

STELLWAGEN BANK 2006 ACCOMPLISHMENTS



<http://stellwagen.noaa.gov>

Shipping Lane Shifts Reduces Risks to Whales



Humpback whale in Stellwagen Bank. Photo: Whale Center of New England/NOAA

The sanctuary is a critical seasonal feeding area for endangered humpback, finback and the remnant population of North Atlantic right whales (researchers believe less than 400 remain in the world). It is also an area where large, commercial ships – to the tune of nearly 200 per month – enter the Port of Boston. Sanctuary scientists analyzed more than 20 years of over 250,000 whale sightings collected by the Provincetown Center for Coastal Studies, Whale Center of New England and North Atlantic Right Whale Consortium to determine the areas in which the highest concentrations of whales are regularly found. This research paid off in a big way when the International Maritime Organization approved a shift in shipping lanes in the region, to become effective in July 2007. The move will reduce the risk of ship strike to critically endangered right whales by up to 58 percent and all large whale species by up to 81 percent. This will provide a major safeguard for these marine mammals that are a thrilling component of the sanctuary's biodiversity. Sanctuary staff worked closely with the NOAA Fisheries, NOAA General Council, U.S. Coast Guard and the local maritime transportation industry to accomplish the protective shift.

Divers Come Out in Force to Support Fish Count and Sanctuary Celebration

For the fifth year in a row, the sanctuary hosted the largest one-day Great Annual Fish Count event in the nation. This year, 86 divers submitted 134 surveys from dives around Cape Ann, Mass., and the New Hampshire coastline. These surveys give divers the opportunity to lend their voices to ocean conservation and marine education efforts.

Vessel Tracking Sheds New Light on Sanctuary Use

The sanctuary is collaborating with the U.S. Coast Guard's Research and Development Center to document and track the passage of large commercial vessels. The project uses the Coast Guard's Automatic Identification System and three newly established receiver stations around the sanctuary to gather continuous data on the location and speed of boats through the area. This information will allow the sanctuary to describe patterns of vessel use. When combined with data from the acoustic buoys, it will also allow scientists to investigate noise generated from commercial ships using sanctuary waters.

Humpback Whale Behaviors Underwater Now Revealed

In a continuing project that began last year, scientists from the sanctuary, NOAA Fisheries and several academic institutions have been tagging humpback whales to study their behaviors. Non-invasive suction-cup tags, developed at the Woods Hole Oceanographic Institution, record depth, heading, pitch, roll, and sounds made and heard by the animals. Until now, whale behavior studies were based primarily on surface activity. With this project, data collected from the tags can be programmed into visualizations that show a whale's underwater movements. This year, the movements have been correlated with information about seafloor topography, prey concentrations, and with tracks and sounds of vessels in the area. New GeoZui4D and TrackPlot software from the University of New Hampshire now allows almost immediate production of visualizations from downloaded tag data. Distinctive behaviors, such as bubble nets and bottom feeding, theorized but never observed underwater, have now been recorded by the tags. Analysis of the tracks may lead to a better understanding of whale behavior and lead to more informed decision-making in managing ocean areas for the protection of endangered great whales.



The 3D ribbon track of a feeding humpback whale. Twists, turns and loops in the ribbon correspond to body pitch, roll, heading and depth data collected from the tag on the animal. Photo: University of New Hampshire/NOAA

To learn more about these and other accomplishments, visit: sanctuaries.noaa.gov

Two Sunken Schooners Listed on National Register of Historic Places

In April 2006, the wrecks of the coal schooners *Frank A. Palmer* and *Louise B. Crary*, which rest on the sanctuary's seafloor, were listed on the National Register of Historic Places, the nation's official list of cultural resources worthy of preservation. These vessels represent excellent examples of the great coal schooners that served the East Coast during the turn of the 20th century. The ships qualified for listing on the National Register of Historic Places by meeting three criteria: 1) they were associated with events that made a significant contribution to the broad patterns of American history; 2) they embodied the distinctive characteristics of a type, period and/or method of construction; and 3) their archaeological remains have yielded, or will likely yield, important historical information.



Side scan sonar image of the *Frank A. Palmer* and *Louise B. Crary*.
Photo: NURC-UConn/NOAA

Acoustic Studies Offers Means of Detecting Whales in Sanctuary Waters

Ten acoustic pop-up buoys that record sounds in the sanctuary may prove to be a means of monitoring the distribution of endangered whales by pinpointing their distinctive vocalizations. Through the use of the buoys, the team has developed an acoustic array that covers over 85 percent of the sanctuary. A better understanding of the temporal and spatial aspects of right whale distribution will help the sanctuary protect the animals from ship strike and entanglement in commercial fishing gear. The project also served as a model for the mitigation effort developed for the proposed Liquid Natural Gas terminals in Massachusetts Bay. Sanctuary scientists are collaborating with researchers from NOAA Fisheries and Cornell University on the project.

The team is also using sound data in a pioneering effort to measure noise in the sanctuary. Human produced noise in the ocean has increased dramatically over the past few decades. Because light travels only short distances in the ocean, many types of marine life, including whales and dolphins, use sound for key activities such as communication and feeding. Unwanted noise can mask sounds produced by animals and interfere with their ability to find food or each other.

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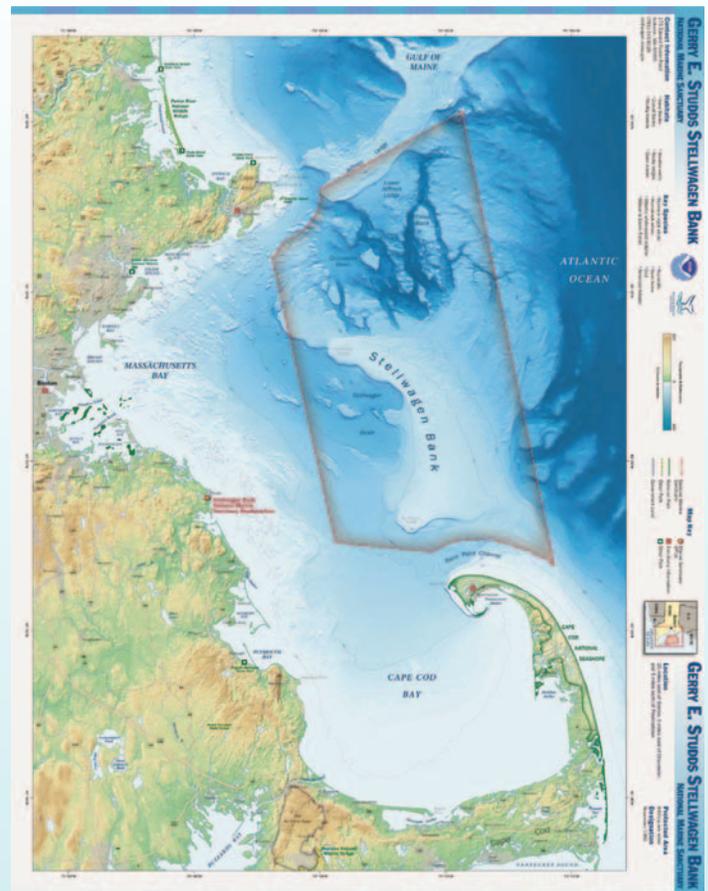
Sanctuary Exhibit Unveiled at the Gloucester Maritime Heritage Center

The Gloucester Maritime Heritage Center unveiled new exhibits featuring the marine life, habitats and shipwrecks of the Stellwagen Bank National Marine Sanctuary. A major component to the exhibit is a three-dimensional seafloor map with lights that indicate the significant habitat types within the sanctuary and the sanctuary's gateway communities on land. The Gloucester Maritime Heritage Center is open daily from Memorial Day Weekend through October, and by appointment throughout the rest of the year.

Plans for 2007

- A sister sanctuary arrangement between the United States and the Dominican Republic, signed in December 2006, will enhance coordination of management and research in the effort to recover the North Atlantic population of endangered humpback whales.
- A draft version of Stellwagen Bank's revised management plan due in 2007.

Sanctuary Maps Now Available



New sanctuary atlas maps depicting physical ocean and land features, other state and federal managed areas and parks, and other basic atlas features are now available on the sanctuary program Web site: sanctuaries.noaa.gov.

