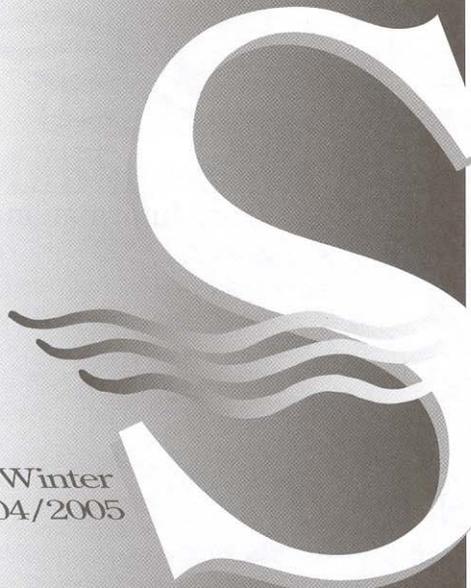




A News Update from
the Gerry E. Studds Stellwagen
Bank National Marine Sanctuary



Winter
2004/2005

TELLWAGEN BANKNOTES

Welcome

Welcome to the 2004/2005 Winter issue of Stellwagen Banknotes, an update from the Stellwagen Bank National Marine Sanctuary to inform the public about upcoming events, research progress, and program highlights. We hope you find this publication valuable and informative. If you would like additional copies of the update or our annual newspaper (Stellwagen Soundings), or know of any individuals who would like to be placed on our mailing list, please contact us by: phone: 781-545-8026; fax: 781-545-8036; or e-mail: stellwagen@noaa.gov or anne.smrcina@noaa.gov. Your comments regarding the contents of this publication are also of interest to us.

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- Management Plan Review Action Plans and StrategiesP.3
- Marine Research aboard NANCY FOSTERP.4
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NOAA Ship NANCY FOSTER Provides Ideal Research Platform

From whale tagging to seafloor sampling, the NOAA Ship NANCY FOSTER provided dedicated service to sanctuary scientists this past summer. Over the course of four weeks, researchers were able to place suction cup tags on humpback whales, groundtruth multi-beam maps, study seafloor habitat changes, and investigate several known and potential shipwreck sites within the sanctuary.

"Ship time is a valuable commodity to marine scientists," said sanctuary research coordinator Dave Wiley, "We were granted a much needed allocation of at-sea support this past year. With the assignment of an additional 30 days in the NANCY FOSTER 2005 schedule, the sanctuary will be able to continue these studies and begin to explore other important research questions."

NANCY FOSTER has been used on both the east and west coasts, supporting NOAA's National Marine Sanctuaries and the National Sea Grant College Program. The vessel, formerly a Navy yard torpedo test (YTT) craft, joined the NOAA fleet in 2001, and was renamed in honor of Dr. Nancy

Foster in tribute to her years of dedicated leadership within NOAA's National Marine Fisheries Service (NMFS) and National Ocean Service.

With both wet and dry laboratories, and berthing space for 15 scientists, the ship is an ideal platform for extended research cruises in the sanctuary. She is 187 feet in length (57m), 40 feet in breadth (12.1m), has a draft of 10 feet (3m) and a cruising speed of 10.5 knots.

During the whale tagging leg, scientists used an inflatable boat to closely approach surfacing humpback whales (under permit from NMFS), and apply suction cup tags to the backs of the animals. The revolutionary tags were developed locally at the Woods Hole Oceanographic Institution to record pitch, roll, heading and depth of the whale, as well as the sounds heard by or made by the animal. Five tagged animals provided 50 hours of data -- the longest tag deployment lasting 21 hours, the shortest 45 minutes (see illustration showing one whale's movements on

continued on page 2

Sanctuary Renovations Completed, Geothermal System Installed

As the winter season closes in on us, the sanctuary staff will rely on the natural heat of the earth as a means of controlling the temperature at our newly renovated administrative offices and meeting annex. The installation of a geothermal HVAC (heating, ventilation and air conditioning) system allows us to reduce our dependency on non-renewable fossil fuels.

The system works by using the earth as a heat sink in the summer and a heat source in the winter, since the subsurface soil, groundwater and bedrock maintain a constant temperature of around 54 degrees Fahrenheit. This transfer is effected through two 740-foot wells, which tap deep saltwater veins, and water source heat pumps. These pumps don't create heat, but move it. Similar to a refrigerator, the pumps use an environmentally-friendly refrigerant that works in a closed loop (but with a reversing capability). In the winter, the refrigerant transfers heat from the saltwater to forced air, which is then circulated throughout the building via air ducts. In the summer, the pumps discharge the heat (collected in the building) to the saltwater. When the temperature is insufficient to meet heating or cooling needs, an electrical system kicks in. Research has shown that geothermal HVAC systems can be 50-70% more efficient at heating and 20-40% more efficient at cooling than conventional fossil-fuel fired systems.

Other changes over the past year to the Scituate headquarters facility include the installation of insulated windows, a handicapped-accessible spiral ramp to the front door of the administrative offices and handicapped-accessible bathrooms in both the main building and meeting annex.



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Whale Center of New England

“NOAA Ship NANCY FOSTER” continued from page 1

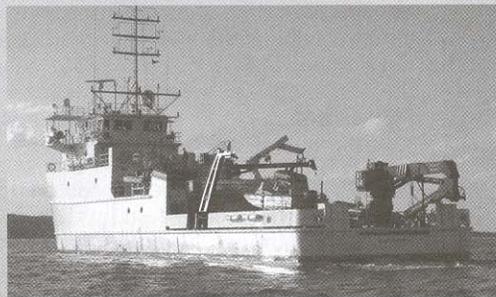
pages 4 - 5). In addition to the tags, an array of Autonomous Recording Units from the Cornell University Laboratory of Ornithology Bioacoustic Research Program were set out in the research area (a small section of the shipping lanes) to record marine sounds. With this information, the research team hopes to better characterize the sound field that radiates out from vessels (particularly large ships). The overall goal of this research project is to correlate whale behaviors to the sounds being generated in their vicinity. The scientists have been able to illustrate these data with GeoZui3D, an innovative software program developed by the University of New Hampshire's Advanced Visualization Laboratory.

The second leg of the cruise was in support of the sanctuary's Seafloor Habitat Recovery Monitoring Program (SHRMP) and the U.S. Geological Survey's sanctuary mapping project. The USGS SeaBOSS (Benthic Observation Sampling System) unit was deployed to produce still and video images of the seafloor. Sediment samples collected with the apparatus were used to provide physical proof of the results from multibeam surveys made during earlier USGS cruises. In addition, a researcher from the University of Maine used grab samples from sand and mud habitats to study biodiversity in the sediments. Researchers from the National Undersea Research Center at the University of

Connecticut revisited stations in four different habitat types, both inside and outside the Western Gulf of Maine Habitat Closed Area, to study habitat recovery.

The final leg of the NANCY FOSTER cruise was dedicated to identification and documentation of shipwrecks, including mapping of the debris fields around the 1898 wreck of the steamship PORTLAND and the coal schooners FRANK A. PALMER and LOUISE B. CRARY, which crashed and sank together in 1902. A total of six new shipwrecks were identified during the side scan sonar surveys during the six-day deployment.

The sanctuary acknowledges the expertise and assistance provided on all legs of the cruise by CDR Frederick Rossman, commanding officer of the NOAA Ship NANCY FOSTER, and the rest of his professional and dedicated crew.



See pages 4 & 5 for NANCY FOSTER research

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Sanctuary Trivia

The first official U.S. Government map showing Stellwagen's Bank was printed in 1855.

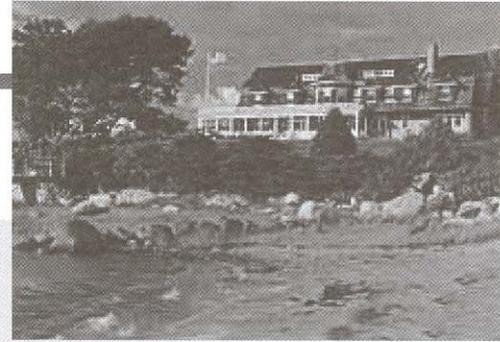
Management Plan Review Continues

Action Plans Approved and Strategies Prioritized by Sanctuary Advisory Council

The process to revise the management plan of the Stellwagen Bank National Marine Sanctuary moved one step closer to fruition as the Sanctuary Advisory Council accepted all 10 Action Plans submitted by the working groups at a two-day meeting in late October. The meeting was held at the National Academy of Sciences facility in Woods Hole. Although most strategies and activities includ-

ed in the plans were met with approval, a few items were amended before the final votes were taken.

Also, as part of its advisory role, the Council prioritized the 74 strategies within the ten Action Plans, to focus sanctuary attention on areas of special interest. The top 25 strategies based on this vote at a November 5th Council meeting are included in the following table. In addition, Council members were asked to indicate which activities, among the 245 included in the action plans, are of critical importance to



National Academy of Science's Jonsson Conference Center was the site of the 12th SAC meeting on October 20 - 21, 2004.

the sanctuary. The 150 selected activities and prioritized list of strategies will provide direction to the sanctuary as the writing of the draft management plan takes place during the upcoming months.



Action Plan Working Groups

- Administrative Capacity, Infrastructure and Development
- Ecosystem Alteration
- Ecosystem-based Management
- Interagency Cooperation
- Marine Mammal Behavioral Disturbance
 - Marine Mammal Entanglement
 - Marine Mammal Vessel Strike
 - Maritime Heritage Resources
- Public Outreach and Education
 - Water Quality



Top 25 Action Plan Strategies

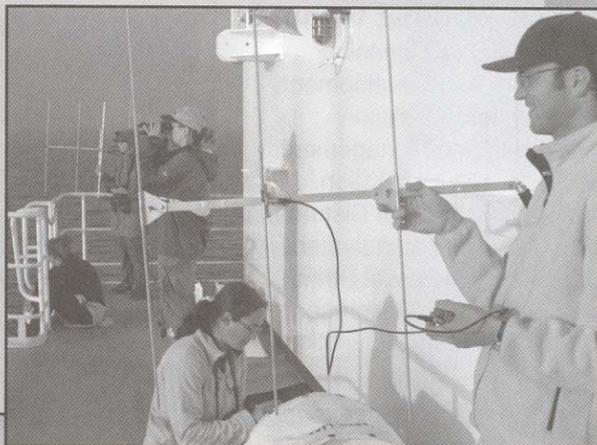
- Understand Ecosystem Structure and Function
- Aid in Disentanglement Efforts
- Protect Ecological Integrity
- Reduce Risk of Vessel Strike between Large Commercial Ships and Baleen Whales
- Establish an Outreach Campaign to the General Public to Increase Sanctuary Visibility, Awareness and Stewardship
- Develop a Water Quality Monitoring Plan
- Establish Protocols for Vessels in the Vicinity of Whales
- Improve Overall Site Staffing and Support Capabilities
- Establish Protocols for Noise Disturbance in the Vicinity of Whales
- Maintain and Enhance the Infrastructure of the Site
- Develop a Plan Focused on the Ecosystem Impacts of Biomass Removal by Fishing Activity
- Develop and Implement an Interpretive Facilities and Signage Program
- Re-establish Discussions on a Memorandum of Understanding between NOAA/SBNMS and the NOAA Fisheries/Northeast Regional Office and the NE Fishery Management Council to Facilitate Cooperation and Coordination
- Protect and Manage Maritime Heritage Resources
- Establish a Collaborative Research Consortium
- Develop a Plan Focused on Alteration of Benthic Habitat by Mobile Fishing Gears
- Establish a Maritime Heritage Resources Program
- Reduce Marine Mammal Interaction with the Gillnet Fishery
- Establish a Protocol between NOAA/SBNMS and the NOAA Fisheries/Northeast Fisheries Science Center to Facilitate, as appropriate, Permitting and Cooperative Research
- Evaluate the Need and Feasibility for Modifying the Sanctuary Boundary
- Develop a Plan Focused on the Ecosystem Impacts of Ocean Dumping, the Disposal of Dredged Materials and Mariculture
- Develop a Sanctuary Friends Group
- Reduce Impacts of Municipal and Other Shore-Based Wastewater Streams
- Develop a Plan Focused on the Ecosystem Impacts of the Laying of Cables and Pipelines with the Sanctuary
- Seek Ways to Regulate Whale Watching within the Jurisdiction of the Sanctuary

Marine Research



Bright yellow Autonomous Recording Units (ARUs) sit on the NANCY FOSTER's back deck awaiting deployment for recording marine sounds.

Members of the research team track a tagged humpback whale from the deck of the NANCY FOSTER.

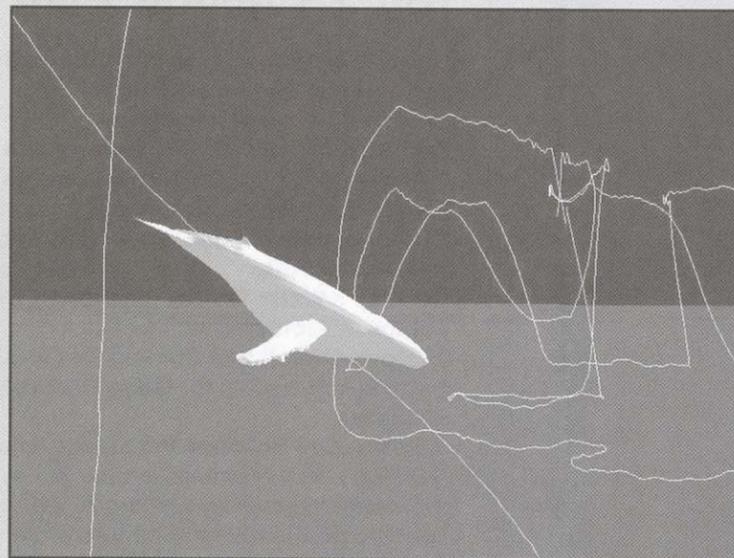


A humpback whale surfaces off the stern of the NANCY FOSTER. The inflatable boat shown in the foreground is used for tagging whales.

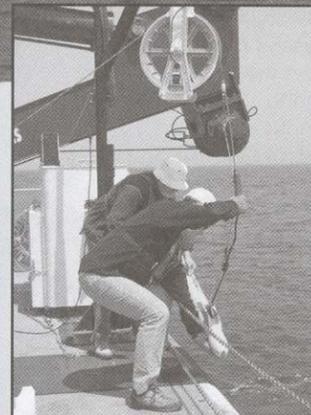


Important Sanctuary Research Conducted Aboard NOAA Ship NANCY FOSTER

The NOAA ship NANCY FOSTER provided an ideal platform for the sanctuary's research during June and July 2004. Fieldwork conducted on the NANCY FOSTER included whale tagging, bottom sampling, and marine remote sensing. The data collected on the vessel provide the sanctuary with valuable information about the behavior of marine mammals and the location and characteristics of maritime heritage resources.



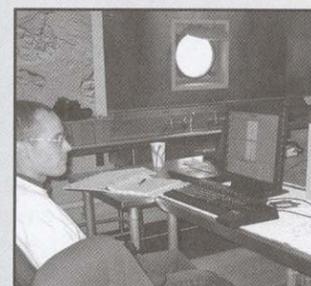
The GeoZui3D image above shows a new method for viewing multisensor tag-derived data, helping researchers to investigate the underwater behavior of marine animals and providing a window on a previously unseen universe.



Researchers towed a side scan sonar towfish behind the NANCY FOSTER to locate shipwrecks. Flying just above the seafloor, the towfish emits sound pulses that bounce off objects on the bottom. The towfish records the echoes and transmits the data back to the ship through its tow cable.



The side scan sonar towfish was connected to the NANCY FOSTER via an armored tow cable and a hydraulic winch. By varying the length of cable, the researchers controlled the depth of the sonar towfish. Each member of the research team took turns operating the winch and deploying the towfish.



While part of the research team monitored the winch on the NANCY FOSTER's deck, the rest of the team operated the side scan sonar and navigation computers placed in the ship's wet lab. This area provided ample space for the collection and analysis of the sonar data.

Maritime Heritage Update



The Stellwagen Bank National Marine Sanctuary had a very busy 2004 archaeological field season. Sanctuary archaeologists and staff conducted research projects that investigated shipwrecks in both deep and shallow waters. The summer season began in late June with a six-day side scan sonar survey onboard the NOAA ship NANCY FOSTER. The survey focused on determining the extent of the debris field around the wrecks of the steamship PORTLAND and schooners FRANK A. PALMER and LOUISE B. CRARY. This survey also located six new shipwrecks in the sanctuary and examined the locations of reported vessel losses.

In July, the sanctuary conducted a two-day research cruise aboard the University of Connecticut's vessel R/V CONNECTICUT, in partnership with the National Undersea Research Center at the University of Connecticut (NURC-UConn) Aquanaut Program. The Aquanaut Program brings together teachers, students, and scientists in real world marine science projects. NURC-UConn provided the investigation's primary research tool, the remotely operated vehicle (ROV) *Hela*. *Hela* carried lights and cameras into the sanctuary's cold and dark depths allowing the archaeologists and scientists to document four shipwrecks. The primary target of this project was the coal schooner FRANK A. PALMER. *Hela* imaged the schooner's stern section, locating the schooner's partially intact steering wheel along with artifacts from the captain's cabin, such as his toilet and sink.



Throughout July and August 2004, sanctuary archaeologists documented the coal schooner PAUL PALMER to better understand the site's archaeological features. Utilizing scuba equipment, the researchers visited the site with tape measures, slates, and underwater still and video cameras to record the sunken schooner. Information recorded by the archaeologists provides positive documentation of the site as the PAUL PALMER, establishes its archaeological significance, and yields data for the site's future management. The divers utilized a variety of vessels to reach the site including the R/V GANNET and the sanctuary's newest vessel the R/V SENTINEL.

The fieldwork this summer documented already known maritime heritage resources and discovered new ones lying on the sanctuary's seafloor. The sanctuary has located numerous shipwrecks, which range from small modern fishing vessels to 300-foot 19th century coal schooners. These non-renewable resources are part of the nation's heritage and represent the vital role maritime commerce played in New England and along the Atlantic seaboard. The sanctuary's maritime heritage projects were made possible through support from NOAA's Maritime Heritage Program and the Maritime Archaeology Center, NOAA's Office of Coast Survey, the National Undersea Research Center at the University of

Christmas Bird Count Scheduled

Do you like birds? Would you like to explore the world of winter birds in the sanctuary? Why not take part in the annual Christmas Bird Count at Stellwagen Bank -- scheduled this year for December 18th (raindate Dec. 19th). The Cape Cod Museum of Natural History, the Massachusetts Audubon Society and the sanctuary are co-sponsoring the all-day cruise, which will depart from Plymouth at 7:30 a.m. For more information about the cruise, including cost, contact the sanctuary or the museum (508-896-3867 x113). The Audubon Society's Christmas Bird Count has been a birding tradition for over 100 years; the Stellwagen Bank Count began in the 1980s.

2004/2005 Art Contest Underway

Once again, the sanctuary and the Massachusetts Marine Educators are sponsoring a marine art contest for students in grades K-12. Any medium is allowed, including computer graphics, collage, watercolor, crayons, markers, pen and ink, etc. The theme of this year's contest is 150 Years of Discovery -- the wonders of Stellwagen Bank (in 1854 Henry Stellwagen discovered a continuous bank at the mouth of Massachusetts Bay; the first government map showing Stellwagen's Bank appeared in 1855). Complete details of the contest can be found on the sanctuary's website at <http://stellwagen.noaa.gov>.

Name NOAA's New Ship for Exploration

A new 224-foot NOAA ship dedicated to exploration of our oceans needs a name -- and students in grades 6-12 are invited to submit their choices. NOAA, Coastal America and the National Environmental Education and Training Foundation are partnering in the development of this competition. Deadline for submission of entry packets is December 30, 2004. For more information, go to www.education.noaa.gov. The winning team of students will be invited for a day tour of one of NOAA's atmospheric or oceanographic facilities, will receive a plaque for the school and the new ship, and be visited by Under Secretary of Commerce for Oceans and Atmosphere, Vice Admiral Conrad C. Lautenbacher, Jr., U.S. Navy (Ret.) and from a renowned ocean explorer.

Visitation Doubles with Exhibit Move

The sanctuary's exhibit in Provincetown hosted close to 4,000 visitors this past summer, almost double the number from 2003 despite a shorter season. The move from Bradford Street to 205-209 Commercial Street (Aquarium Wharf) took place in the spring and early summer, delaying the opening until July (the exhibit closed in late October). The exhibit will be refurbished this winter and reopen by Memorial Day weekend.

Oceans and Coasts in the Classroom

Teachers interested in using ocean and coastal topics in their math and science teaching are invited to attend "Oceans and Coasts in the Classroom," a joint program of the Waquoit Bay National Estuarine Research Reserve and the sanctuary. The six session program, offered Thursdays (6-9pm) from March 3rd through April 7th at the Sanctuary Meeting Annex in Scituate, is free. PDPs are available for teachers. Optional graduate credit from Framingham State College is available for a fee (and will require extra assignments pending college approval). For more information about this program, contact the sanctuary or WBNERR (pat.harcourt@state.ma.us or call 508-457-0495 x106).

Northeast Fish Count Tops Nation

The 2004 Great Annual Fish Count (GAFC) and Sanctuary Celebration once again led the way for numbers of divers (82) and surveys completed (113) during a single day fish count. "There is no way any other GAFC event even came anywhere near that," said Brian Dias, director of outreach and education at Reef Environmental Education Foundation (REEF), the group that organizes the annual count. More than 70 events nationwide (as well as Mexico, the Caribbean, and Canada) bring together divers who have completed a fish identification course that includes instruction on fish count procedures. The data is collected in a REEF database and is accessible to scientists, marine resource managers, divers and the general public around the world. Although trained divers can complete the fish count surveys on any dive throughout the year, the Great Annual Fish Count is a chance to make the public aware of marine biodiversity through a month-long "snapshot" view of fish populations around the world. For New England and the sanctuary, the sanctuary celebration/fish count brings divers together for a chance, not only to dive, but also to socialize and network with their fellow divers. Eight dive clubs from Massachusetts and New Hampshire participated this past year. Over \$5,000 in prizes were also donated by local and national businesses for the diver raffle at the celebration. For information about the 2005 Sanctuary Celebration and Great Annual Fish Count, contact the sanctuary, or Bob Michelson, coordinator of the sanctuary's Fish and Invertebrate Identification Programs, at 781-848-8870.



Student Summit Addresses Sanctuary Issues

Eight high schools from the Boston Metropolitan area sent delegations to the New England Aquarium on November 19th for a Student Ocean Summit that focused on management of the Stellwagen Bank National Marine Sanctuary. The students were tasked with developing action plans to address issues of marine mammal conservation, in a process similar to the actual management plan review that is now underway at the sanctuary. Several members of the Sanctuary Advisory Council and staff participated in the program, including Council Chair John Williamson (at left) and Council Secretary Susan Farady (center, facing).

New Members Join Sanctuary Advisory Council

The National Oceanic and Atmospheric Administration recently announced the newly appointed members of the Stellwagen Bank National Marine Sanctuary Advisory Council.

The 21-member council is made up of 15 voting members and six ex-officio non-voting members. "Each of these members brings a unique perspective to the Sanctuary Advisory Council based on their long experience in the New England area," said Sanctuary Superintendent Craig MacDonald. "We are pleased that they have chosen to offer their considerable talents to help us manage the resources of the Stellwagen Bank National Marine Sanctuary."



The SBNMS Sanctuary Advisory Council gathered at an October meeting to approve Action Plans for the development of a new management plan. Pictured in the photo (left to right) are: Barry Gibson, Judith Pederson, Susan Snow-Cotter, Michael Sosik, Deborah Cramer, Michael Hennessy, Priscilla Brooks, Mason Weinrich, John Williamson, Peter Auster, Susan Farady, Peter Borrelli, Dale Brown, Craig MacDonald (SBNMS superintendent), Bill Adler, Kathi Rodriguez, Don Hourihan, Chris Kellogg, Chip Reilley, Steve Tucker, Edward Barrett (hidden), Jerry Hill, Erin Heskett, Martin McCabe, Richard Wheeler, and Nathalie Ward (SBNMS SAC coordinator).

Members were chosen based on their expertise and experience in relation to the seat for which they applied. Considerations include community and professional affilia-

tions, philosophy regarding the conservation and management of marine resources, geographic representation and the length of residence in the area affected by the

sanctuary. Newly appointed members and alternates are listed below:

Council Members and Alternates

Research (2-year term)

Member: Mason Weinrich, Executive Director and Chief Scientist, Whale Center of New England, Gloucester, MA
Alternate: Dr. Porter Hoagland, Ph.D., Public Policy Research Specialist, Marine Policy Center, Woods Hole Oceanographic Institution, Woods Hole, MA

Research (3-year term)

Member: Peter Auster, Ph.D., Science Director, National Undersea Research Center, University of Connecticut, Avery Point, CT
Alternate: Judith Pederson, Ph.D., Manager, Center for Coastal Resources, MIT Sea Grant College Program, Cambridge, MA

Conservation (2-year term)

Member: Susan Farady, Ecosystem Protection Project Manager, The Ocean Conservancy, Portland, ME
Alternate: Regina Asmutis-Silvia, Biologist, International Wildlife Coalition, East Falmouth, MA

Conservation (3-year term)

Member: Priscilla Brooks, Ph.D., Director, Marine Resources Project, Conservation Law Foundation, Boston, MA
Alternate: Erin Heskett, Senior Program Officer, Wildlife and Habitat Protection Dept., International Fund for Animal Welfare, Yarmouthport, MA

Education (2-year term)

Member: Richard Wheeler, Trustee and Acting Director, Cape Cod Museum of Natural History, Brewster, MA
Alternate: Sharon Meeker, Marine Education Specialist, University of New Hampshire Sea Grant College Program, Durham, NH

Education (3-year term)

Member: Peter Borelli, Executive Director, Center for Coastal Studies, Provincetown, MA
Alternate: vacant

Transportation (3-year term)

Member: William Eldridge, Owner/Operator, Peabody & Lane Corp., Mediterranean Shipping Co., Inc., Boston, MA
Alternate: Capt. Martin McCabe, Boston Harbor Pilot, Boston Harbor Pilots Association, East Boston, MA

Recreation (3-year term)

Member: Barry Gibson, Editor, Salt Water Sportsman Magazine, Boston, MA
Alternate: Michael Sosik Jr., President, Northeast Charter Boat Captain's Assn., Sturbridge, MA

Whale Watching (2-year term)

Member: Alan (Jerry) Hill, President, Yankee Fleet, Gloucester, MA
Alternate: William Reilly, III, Dir. of Safety, Special Projects Mgr, Boston Harbor Cruises, Boston, MA

Business/Industry (2-year term)

Member: Jackson Kent III, Board of Directors, Massachusetts Marine Trades Association, Inc., Duxbury, MA

Alternate: vacant

Fixed Gear-Commercial Fishing (2-year term)

Member: William Adler, Executive Director, Mass. Lobstermen's Association, Scituate, MA
Alternate: David Casoni, Executive Board, South Shore Lobstermen's Association, Plymouth, MA

Mobile Gear-Commercial Fishing (3-year term)

Member: Edward Barrett, Massachusetts Fishermen's Partnership, Green Harbor, MA
Alternate: Vito Giacalone, Executive Board, North East Seafood Coalition, Gloucester, MA

At-Large (2-year term)

Member: John Williamson, Fishing Community Activist, Kennebunk, ME
Alternate: Donald Hourihan, Member, Scituate Waterways Commission, Scituate, MA

At-Large (3-year term)

Member: Deborah Cramer, Science Writer, Gloucester, MA
Alternate: Steven Tucker, Coastal and Marine Resources Program Manager, Cape Cod Commission, Barnstable, MA

At-Large (3-year term)

Member: Sally Yozell, Vice President, Battelle Laboratories, Duxbury, MA
Alternate: Dale Brown, Director, Community Development Dept., City of Gloucester, MA

Ex-Officio Members

State

Member: Richard A. Murray, Director, DFWELE, Massachusetts Environmental Police, Boston, MA
Alternate: Capt. Kathleen Dolan

State

Member: Susan Snow-Cotter, Office of Coastal Zone Management, Boston, MA

State

Member: Paul J. Diodati, Director, Massachusetts Division of Marine Fisheries, Boston, MA
Designee: David Pierce, Ph.D., Deputy Director

Federal

Member: Paul J. Howard, Executive Director, New England Fisheries Management Council, Newburyport, MA
Designee: Chris Kellogg

Federal

Member: Patricia A. Kurkul, Northeast Regional Administrator, National Marine Fisheries Service, Gloucester, MA
Designee: Kathi Rodriguez

Federal

Member: Rear Admiral David P. Pekoske, Commander, First Coast Guard District, US Coast Guard, Boston, MA
Designee: LCDR Greg Hitchen, Office of Law Enforcement

CALENDAR

- Jan. 4 - 9** Sanctuary display at the Archaeological Institute of America (AIA) Conference in Boston, MA
-
- Feb. 1** "Ocean Treasure: the Natural and Cultural Resources of the Stellwagen Bank National Marine Sanctuary," 6 to 9 p.m. Cape Cod Museum of Natural History, Brewster, MA (First class in a 12-week course)
- Feb. 4 - 6** Massachusetts Lobstermen's Association Annual Meeting and Conference; sanctuary exhibit; Seacrest Conference Center, N. Falmouth, MA.
- Feb. 15** 14th Sanctuary Advisory Council Meeting, at the Radisson Hotel, Plymouth, MA, 9 a.m.-5 p.m. The public is invited to attend but remarks must be reserved until the open comment period at the end of the day.
- Feb. 20** Maritime heritage remote sensing survey cruise on the
- Mar. 5 NOAA ship DELAWARE II
-
- Mar. 3** "Oceans and Coasts in the Classroom," 6 to 9 p.m. Sanctuary Meeting Annex, Scituate, MA (First class in a 6-week course, co-sponsored with WBNERR)
- Mar. 5 - 6** Boston Sea Rovers Clinic and Show; sanctuary exhibit and NE Invertebrate Identification Workshop; Fairmont Copley Plaza Hotel, Boston, MA.
- Mar. 11** Presentation by Matthew Lawrence entitled "Stellwagen Bank National Marine Sanctuary's Maritime Heritage Research" at the American Academy of Underwater Sciences (AAUS) Conference in Mystic, CT.
- Mar. 19** Cape Cod Natural History Conference, sanctuary presentation submitted; Cape Cod Community College, Barnstable, MA, 9 a.m. to 4 p.m.
- Early Mar.** Opening of the Stellwagen Bank National Marine Sanctuary Exhibit at the New England Aquarium in Boston, MA. Check our web site for more information about this event.
- Late Mar.
or
Early April** Annual Humpback Whale Naming Workshop with the Whale Center of New England and Center for Coastal Studies.
- NE Fish and NE Invertebrate Identification classes will be held throughout the winter and spring. Contact Bob Michelson, course coordinator, for more information on these classes (781-848-8870 or pbm.inc@verizon.net).



Sanctuary and Cape Cod Museum Team for Course

The Cape Cod Museum of Natural History and the Stellwagen Bank National Marine Sanctuary are teaming to develop a semester-length course, entitled "Ocean Treasure: The Natural and Cultural Resources of the Stellwagen Bank National Marine Sanctuary." The course is intended for naturalists, educators, and other individuals who have an interest in the environment. Those individuals who are interested in the course may attend individual lectures (\$10 each), audit the entire course (\$100), or take the course for three graduate credits (expected, \$250). A course syllabus will be submitted to Framingham State College for graduate credit status in the school's continuing education program. Special guest lectures, offered by experts in their fields, will focus on seabirds, whales, fishes, plankton, shipwrecks, maritime history, and issues in sanctuary management, among many diverse topics. Classes will begin February 1, 2005 and continue until May 3 (Tuesday nights, 6-9pm). For more information, contact the sanctuary or the museum (508-896-3867 x113).

National Oceanic and Atmospheric Administration
National Ocean Service
Gerry E. Studds Stellwagen Bank National Marine Sanctuary
175 Edward Foster Road
Scituate, MA 02066



<http://stellwagen.noaa.gov>

