangled two humpback whales from gill net and marine debris. Among the numerous marine debris removal efforts around the sanctuaries, the program partially funded Hawai`i Wildlife Fund volunteers to remove approximately 42 tons of marine debris from the Waiohinu-Ka Lae coast off Hawai`i's Big Island, and divers in Olympic Coast sanctuary waters removed derelict fishing gear.

Progress Made Towards Protecting Sanctuary Marine Life

The Gray's Reef National Marine Sanctuary Final Management Plan was released to the public in July. The plan updates sanctuary science, enforcement, and education programs and includes a few regulatory changes that are intended to enhance conservation with compatible public and private uses. The plan includes two changes – anchoring is prohibited in the sanctuary, and fishing is allowed only with rod and reel, handline, and spearfishing gear without powerheads. Similar management plan reviews are underway for Channel Islands, Cordell Bank, Flower Garden Banks, Gulf of the Farallones, Monterey Bay and Stellwagen Bank national marine sanctuaries. Proposed marine reserves are under consideration for Channel Islands National Marine Sanctuary. These plans help the program fulfill its primary legislative mandate of resource protection.

Resource protection is at the core of the program's mission - joining forces with our partners to reduce threats to natural and cultural resources.

Damage Settlement to Help Habitat Restoration

The owners of the foreign-flagged container vessel *Med Taipei* agreed to pay $3.25 million to the United States, the largest sum awarded to date for damages within Monterey Bay National Marine Sanctuary. The settlement resolves a case whereby 15 containers from the *Med Taipei* were lost in sanctuary waters in 2004. The funds will be used for resource protection and to restore habitats within the sanctuary, an area of high biological productivity and diversity.

Major Response Drill Held off San Francisco Bay

Last August, NOAA staff and federal and state partners held one of the largest ocean emergency drills of its kind in Gulf of the Farallones and Monterey Bay national marine sanctuaries. Known as Safe Seas 2006, the drill, which simulated a collision between two vessels and the resulting oil spill, looked at ways agencies can improve their ability to quickly respond to an oil spill or similar catastrophe.

Biodegradable drift cards simulated spilled pollutants.
Photo: NOAA

The OSRV *Pacific Responder*, an oil spill response vessel, practices deployment of a boom. *Photo: U.S. Coast Guard*

Science and Exploration

Corals found in deep water, like the red gorgonian beneath the red basket star pictured here, give scientists clues to marine life in Olympic Coast sanctuary ecosystem. *Photo: Olympic Coast National Marine Sanctuary*

Colorful Corals Found in Frigid Pacific Waters

In June 2006, NOAA researchers returned from a 10-day, deep-water coral expedition in Olympic Coast National Marine Sanctuary with evidence of sponge and coral communities in waters once thought too cold for them to thrive. Scientists found colonies of the rare stony coral *Lophelia*, numerous other coral species and a rich abundance of invertebrates and fishes, including commercially important rockfish. Some corals showed evidence of damage from fishing gear. Findings confirmed that these coral communities are a significant portion of the sanctuary ecosystem. NOAA has identified them as a priority research topic because of their vulnerability to bottom trawling and other human disturbances.

New Vessels Will Enhance Science, Education and Enforcement

NOAA commissioned three new research and enforcement vessels in 2006 that fulfill a two-fold NOAA commitment: to support research that will lead to better ecosystem-based management of the sanctuaries and to enforce the rules that protect marine resources. The *Peter Gladding*, a high-speed enforcement vessel, plies Florida Keys sanctuary waters focusing on the Tortugas Ecological Reserve. The 57-foot vessel was named in honor of a longtime Key West commercial fisherman who helped establish the reserve. The 50-foot *Auk* takes to the waters of Stellwagen Bank and will be used primarily for research missions but will also support education, monitoring and emergency response patrols. The research vessel *Fulmar*, a 65-foot catamaran will serve Monterey Bay, Cordell Bank and Gulf of the Farallones national marine sanctuaries.

Peter Gladding **will ply sanctuary waters around Tortugas Ecological Reserve.** ***Photo: Lt. Dave Bingham***

Scientists Complete Marine Life Inventory

Developing effective ecosystem-based management strategies requires knowing what lives in sanctuary waters and their association to specific types of habitat. NOAA scientists are answering some of these questions with the conclusion of a three-year study about the distribution of marine life and physical oceanography within Channel Islands National Marine Sanctuary. Known as "biogeography," this study represents one of the most comprehensive efforts undertaken to understand how marine life and habitats are associated with one another. The information will support ecosystem approaches to management as well as supporting regional marine science and education efforts. The results and data are available in a report titled *A Biogeographic Assessment of the Channel Islands National Marine Sanctuary.*

Science helps us understand how different human and natural factors are causing changes within sanctuaries.

Studies Show Increase in Several Fish Species

Five years after establishing the Florida Keys sanctuary's largest no-take area in the Dry Tortugas region, studies have shown increasing numbers and sizes of commercially and recreationally important fish species and other marine life. Positive changes include increases in size and abundance of black grouper, the gradual recovery of a mutton snapper spawning aggregation, recovery of pink shrimp and their habitat, and an increase in the number of large fish inside the reserve as compared to outside. Because the Tortugas region is upstream of the Florida Keys reef tract, improvements in the reserve's fish populations may help sustain fish stocks in the Keys and further north, as more and larger fish produce larvae that are carried away from the reserve on ocean currents. Adult fish may also move to areas outside the reserve as competition for space increases within. These fish then become available to the fishery, an effect known as spillover.

A grouper in the Tortugas Ecological Reserve. *Photo: Don DeMaria*

Maritime Heritage

Navy Airship Gets Revisited

The wreck of the USS *Macon*, the U.S. Navy's last dirigible, got another look in September when a team of NOAA researchers explored its remains. The *Macon* was lost in a storm in 1935 and now rests in 1,500 feet of water in Monterey Bay National Marine Sanctuary. Researchers are producing photomosaics of the site's debris fields, a technique that combines separate smaller images into one large image. Photomosaics are an important tool for devising a management strategy for this unique part of Navy aviation history.

New Wreck Explored in Northwestern Hawaiian Islands

Marine archaeologists surveyed a newly discovered wreck, the *Dunnottar Castle*, while on a summer expedition to the Northwestern Hawaiian Islands. The iron hulled British sailing ship sank in 1886 while en route from Sydney to California. Archaeologists also investigated other shipwrecks, including a 19th-century American whaling ship and the USS *Saginaw* that sank there in 1870.

Exploring the *Dunnottar Castle* wreck at Kure Atoll. *Photo: Robert Schwemmer*

Two Schooners Get Top Listing

The *Frank A. Palmer* and *Louise B. Crary*, which rest on the seafloor of Stellwagen Bank National Marine Sanctuary, have been added to the National Register of Historic Places, the nation's official list of cultural resources worthy of preservation. The 19th century coal schooners embody a distinctive vessel type and their archaeological remains will likely yield important historical information.

Preserving and documenting historically significant shipwrecks and artifacts to tell the stories of America's maritime history.

Researchers Map Shipwrecks in Florida Keys

Archaeologist photographing wreck site. *Photo: Russ Green*

Archaeologists deployed a newly developed propulsion sled to create high-resolution photo-mosaics of five shipwrecks on Florida Keys National Marine Sanctuary's Shipwreck Trail. Archaeologists "flew" over the wrecks while high-resolution cameras on the sled captured multiple images of the shipwrecks below. The mosaics are pieced together digitally to create a detailed image of each wreck which will help researchers monitor changes in these sites over time. With photomosaics, a new window will open up for those who want to preserve and experience a piece of America's maritime history.

Community Involvement & Partnership

Ocean Public Awareness Campaign Launched in California

Public ocean education is a NOAA priority. With four sanctuaries in California, the National Marine Sanctuary Program formed a partnership with the state to promote public ocean awareness. Recognizing the challenges in reaching millions of Californians on a limited budget, the sanctuary program brought together more than 100 ocean-related businesses, agencies and organizations and formed the Ocean Communicators Alliance to promote shared ocean messages. In partnership with the State of California, the program developed a public awareness campaign called *Thank You Ocean* with the theme, "The ocean takes care of us... let's return the favor." The campaign reaches millions in California with messages that highlight the connection between humans and the ocean and suggestions on how people can make a difference, found on the campaign Web site: http://thankyouocean.org.

Program Reaches Far and Wide to Ensure Healthy World Ocean

Program staff are working with other countries who look to NOAA for our expertise in managing marine protected areas. Conversely, we learn from their resource protection methods. In July, staff experts traveled to one of the world's last great marine conservation areas -- the Galapagos Islands. Their job: to work with staff from the Galapagos National Park and Marine Reserve on implementing a system of mooring buoys in tourist sites to alleviate damage caused by vessel anchoring. Installing the buoys, a first for the Galapagos, will protect the region's seafloor from anchoring which can disturb, and in many cases destroy key invertebrate communities and soft coral. The program also has partnerships with Australia, Italy and South Korea to share knowledge about managing protected areas in the ocean.

Diver installs mooring buoy in Galapagos.
Photo: Amy Massey

Gray's Reef Featured at World's Largest Aquarium

Billed as the largest aquarium in the world, the Georgia Aquarium is poised to be a leader in ocean literacy and a venue to bring sanctuary life to the public. The aquarium features more than 120,000 fish representing over 500 species. Exhibits feature sea turtles and the wildlife of Gray's Reef National Marine Sanctuary, and a number of touch tanks with rays and sharks. The Georgia Aquarium is key to helping educate more than a million visitors each year.

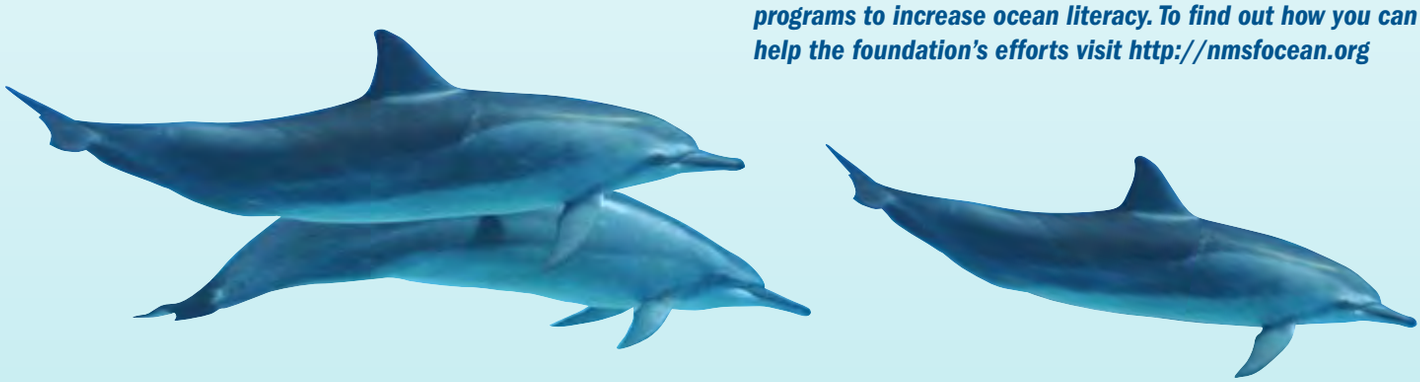
Loggerhead turtles are common visitors in Gray's Reef.
Photo: Georgia Aquarium

Individuals help out every day in our sanctuaries, from volunteering at beach clean-ups to providing their business expertise – make a difference today!

You Can't Love What You Don't Know

An innovative partnership facilitated by the National Marine Sanctuary Foundation, the sanctuary program's non-profit partner, is giving the public new access to the beauty of the sanctuaries. *Marine Sanctuaries Media* is the first private company to offer value-added products in a manner similar to how private companies sell NOAA nautical charts. A portion of the revenues go back to the sanctuary foundation to support sanctuary education projects. From the company's Web site, visitors can purchase stunning images taken within the sanctuaries. From lighthouses to coral reefs and from shipwrecks to humpback whales, *Marine Sanctuaries Media* provides high-quality visual products that are not available anywhere else. This latest venture highlights one of the many ways the foundation develops partnerships to promote sanctuaries.

The National Marine Sanctuary Foundation helps create conservation-based research and education and outreach programs to increase ocean literacy. To find out how you can help the foundation's efforts visit http://nmsfocean.org



Education and Outreach

Training Tomorrow's Leaders in Science and Technology

Preparing tomorrow's leaders begins with educating today's students. Helping students learn through hands-on education programs such as monitoring intertidal and beach ecosystems, and working with marine technology are some of the ways staff help students focus on science and technology. For example, this past year the program's education team held nine remotely operated vehicle (ROV) workshops for 127 educators. More than 500 students built and/or operated ROVs, which gave students a hands-on look into the technology used to illuminate the undersea world. More than 200 of these students went on to compete in regional student ROV competitions. These educational experiences are critical for maintaining our world leadership in science and technology.

Students experience life on a tall ship.
Photo: Meredith Berghauer

Program staff help students learn about sanctuary science and technology.
Photo: Jennifer Stock

Films Educate Millions About Sanctuary System

The power of film cannot be overstated, particularly when the film's message is one of hope. In a world where the health of our oceans is in constant peril, Jean-Michel Cousteau's voice is an important one. His latest call for ocean stewardship is his nationally aired PBS co-production *America's Underwater Treasures*, a journey through all 13 national marine sanctuaries. The film not only captures the story of each sanctuary, but sounds a call to take care of our marine ecosystems. In Cousteau's own words, "In part at risk and in part still pristine, the national marine sanctuaries are their own proof that they must be guarded for future generations." Film festivals also educate people in an entertaining fashion. Thousands in California and in Savannah, Ga., saw films highlighting marine life on reefs, oceanography and coastal cultures.

Watershed Education Initiative Broadens Ocean Literacy

In California, the Bay Watershed Education and Training program, commonly referred to as B-WET, expanded from Monterey to the San Francisco Bay and Santa Barbara Channel regions. First established in 2003 in the Chesapeake Bay region, the program provides organizations with funds to support environmental education for teachers, students, and communities throughout the watershed. B-WET funded programs provide meaningful outdoor watershed experiences to enhance students' environmental awareness and appreciation.

Innovative Marine Portal Enhances Ocean Education

OceansLive.org is a new marine science portal that blends live interactive video from research expeditions and educational lessons about our marine environment. In June, the public followed an expedition to the USS *Monitor*. The live coverage had more than 12,000 hits per day with viewers asking questions to the scientists. Using similar technology, Internet users got a live look at the *Frank A. Palmer*, a New England vessel that sank in 1902. This type of technology will allow all Americans to experience the wonders of our national marine sanctuaries.

National marine sanctuaries are living classrooms where people can see, touch and learn about our nation's underwater treasures.

New Visitor Centers Open in Sanctuary Communities

One of the best ways for people to learn about their national marine sanctuaries is by visiting discovery centers, museums or aquaria that offer the public personal connections with the marine environment. The Gloucester Maritime Heritage Center in Massachusetts features dynamic new exhibits showcasing the marine life and shipwrecks of Stellwagen Bank National Marine Sanctuary, and the Coastal Discovery Center in San Simeon, Ca., highlights the marine ecosystems of Monterey Bay National Marine Sanctuary and California's Central Coast. These centers are popular and yearly reach thousands of people from the east coast to Hawai`i.

Jean-Michel Cousteau during filming of *America's Underwater Treasures*.
Photo: Tom Ordway, Ocean Futures and KQED.

Sanctuary Highlights

You can learn more about these and other accomplishments by visiting http://sanctuaries.noaa.gov

Channel Islands
Researchers looked at how the recent establishment of no-take zones within the boundaries of the sanctuary affects ocean users in an innovative aerial survey program. Shipwrecks were explored and two major marine debris clean-up efforts were completed.

Cordell Bank
A new, local radio program highlighting sanctuary life was launched this year. Staff monitored potential threats to marine life from marine debris, and created detailed maps of the sanctuary that will aid in habitat restoration efforts.

Fagatele Bay
To help control soil erosion which impacts water quality, staff developed a project to plant rows of non-invasive grass. Staff launched an innovative education program to help Samoans develop stewardship for their coral reefs, and 2006 marked 20 years serving Samoa.

Florida Keys
Urchins that play a critical role in reef health were moved to safer ground. Studies show increases in several fish species in largest U.S. no-take zone, and sanctuary staff introduced a continuing education course at a local community college. The Nancy Foster Eco-Discovery Center opened in January 2007.

Flower Garden Banks
Scientists monitored reefs following coral bleaching events. Whale shark and manta ray tagging effort was launched, and a new partnership began with the Aquarium at Moody Gardens in Galveston, Texas.

Gulf of the Farallones
California seabirds got a helping hand in a cooperative effort to lessen human impact on bird nesting and breeding grounds. Researchers documented reduction of krill in the ocean food web, and a settlement was reached with a dredging company for spilling dredged mud into sanctuary waters.

Gray's Reef
The sanctuary turned 25 and continued its ocean stewardship by promoting ocean awareness in students through student/teacher workshops, and conducted studies that revealed new species of sponges. Staff prepared analysis of the region's diverse habitat and marine life.

Hawaiian Islands Humpback Whale
Sanctuary staff worked with state partners to continue marine mammal protection, completed the field study portion of the largest whale study ever and developed innovative methods to reduce ship strikes to whales.

Monitor
A summer expedition to the USS *Monitor* gave the public an up-close-and personal with researchers studying the historic wreck. Major restoration efforts continue on *Monitor* artifacts. A *Monitor* replica was christened in summer 2006 and a new *Monitor* Center opened in March 2007.

Monterey Bay
Scientists studied deep sea corals on Davidson Seamount, an area proposed for inclusion in the sanctuary. The Coastal Discovery Center, the sanctuary's first public visitor center opened its doors, and staff published a new sanctuary field guide.

Northwestern Hawaiian Islands Marine National Monument
While monument proclamation took center stage, work continued on looking at the ecosystem connectivity between Johnston Atoll and the islands. Scientists believe the atoll may be a key stepping stone that links marine species from other areas in the Pacific to the Hawaiian archipelago.

Olympic Coast
NOAA teamed with Canadian government on spill response drill, and staff worked with four Indian tribes to provide a forum for discussing ocean management in the sanctuary. Scientists observed several cases this summer where oxygen in the ocean dipped to dangerously low levels.

Stellwagen Bank
Two sunken schooners were listed on the National Register of Historic Places. A sanctuary exhibit was unveiled at the Gloucester Maritime Heritage Center, and innovative acoustic studies continue to reveal new findings on humpback and right whale behavior.

Thunder Bay
Archaeologists documented the sanctuary's oldest known shipwreck. Researchers used remote sensing technology in shallow waters to further characterize some areas of the sanctuary, and the Great Lakes Maritime Heritage Center continues to draw thousands of visitors each year to learn about the region's maritime history.

Scale varies in this perspective.
Adapted from National Geographic maps.

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