



II. INSTITUTIONAL SETTING

This section profiles the infrastructure and current capacity of the Stellwagen Bank sanctuary to carry out its mission. It describes the basic components and functions of the sanctuary consisting of administration and management including human resources, funding, research, education, enforcement and permitting. In addition, it provides brief descriptions of the various federal, state and local agencies and organizations that bear on sanctuary management.

HUMAN RESOURCES

SANCTUARY SUPERINTENDENT

The sanctuary superintendent oversees site-specific management functions, including revision and implementation of the management plan. The superintendent designates responsibility for implementing specific programs or projects, establishes the administrative framework to ensure all resource management activities are coordinated, and maintains and manages an appropriate infrastructure to adequately support site operations. The superintendent reports to the Regional Superintendent for the Northeast and Great Lakes Region of the Office of National Marine Sanctuaries (ONMS). General responsibilities of the sanctuary superintendent include:

- Submitting an annual operating plan that recommends priorities to the ONMS for annual allocation of funds for site operations and resource protection;
- Formulating and directing research, education, marine resource management and maritime heritage resource management programs;
- Determining staffing needs and requirements;
- Coordinating with the ONMS in the evaluation, processing and issuing of permits and the conduct of inter-agency consultations;
- Coordinating on-site efforts of all parties involved in sanctuary activities including state, federal, regional and local agencies;
- Working closely with constituents and the community; and
- Evaluating progress made toward achieving sanctuary goals and objectives.

SANCTUARY STAFF

Basic staffing supports program activities in ten functional areas:

- Management Planning
- Technology Integration and Management

- Site Operations
- Resource Protection
- Research and Monitoring
- Education and Outreach
- Maritime Heritage Resources
- Sanctuary Advisory Council Coordination
- External Affairs
- Office Administration

Sanctuary staff has knowledge and expertise in policy, marine resource management, education and outreach, scientific research and monitoring, maritime heritage resources, geographic information systems (GIS), information technology, program development and office administration. The organizational structure at the onset of management plan revision is shown in Figure 3. There were seven full-time staff, four of whom were federal employees and three were contract employees. Five other contract employees were part-time status. There also was one post-doctoral fellow working with the sanctuary.

INFRASTRUCTURE

SITE FACILITIES

The site facilities of the Stellwagen Bank sanctuary are located in the Town of Scituate, Massachusetts, approximately one hour drive south of Boston. These core facilities are situated in a residential area known as First Cliff, a peninsula that separates Massachusetts Bay and Scituate Harbor. The sanctuary offices reside at this one site; there are no plans in the next five years to develop a satellite office.

However, the sanctuary maintains visitor exhibits in Gloucester and Provincetown [the latter temporarily closed due to budget limitations] in partnership with private organizations. It has semi-permanent displays in cooperation with the New England Aquarium, Cape Cod Museum of Natural History, Cape Cod National Seashore, Scituate Maritime and Irish Mossing Museum, and the Woods Hole Aquarium. It

FIGURE 3. ORGANIZATIONAL CHART FOR THE STELLWAGEN BANK SANCTUARY AT ONSET OF MANAGEMENT PLAN REVISION.

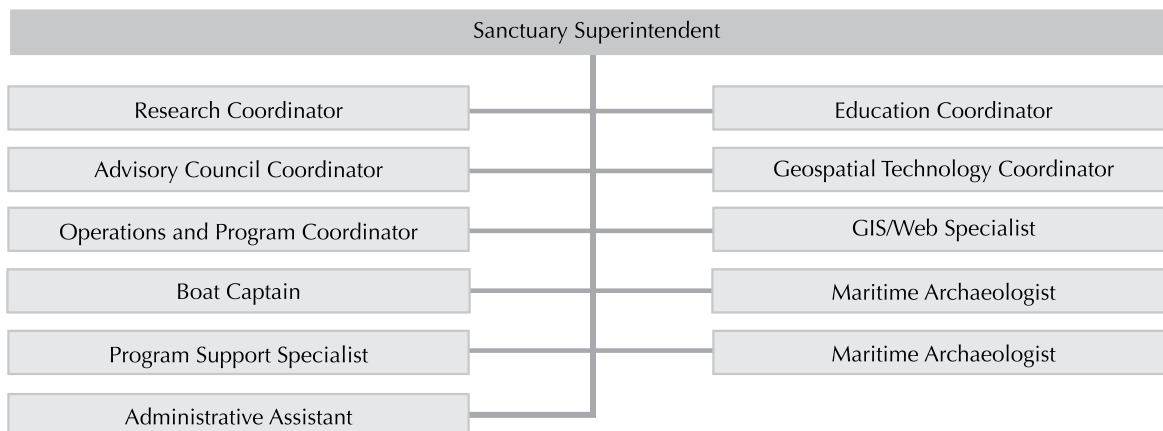


FIGURE 4. OBLIQUE AERIAL PHOTOGRAPH SHOWING THE STELLWAGEN BANK SANCTUARY BUILDINGS (RED ROOFS), PIER AND DOCKS ON SCITUATE HARBOR IN 2003 DURING FACILITIES RENOVATION.

(Source: Microsoft Corporation/Pictometry International Corp., 2006)



also has multiple traveling exhibits consisting of interactive kiosks that rotate through town public libraries and community educational organizations in the region.

The site facilities consist of an administrative office, meeting annex, boathouse, attached pier and two floating docks (Figure 4). Administrative offices and conference room occupy a 6,800-sq-ft., three-story building in the former Scituate USCG Station. An adjacent 2,200-sq-ft., two-story annex houses a meeting facility and office space for visiting faculty, post-doctoral fellows and graduate interns. Both buildings are climate-controlled using geothermal technology. Major renovation of the Administrative Building and the Annex was completed in 2004.

A 3,565-sq-ft., two-story boathouse is built on pilings over the water and includes a 300-ft. pier, with two floating docks attached. The docks have the capacity to berth one 50-ft. vessel and three smaller boats simultaneously. The pier can berth additional vessels up to 70 ft. on an interim basis. Additionally, the sanctuary has three moorings adjacent to the pier. Renovations are planned for both the boathouse and pier to better utilize the existing capacity and to better support operations of the 50-ft. research vessel. The entire complex of structures was transferred by Congress in 1999 to NOAA from the USCG, which had occupied the site since 1937.

VESSELS

The sanctuary currently operates one vessel in support of research and monitoring, education and emergency response. The R/V *Auk* is the sanctuary's aluminum hydrofoil-assisted research catamaran (Figure 5). The R/V *Auk* is a multi-purpose research vessel designed primarily to support the sanctuary's science and education missions. Its length overall is 50 ft., its beam is 19 ft. and its draft is less than 5.5 ft. It has twin 484 hp diesel engines that drive propellers. Its cruising speed in the sanctuary is 20 kts or less, depending on mission and standing orders, but has a top speed of 28 kts. It has a fuel capacity of 600 gallons and a range of 400 nm. It carries a crew of two and a science party of 12 for day trips. While principally intended as a day boat, it can

conduct 2-3 day missions with berthing for six (two crew and four scientists). Its stable twin-hull configuration and sea keeping ability provide year-round access to all parts of the sanctuary.

The vessel incorporates special design features to facilitate research. The vessel holds both wet and dry labs. It can deploy, tow, and retrieve scientific equipment with its 750 lb capacity oceanographic winch. A 2,000-lb hydraulic A-frame and articulated knuckle crane aid in the deployment or retrieval of equipment. Bow thrusters aid in positioning the vessel. A dive ladder supports diving operations and the spacious flying bridge facilitates wildlife observations. A 16-ft. rigid hull inflatable can be deployed as necessary. The R/V *Auk* also offers secondary capabilities as an emergency response asset and for on-the-water enforcement patrols, if required. The R/V *Auk* was recognized as one of the "Great Boats of 2006" by *Marine News* magazine (December 2006).

SANCTUARY ADVISORY COUNCIL

Public involvement in sanctuary management is vitally important. Section 315 of the NMSA authorizes the Secretary of Commerce to establish Sanctuary Advisory Councils.

FIGURE 5. THE STELLWAGEN BANK SANCTUARY'S 50-FOOT RESEARCH VESSEL R/V *AUK*.



This authority has been delegated to the Director of the ONMS, who approves Council charters and appoints Council members. All sites in the ONMS have Sanctuary Advisory Councils.

The charter for the Stellwagen Bank Sanctuary Advisory Council (Advisory Council) was revised and adopted in 2001. At that time the Advisory Council was composed of a total of 21 members, of which 15 seats were public voting and six seats were *ex-officio* non-voting (three federal and three state agencies). There were also 15 alternates for the public seats, who assume the seat and vote in the absence of the respective public member. The charter was amended on December 10, 2007 to increase the number of public voting seats to 17. The sanctuary superintendent participates in Advisory Council meetings in a non-voting *ex-officio* capacity. The Advisory Council has had public representation from five states (Connecticut, Rhode Island, Massachusetts, New Hampshire and Maine) and nine Congressional districts. The Stellwagen Bank Sanctuary Advisory Council is among the largest in the national system and is distinguished by its representation from multiple states. Advisory Council membership is routinely updated at <http://stellwagen.noaa.gov>.

The public member seats represent varied constituent interests. Two seats represent research interests, two represent conservation interests, two represent education/outreach interests, and one seat each represents marine transportation, recreational fishing, whale watching, fixed gear commercial fishing, mobile gear commercial fishing and business/industry, while three at-large seats represent the general public. The two seats added by charter amendment on December 10, 2007 are for diving and maritime heritage (i.e., archaeology, history). With its broad expertise and diverse representation, the Advisory Council offers advice to the sanctuary superintendent on resource management issues that helps ensure that a wide range of viewpoints are provided upon which to base management decisions.

In order to better understand and address specific management issues and broaden public involvement, the Advisory Council extends its capacities by forming a variety of working groups. Working groups invite additional community members and experts to participate in the development of sound management advice for the sanctuary. Working groups are temporary and chaired by an Advisory Council member. Working groups are instruments of and make their recommendations to the Advisory Council. The Advisory Council evaluates the working group recommendations and in turn makes their recommendations to the sanctuary superintendent. For a list of current and former Advisory Council members see Appendix D.

RELATIONSHIP WITH OTHER AGENCIES AND AUTHORITIES

The Stellwagen Bank sanctuary works with the numerous other agencies listed below. The laws authorizing many of these agencies and authorities are provided in Appendix G.

NOAA OFFICES

Several NOAA offices work closely with the sanctuary, including:

NOAA Fisheries Service (National Marine Fisheries Service or NMFS)

NOAA Fisheries Service administers NOAA programs that assess, manage and promote the domestic and international conservation of living marine resources within the U.S. Exclusive Economic Zone (3–200 miles offshore). NOAA Fisheries Service Northeast Regional Office (NERO) (Gloucester, MA) and associated Northeast Fisheries Science Center (NEFSC) (Woods Hole, MA) serve the northeastern U.S. Fishery management plans (FMPs) are developed to manage Northeast fisheries by the New England and Mid-Atlantic Fishery Management Councils. These plans are reviewed by NOAA Fisheries Service and, if they comply with the Magnuson Fishery Conservation and Management Act (MFCMA) and other applicable laws, are approved and implemented. Many of these plans are developed cooperatively with the states through Interstate FMPs developed by the Atlantic States Marine Fisheries Commission (ASMFC). NOAA Fisheries Service promulgates and enforces the regulations for each FMP. NOAA Fisheries Service Habitat Conservation Division (HCD) plays an important role in proposed actions that may affect essential fish habitat (EFH) including coordination of comments to permitting agencies and sanctuary zoning.

NOAA Fisheries Service also shares responsibility with the U.S. Fish and Wildlife Service (USFWS) for the implementation of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA), both of which prevent the taking of any endangered, threatened or otherwise depleted species. As part of the MMPA mandate, the NOAA Fisheries Service Office of Protected Resources (OPR) works in collaboration with the protected resources divisions of the NOAA Fisheries Service regional offices and science centers to develop and implement a variety of programs for the protection, conservation, and recovery of marine mammals.

NOAA Fisheries Service OPR is also responsible for implementing the ESA, generally managing endangered and threatened marine species, including anadromous salmonids. NOAA Fisheries Service and USFWS share joint responsibility for managing sea turtles. In the Atlantic Ocean, NOAA Fisheries Service manages four species of sea turtles, the Atlantic salmon, including their critical habitat, five large whale species and several species of pinnipeds. In coordination with the regional offices and science centers, OPR develops policies and regulations to implement the provisions of the ESA with the goal of protecting and recovering endangered and threatened marine and anadromous species and their habitat.

NOAA Fisheries Service offers resources to the sanctuary such as collaborative assistance on environmental policy processes and enforcement through HCD and NOAA's Office of Law Enforcement (OLE). NERO and the sanctu-

ary collaborate on policy issues where there is an overlap in jurisdiction such as: marine mammal protection, habitat conservation and marine protected areas. This collaboration extends to permitting of otherwise prohibited activities in the sanctuary and review of proposed projects that may impact sanctuary resources such as the recent LNG deep-water ports. NOAA Fisheries Service and sanctuary staff periodically serves on each other's agency issue-specific working groups. NERO is a non-voting *ex-officio* member (Regional Administrator or designated representative) of the Sanctuary Advisory Council.

Similarly, the NEFSC and the sanctuary collaborate on science and technical issues where there is an overlap in jurisdiction. Specifically, collaboration occurs on whale research, acoustic monitoring, ecosystem-based management and ecosystem monitoring.

Office of Marine and Aviation Operations (OMAO)

The Office of Marine and Aviation Operations (OMAO) operates NOAA's large ships and aircraft by providing highly skilled NOAA Corps officers. The sanctuary periodically uses the NOAA ships *Delaware* and *Nancy Foster* and occasionally NOAA aircraft for research in the sanctuary. NOAA Corps officers sometimes assist with diving operations in the sanctuary.

Office of Coastal Resource Management (OCRM)

National Ocean Service's (NOS) Office of Coastal Resource Management (OCRM) is responsible for implementing the Coastal Zone Management Act of 1972 (CZMA), which Congress passed to address the growing concerns about the health of the nation's coastal resources. The office works with state and territorial governments to implement their coastal management programs and find local solutions to problems occurring throughout the entire nation. Thirty-four states and territories have active coastal management programs. The Massachusetts Coastal Zone Management (MCZM) program implements the CZMA for the Commonwealth.

Office of Response and Restoration (OR&R)

NOS's Office of Response and Restoration (OR&R) has two Divisions. The Emergency Response Division (ERD) works to prevent and mitigate harm to coastal resources and is the primary NOAA office responding to oil spills and hazardous material releases. ERD provides scientific support to the U.S. Coast Guard for spills and technical assistance to other agencies for hazardous material releases. The Scientific Support Coordinator for the Northeast, based in Boston, serves as the sanctuary's representative in the case of a hazardous material spill. OR&R also works with federal and state trustees to restore damaged coastal resources.

The Assessment and Restoration Division (ARD) conducts natural resource damage assessments for releases of oil and hazardous substances. ARD scientists and economists provide the technical foundation for these assessments and work with other trustees and responsible parties to restore resources injured by releases of oil and hazardous substances, as well as other injury to resources of national marine sanctuaries and estuarine research reserves. ARD collects

data, conducts studies, and performs analyses needed to determine whether coastal resources have sustained injury from releases of oil or hazardous materials, how to restore injured resources, and to ascertain the damages that must be recovered to accomplish restoration. ARD provides technical support to NOAA's Office of General Counsel and the Department of Justice for litigation and for settlement of natural resource damage claims.

Damage Assessment Center (DAC)

NOS's Damage Assessment Center (DAC) makes natural resource damage assessments for releases of oil and hazardous substances. DAC scientists and economists provide the technical foundation for these assessments and work with other trustees and responsible parties to restore resources injured by releases of oil and hazardous substances, as well as other injury to resources of national marine sanctuaries and estuarine research reserves. DAC collects data, conducts studies, and performs analyses needed to determine whether coastal resources have sustained injury from releases of oil or hazardous materials, how to restore injured resources, and to ascertain the damages that must be recovered to accomplish restoration. DAC provides technical support to NOAA's Office of General Counsel and the Department of Justice for litigation and for settlement of natural resource damage claims.

National Centers for Coastal Ocean Science (NCCOS)

NOS's National Centers for Coastal Ocean Science (NCCOS) conducts and supports research, monitoring, assessment, and provides technical assistance for managing coastal ecosystems and society's use of them. NCCOS recently completed the extensive ecological characterization of the sanctuary region (<http://www.nccos.noaa.gov/sbnmns>) (NOAA 2006).

Marine Protected Area (MPA) Center

NOS's Marine Protected Area (MPA) Center works to implement Executive Order 13158, which directs federal agencies to conserve the nation's valuable marine resources through a variety of tasks related to marine protected areas. This implementation requires considerable cooperation, collaboration and information sharing among many government and non-governmental institutions. Working with the Department of the Interior (DOI) and other partners, the MPA Center: develops the framework for a national network of MPAs; coordinates the development of information, tools, and strategies; and guides agencies in their efforts to enhance and expand the protection of existing MPAs, and to establish or recommend new ones; coordinates the MPA web site; partners with federal and non-federal organizations to conduct research, analysis and exploration; helps construct and maintain an inventory of existing U.S. marine managed areas and the MPA List; and supports selection of the MPA Advisory Committee and its operation.

National Undersea Research Program (NURP)

Office of Oceanic and Atmospheric Research (OAR) National Undersea Research Program (NURP) and its regional centers work to support marine science conducted in situ underwater. NURP is a grant program that provides advanced technol-

ogies and funding support for scientists to address issues of national and regional importance through a comprehensive proposal solicitation and review process. NURP maintains a network of six regional National Undersea Research Centers (NURCs), funded by annual grants from NOAA, that implement the majority of its research mission. The NURC North Atlantic and Great Lakes at the University of Connecticut (NURC-UCONN) is one of the six regional centers and is affiliated with the University of Connecticut. The sanctuary partners with this center frequently to characterize sanctuary resources. [Note: In 2008 NURP was integrated with the OAR Office of Ocean Exploration and Research. NURC has since become the Northeast Undersea Research, Technology and Education Center at the University of Connecticut, which is not formally affiliated with OAR.]

National Sea Grant College Program

OAR's National Sea Grant College Program encourages the wise stewardship of marine resources through research, education, outreach and technology transfer. Sea Grant is a grant program working in partnership between the nation's universities and NOAA. It began in 1966, when the U.S. Congress passed the National Sea Grant College Program Act. Sea Grant specializes in synthesizing the latest developments in marine research and making it accessible to the public. The sanctuary works closely with MIT Sea Grant and UNH Sea Grant to increase public awareness of sanctuary issues and ocean literacy.

OTHER FEDERAL AGENCIES

The sanctuary seeks to provide comprehensive and coordinated sanctuary management in ways that complement existing regulatory authorities and shares resources when appropriate. The following federal agencies have jurisdiction or conduct research within or adjacent to the Stellwagen Bank sanctuary.

National Park Service (NPS)

The Department of the Interior (DOI) National Park Service (NPS) operates the Cape Cod National Seashore (CCNS) and the Salem Maritime National Historic District. The NPS conserves scenery and wildlife, historic structures and provides for the enjoyment of those resources in a manner that will leave them unimpaired for the enjoyment of future generations—goals that are consistent with the sanctuary's mission. The CCNS seashore's proprietary jurisdiction extends out to one nautical mile offshore, including northward from the tip of Cape Cod which does not overlap with the sanctuary jurisdiction that begins three nautical miles offshore. The sanctuary and CCNS cooperate in areas of mutual interest, such as increasing awareness of environmental stewardship among the public and interpreting maritime heritage resources.

Minerals Management Service (MMS)

DOI's Minerals Management Service (MMS) manages the nation's oil and natural gas resources in the outer continental shelf (OCS) pursuant to the Outer Continental Shelf Lands Act (OCSLA), as well as leases pertaining to these resources.

OCS lands technically include the sanctuary, but there is a moratorium on hydrocarbon exploration in the sanctuary.

U.S. Fish and Wildlife Service (USFWS)

DOI's U.S. Fish and Wildlife Service (USFWS) works to conserve, protect and enhance seabirds, wildlife, and plants and their habitats. In the sanctuary, the USFWS is responsible for protecting migratory seabirds pursuant to the ESA and Migratory Bird Treaty Act (MBTA).

U.S. Geological Survey (USGS)

DOI's U.S. Geological Survey (USGS) provides scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy and mineral resources; and enhance and protect our quality of life. The USGS has no regulatory or management mandate. Scientists within the USGS work within four disciplines: biology, geography, geology and water. Scientists at the USGS Woods Hole Coastal Geology Center conduct extensive research on habitat mapping and classification, sediment transport and contaminant transport modeling. In 1994–1995, the USGS successfully mapped the entire sanctuary area in high resolution using multi-beam echo-sounder technology in conjunction with the Canadian Hydrographic Service.

U.S. Army Corps of Engineers (USACE)

The Department of Defense (DOD) U.S. Army Corps of Engineers (USACE) has authority to issue permits, based on EPA guidelines, for the disposal of dredged materials at EPA-approved and designated ocean disposal sites (i.e., the Massachusetts Bay Disposal Site). Under Section 404 of the Clean Water Act, the USACE is responsible for issuing permits for any marine construction, excavation, or fill activities in navigable waters of the U.S. In 2000, the USACE issued a permit for the burying of a fiber optic cable across the northern portion of the sanctuary.

U.S. Navy

DOD's U.S. Navy seldom conducts operations in the sanctuary, due to the shallow depths which are unsuitable for submarine operations, and the crowded waters which make warfare training exercises inadvisable. Naval ships transit the sanctuary approximately seven times a year primarily to access the Port of Boston and in so doing follow internal protocols of posting a lookout for whales and avoiding discharges in the sanctuary (Tom Fetherston, U.S. Navy, personal communication, 2004). Operations in deep waters (greater than 200 m) beyond the sanctuary have the potential to acoustically disturb sanctuary resources. The Navy's Undersea Warfare Center in Newport, Rhode Island has provided research support to the sanctuary by deploying a bottom-imaging autonomous underwater vehicle to characterize one of the sanctuary's historic shipwrecks.

U.S. Coast Guard (USCG or Coast Guard)

The Department of Homeland Security's U.S. Coast Guard (USCG) has broad responsibility for enforcing all federal laws and regulations throughout the sanctuary and assists NOAA in the enforcement of sanctuary regulations. The

USCG provides on-scene coordination with Regional Response Center facilities under the National Contingency Plan for removal of oil and hazardous substances in the event of a spill threatening sanctuary resource or qualities. In addition to enforcing fishing and vessel discharge regulations, the USCG is responsible for regulating vessel traffic, maintaining aids to navigation, increasing boater safety, and coordinating search and rescue operations. On any given week, the USCG typically has one 270 ft cutter transiting the Western Gulf of Maine Closure Area (WGoMCA) looking for fishery violations. The USCG is a non-voting ex-officio member (Admiral 1st District or designated representative) of the Sanctuary Advisory Council.

Environmental Protection Agency (EPA)

The Environmental Protection Agency (EPA) helps protect sanctuary water quality by regulating sewage outfalls via National Pollutant Discharge Elimination System Permits and ocean dumping under Title I of the Marine Protection, Research, & Sanctuaries Act. Title I requires a federal permit for the transportation and disposal of any materials beyond state jurisdiction (3 nm) and out to the 200 mile EEZ. EPA is responsible for designation of ocean disposal sites, certifying the dredged material is suitable for disposal in designated ocean dumpsites, and oversees ACOE permits for disposal of dredged material.

REGIONAL AUTHORITIES

Three regional fishery management authorities are responsible for managing species occurring in the sanctuary. The New England Fishery Management Council (NEFMC) and the Mid-Atlantic Fisheries Management Council (MAFMC) are authorized by the MFCMA; the Atlantic States Marine Fisheries Commission (ASMFC) is authorized by the Atlantic Fisheries Act of 1942 and the Atlantic Coastal Fishery Cooperative and Management Act (ACFCMA).

Species or species complexes in federal waters are managed under fishery management plans (FMPs) prepared by the NEFMC and MAFMC. For those species that cross jurisdictional boundaries, one of these authorities will take the lead on the management plan development and coordinate implementation with the other as affected. The ASMFC prepares coastal fishery management plans (CMPs) for any fishery resource that moves among, or is broadly distributed across, waters under the jurisdiction of one or more States or waters under jurisdiction of one or more States and the U.S. Exclusive Economic Zone, which explains why some species are double listed below. The respective authority(s) for managing fisheries for the following species, which at least sometimes occur in the sanctuary, is as follows:

NEFMC:

- Northeast multispecies (cod, haddock, pollock, halibut, yellowtail flounder, winter flounder, windowpane flounder, witch flounder, American plaice, white hake, ocean pout, redfish)
- Monkfish
- Atlantic herring

- Scallops
- Skates (thorny and smooth)
- Red crab
- Atlantic salmon
- Whiting complex (silver hake, red hake, and offshore hake)

MAFMC:

- Spiny dogfish
- Bluefish
- Summer flounder
- Ocean quahog
- Atlantic mackerel
- Surf clam
- Black sea bass
- Tilefish
- Squid
- Butterfish
- Scup

ASMFC:

- American lobster
- Menhaden
- Striped bass
- American eel
- Atlantic menhaden
- Scup
- Winter flounder
- Spiny dogfish and coastal sharks
- River herring (alewife and blueback herring)
- Northern shrimp
- Tautog
- Atlantic sturgeon
- Bluefish
- Atlantic herring
- Summer flounder
- Black sea bass

The regulation of fishery resources in national marine sanctuaries is a collaborative process whereby the sanctuary superintendent works with fishery managers and the councils to ensure that sanctuary resources are appropriately managed (Appendix H). Stellwagen Bank sanctuary works primarily with the NEFMC on fishery management and habitat protection issues. Sanctuary staff sits on the advisory board to the Habitat and MPA committee. The NEFMC is a non-voting *ex-officio* member (Executive Director or designated representative) of the Sanctuary Advisory Council.

Gulf of Maine Council on the Marine Environment (GoM Council)

The Gulf of Maine Council is a U.S.-Canadian partnership of government and non-government organizations working to maintain and enhance environmental quality in the GoM to allow for sustainable resource use by existing and future generations. The sanctuary and the GoM Council share many common goals and objectives albeit at different scales. To date, interaction between the two organizations has been intermittent. Much of what is being learned about the smaller scale of the sanctuary is applicable and transferable to the larger scale gulf. Many of the projects of the GoM Council are of related interest to the sanctuary.

STATE AGENCIES

The sanctuary lies entirely outside of state waters. However, the sanctuary boundaries to the north and south are co-terminus with those of the Commonwealth of Massachusetts.

Massachusetts Executive Office of Environmental Affairs (EOEA)

The Executive Office of Environmental Affairs (EOEA) is responsible for implementing the Commonwealth's environ-

mental protection policies including those related to coastal zone and ocean protection. EOEA recently developed an ocean management policy. EOEA oversees the MCZM Office, the Ocean Sanctuaries Program and the Board of Underwater Archaeological Resources. The sanctuary coordinates with EOEA primarily on proposal reviews for projects that may mutually impact on both state and sanctuary (federal) waters.

Coastal Zone Management Office (MCZM)

The Massachusetts Coastal Zone Management (MCZM) implements the Coastal Zone Management Act (CZMA) on behalf of the Commonwealth. The sanctuary works with MCZM on issues such as pollution prevention, invasive species, ballast water discharge, MPA policy and habitat protection. The MCZM south shore extension agent is co-located at the sanctuary headquarters in Scituate. MCZM is a non-voting *ex-officio* member (Director or designated representative) of the Sanctuary Advisory Council.

Massachusetts Division of Marine Fisheries (DMF)

The Massachusetts Division of Marine Fisheries (DMF) is responsible for managing the Commonwealth's fishery resources and developing and implementing fishery policies including aquaculture. The sanctuary works with DMF on issues such as project proposal review, MPA policy, contingency planning and fish research. DMF is a nonvoting *ex-officio* member (director or designated representative) of the Sanctuary Advisory Council.

Massachusetts Division of Fish and Wildlife and Environmental Law Enforcement (DFWELE)

The Division of Fish and Wildlife and Environmental Law Enforcement (DFWELE) is responsible for enforcement of the Commonwealth's environmental protection laws. DFWELE oversees the Massachusetts Environmental Police (MEP). The MEP provides uniformed patrol officers to enforce laws on both land and water. One of MEP's South Coastal offices is co-located at the sanctuary headquarters in Scituate. By formal agreement, MEP officers are cross-deputized to work with NOAA OLE in sanctuary enforcement. MEP is a nonvoting *ex-officio* member (Director or designated representative) of the Sanctuary Advisory Council.

Massachusetts Board of Underwater Archaeological Resources (BUAR)

The Board of Underwater Archaeological Resources (BUAR) is responsible for managing the Commonwealth's underwater archaeological resources. The sanctuary works with BUAR on outreach efforts associated with maritime heritage resources and on the development of maritime heritage resource management policies in the sanctuary.

State Ocean Sanctuaries Program

The Ocean Sanctuaries Program protects five state-designated ocean sanctuaries (two of which abut the sanctuary) from exploitation, development or activity which would seriously alter or otherwise endanger the ecology and appearance of the ocean, the seabed, or the subsoil of the seabed, or the Commonwealth waters adjacent to the Cape Cod National

Seashore. Activities specifically prohibited in ocean sanctuaries include the building of any structure on the seabed or under the subsoil; the construction or operation of offshore electrical generating stations; the removal of sand and gravel; oil and gas exploration and exploitation; and the dumping or discharge of commercial or industrial waste.

LOCAL GOVERNMENT AGENCIES

Town of Scituate

The town and the sanctuary are developing a relationship around common interests such as marine operations, increased ocean literacy, heritage resource management and environmental stewardship. Specifically, the town and sanctuary are working on the following projects:

- Marine operations — the sanctuary is considering leasing slip space at the town's new Marine Park for winter berthing of the R/V *Auk* and the sanctuary provides the Fire Department slip space at its pier;
- Ocean literacy — the sanctuary has placed a temporary interactive exhibit at the town library and provides presentations upon request to town and school groups;
- Heritage resources — the sanctuary worked with the town's historic commission to create an exhibit at the town's Maritime and Irish Mossing Museum and the sanctuary has facilitated the town's application for designation as a "Preserve America City" which would qualify the town for potential grant funds to develop and interpret its heritage resources; and
- Environmental stewardship — the sanctuary provides the town use of its meeting annex for marine-related committee meetings including the Waterways Commission and the Marine Park Authority Committee.

City of Gloucester

The mayor's office facilitated development of the sanctuary's exhibit in partnership with the Gloucester Maritime Heritage Center. The sanctuary worked with the mayor's office to help facilitate the town's successful application for designation as a "Preserve America City."

City of Provincetown

The sanctuary is working with the city to secure a space for a permanent sanctuary visitor center or expanded exhibit. A static sanctuary kiosk in place on the city's MacMillan pier is in the process of being upgraded.

TOOLS FOR FORMALIZING RELATIONSHIPS

The sanctuary superintendent has numerous options to formalize interactions with these and other federal, state and local agencies or private interests including:

- Memoranda of Understanding and Memoranda of Agreement formalize in writing, relationships between the sanctuary and other entities for a specific purpose or project;

- Interagency Agreements are used to share expertise, equipment and/or personnel;
- Grants/Cooperative Agreements are financial assistance tools used to provide or receive certain funding for projects and/or products benefiting the public;
- Contracts are used to procure goods and services to meet sanctuary goals and objectives;
- Consultation is formal communication between agencies, which can be invoked when one agency's activity may affect the resources of another.

SANCTUARY FUNDING

APPROPRIATIONS

Funding for the ONMS is derived primarily from federal appropriations and divided into two principal categories: funds for base budget and funds for capital facilities. The ONMS distributes its base budget funds to individual sanctuaries for site-specific core operations (labor costs for existing staff and other administrative expenses) and programmatic costs (the additional costs the sanctuary incurs carrying out management strategies such as marine mammal protection). Capital facility funds supplement the site's base budget to cover costs of such things as exhibits and building renovations. Each action plan in Section XII of this document includes a table identifying costs for the individual strategies over the next five years (from the date of publication of this document). The tables provide a rough estimate of the programmatic costs needed to implement each of the strategies.

ADDITIONAL SOURCES OF SUPPORT

In addition to federal appropriations, the sanctuary relies on partnerships, appropriate outside funding sources, such as grants and in-kind services, to assist in the implementation of the management plan. These other sources include:

The National Marine Sanctuary Foundation (NMSF)

The National Marine Sanctuary Foundation (NMSF) provides collaborative opportunities for the national marine sanctuaries through public and private sector partnerships. The NMSF helps to develop external funding opportunities for ONMS outreach and education programs and other resource protection efforts. The NMSF is a private, non-profit, 501(c)(3) tax exempt organization.

Federal, Regional, State and Local Agencies

Federal, regional, state and local agencies participate in on-going resource protection, management, monitoring, enforcement and permit programs to help carry out sanctuary goals and objectives. As intra- and interagency relationships become formalized and common goals and objectives are identified, the sanctuary pursues opportunities to share staff, expertise and financial resources, as appropriate.

Nonprofit Organizations and Foundations

Nonprofit organizations and foundations have joined the sanctuary in numerous cooperative projects. For example, in conjunction with the sanctuary, the International Wildlife Coalition originated and the Whale and Dolphin Conservation Society spearheads the "See-A-Spout" program to increase boater awareness of how to enjoy and protect marine mammals in the sanctuary and beyond.

RESEARCH AND MONITORING

The sanctuary conducts a robust science program focused on providing information to support key management needs. Science is comprised of both research and monitoring activities. The science coordinator works with the superintendent to develop the program and is responsible for both conducting and facilitating science activities in the sanctuary. A status summary of the current research and monitoring projects supporting sanctuary management is presented in Table 1. By necessity, the sanctuary relies on partnerships with other organizations that have the specialized knowledge and/or technical capability to conduct the science essential to answer management questions.

The year-around capabilities of the R/V *Auk* enhances the sanctuary's capacity to understand seasonal dynamics in ecosystem structure and function. The sanctuary provides office space for visiting scientists, fellows and interns working on sanctuary research needs. Renovation of the boat-house and development of the marine operations center will expand support for science conducted in the sanctuary. The following is a brief description of recent science findings in the sanctuary that have management implications.

Marine mammal protection:

- Whale tagging has begun to reveal the underwater behavior of humpback and right whales. Humpbacks feed in the water column and scour sand habitats to forage on prey species such as sand lance. The latter behavior makes them highly vulnerable to entanglement in fishing gear on the seafloor.
- Right whales have been documented spending extensive time feeding on zooplankton patches less than 20 m below the sea surface where prey is concentrated along the thermocline. This is within a depth range that increases the chances of collision with deep draft oceangoing vessels that are not always able to detect whales in time to divert from their path.
- Right whales vocalize extensively during the winter and early spring. This makes their detection and monitoring possible by remote hydrophones on the seafloor and has implications for the extent of anthropogenic noise in the sanctuary that masks communication of this endangered species.

Ecosystem protection:

- The Western Gulf of Maine Closure Area (WGoMCA) overlaps 22% of the sanctuary and is referred to as the

“sliver.” The sliver serves as a relatively unimpacted reference area for studying seafloor habitat recovery in the absence of bottom tending fishing gear relative to natural disturbance. Preliminary results demonstrate that cessation of fishing gear impacts can help restore ecosystem structure.

- Cod tagging on gravel and boulder reef habitats reveals that approximately 35% of the tagged cod are long-term residents of specific small areas and an additional 13% are repeat visitors to the same area they were tagged. This implies that local subpopulations of cod and possibly other demersal species may respond to relatively small scale area management measures, such as marine reserves.

- Biodiversity in mud habitats is equivalent to or greater than biodiversity in other habitats such as gravel and boulder reefs, implying that measures to restore or protect biodiversity need to include representation of all habitat types in the sanctuary.

Maritime heritage:

- The sanctuary contains many shipwreck sites of historic value and importance.
- Shipwrecks have been heavily impacted by fishing gear.
- Shipwrecks in deep water have good structural preservation.
- Shipwrecks become important habitat for sessile organisms and refugia for fish.

TABLE 1. SUMMARY OF CURRENT RESEARCH AND MONITORING PROJECTS IN THE STELLWAGEN BANK SANCTUARY.

Project	Type		Funding		
	Research	Monitoring	Intramural	Extramural	Collaboration
Marine Mammal Protection					
Whale tagging for understanding behavior	■		■	■	NMFS, WHOI, UNH, UHI, Duke, WCNE, Harvard, Penn State, UVM, IFAW
Internal waves as a predator/prey aggregation factor	■			■	WHOI, UoL
Passive acoustic characterization		■	■	■	Cornell U., NMFS
AIS-based right whale alerts	■			■	Cornell U. USCG, UNH, IFAW, NMFS, Excelerate Energy, Suez Energy
Commercial shipping		■	■	■	USCG, UNH
Marine mammal distribution		■	■		WCNE, PCCS
Regulatory compliance using AIS		■			NMFS, IFAW
Whalewatch guidelines	■		■	■	NMFS
Ecosystem Protection					
Seafloor habitat recovery monitoring		■	■		NURC-UConn, U. Maine, Brown U.
Use assessment		■	■		
Water quality		■	■		Battelle, MWRA
Ocean observing		■		■	GoMOOS
Commercial fisheries effort		■	■		NMFS, NEFMC
Sand lance ecology	■		■	■	MFP, Boston U., Duke U.
Fish tagging	■		■	■	Boston U.
Trends in fish size	■		■		UPenn
Historical ecology	■		■		UNH
Ecosystem service modeling	■			■	Boston U., UVM, UNH, NCEAS, MOP
HabCam	■			■	WHOI
Marine Debris		■		■	WHOI, Stellwagen Alive
Maritime Heritage Management					
National Register listed site monitoring		■	■	■	NURC-UConn
Maritime heritage inventory	■		■	■	NURC-UConn
Historic wrecks characterization	■		■	■	NURC-UConn

EDUCATION AND OUTREACH

The goals of the education and outreach program are to bring information about the sanctuary's research and resource protection programs before the public, to encourage stewardship of sanctuary resources, and to advance ocean literacy among students, teachers and the general public, which is a NOAA priority. The education coordinator works with the sanctuary superintendent to develop the education and outreach program and is responsible for conducting and facilitating activities that implement it.

The education and outreach program for the sanctuary consists of multiple elements including print publications and audio-visual productions, general public outreach, user group outreach, formal education, informal education, media relations and exhibits. A summary of representative education and outreach products and programs developed by the sanctuary or through collaboration with its partners is listed in Table 2. Many of the sanctuary's education and outreach projects have developed as cooperative ventures with partners including non-governmental organizations, educational institutions, museums and aquariums. In recent years, a variety of projects have been initiated that meet site needs and incorporate ONMS priorities, including several education mini-grant projects.

INTRAMURAL

Intramural products and programs are specific to the sanctuary and are funded primarily through NOAA. These efforts are directed at delivering information about ongoing sanctuary research and resource conservation programs to the general public and specific user groups. Funding for these programs has come from the site budget, national education mini-grants, capital facilities funds for exhibits, and national program priority allocations. The following is a brief description of recent education products and programs developed by the sanctuary that have management implications, particularly in describing work in three principal resource sectors—marine mammal protection, ecosystem protection and maritime heritage management.

Media Relations. The sanctuary has produced press releases, media advisories and backgrounders, including notices about upcoming sanctuary advisory council meetings, special events, workshops and research results. When applicable, press conferences have been held to announce significant findings, as was done with the confirmation of the wreck of the steamship *Portland*. Editorial board visits by sanctuary staff have also been made to major news outlets. When appropriate, sanctuary staff members have been interviewed by reporters from print and broadcast media to provide technical expertise and program content to the stories. Recent articles have highlighted sanctuary whale tagging research and shifting of the Boston Traffic Separation Scheme to protect whales from ship strikes. Media relations is a key means of disseminating sanctuary news to the wider public.

Publications and Audio-Visual Materials. The sanctuary has produced various printed and A-V materials, including an annual summer newspaper called "Stellwagen Soundings" since 1995 and periodic newsletters called "Stellwagen Banknotes" since 2002, along with a variety of other flyers, brochures, posters and videos. The summer newspaper, print run of approximately 40,000, contains updates on sanctuary research, discussions of management issues, and provides information on stewardship programs. It is distributed in bulk to whale watch operations, museums, and tourism centers and serves as the major outreach tool for the sanctuary to the interested public.

Web Site. The sanctuary redesigned the entire Web site in 2006 to better meet management needs. It serves as the primary year-round distribution point for sanctuary information. The Web site now includes sections about the resources of the sanctuary, visitor uses, research and education programs, enforcement, staffing and facilities. The site incorporates design and navigation standards developed for the ONMS's Web page.

Exhibits. The sanctuary has developed seasonal visitor exhibits in Provincetown and Gloucester, gateway communities to the sanctuary. The sanctuary has also developed several traveling exhibits, including interactive computer kiosks that tour local public libraries, a trade show pop-up, window shade banners and photograph collections, which have been displayed at various venues, including the Independence and Cape Cod Malls, Nantucket Whaling Museum, Salem National Historic Site Visitor Center, New England Aquarium and South Shore Natural Science Center; a newly redesigned version of the show was completed in 2007. These exhibits provide a means of explaining key sanctuary management issues and research to the public, using attractive visual media, including videography, photography and computer graphics. The sanctuary exhibit at the New England Aquarium is a collaborative effort that received funding from various governmental and non-governmental sources.

EXTRAMURAL

Various organizations and commercial operations, such as whale watch companies, provide education and outreach about the sanctuary to the public without funding from the sanctuary. The organizations often consult with sanctuary staff in the development of their outreach programs, and may use data or imagery from the sanctuary in the products or programs they produce. Table 2 includes listings of extramural projects that have been entirely undertaken by outside organizations or have some component of external funding/expertise and sanctuary participation.

Of foremost importance in this category are public outreach products (advertising flyers and brochures from whale watch companies, books and articles) and formal and informal education programs, including multi-day programs or dock-side half-day programs on regional tall ships. These vessels include the Provincetown Center for Coastal Studies' *Spirit of Massachusetts*, Sea Education Association's *Corwith*

Cramer, and the Commonwealth of Massachusetts' Schooner *Ernestina*. Marine policy and marine science programs at area colleges and high schools may include information about the sanctuary when covering the Gulf of Maine ecosystem.

COLLABORATIVE

The sanctuary collaborates with many institutions in the development and delivery of public outreach products, such as printed information, video programs; formal and informal education programs; and exhibits. In many cases, the sanctuary shares the cost of the project with its partners, or may offer in-kind support in the form of staff time or facility use. These collaborative efforts are a key element in disseminating information about sanctuary resources, issues and management activities to a wider public. Table 2 lists important collaborative education and outreach efforts; the following productions and programs are of particular note.

MEDIA PRODUCTIONS

The high cost of producing audio-visual programs has led to several collaborative projects. The sanctuary provided technical expertise and staff assistance in the production of The Science Channel's one-hour special on "The Wreck of the *Portland*," on the History Channel's "Deep Sea Detectives: *Portland*" and *Chronicle Magazine's* episodes focusing on shipwrecks. Game Warden/Wildlife Journal produced an episode on the sanctuary research and enforcement, and Divers Down covered fish and invertebrate biodiversity.

The sanctuary aided master storyteller Jay O'Callahan in the development of his oral presentation/tape/CD on "The Spirit of the Great Auk," which focused on human use of the marine environment and extinction of a marine species. This audiotape/CD serves as a companion piece to the NOVA special (The Haunted Cry of a Long Gone Bird). The "Whaling to Watching: Right Whales" video was developed jointly with the Gray's Reef National Marine Sanctuary and the Georgia Department of Natural Resources, and serves as a companion piece to a book and poster by the same name.

In 2005 and 2006, the sanctuary worked with the National Undersea Research Center at the University of Connecticut to deliver two live broadcasts from sanctuary historic shipwreck sites in collaboration with the Provincetown Memorial Museum and the Gloucester Maritime Heritage Center. These programs, in addition to showings at on-shore auditoriums, were streamed live on the World Wide Web.

FORMAL AND INFORMAL EDUCATION

The sanctuary has worked collaboratively with various organizations to develop education products and programs for formal and informal education audiences (K-12, college/graduate students, teachers, and user groups). Of particular note was a 13-week course offered at the Cape Cod Museum of Natural History in the spring of 2005 that focused on sanctuary resources and issues, and was targeted to high school educators, whale watch naturalists and the interested

public. The sanctuary has worked with the Boston Globe to develop two education supplements: "Water" in 1998 and "Saltwater Sanctuary" in 2002. A special issue of the Massachusetts Marine Educators quarterly journal focused on the sanctuary in 1997 and again in 2007.

Less formal, more user-oriented education programs have also been developed, including the Fish and Invertebrate Identification Programs for divers, and the See-A-Spout boater education program with the Whale and Dolphin Conservation Society to promote safer boating around whales. The annual Whale Naming Workshop serves to identify new humpback whales in the sanctuary, a service to researchers and naturalists, and is conducted in collaboration with several local non-governmental organizations.

ENFORCEMENT AND PERMITTING

ENFORCEMENT

Sanctuary resource protection depends in part upon enforcement of sanctuary regulations and other applicable state and federal statutes and regulations. The sanctuary's approach to enforcement focuses on two specific components: 1) the use of interpretive enforcement as a means to inform the public and encourage voluntary compliance, and 2) the legal enforcement of regulations. Currently the sanctuary enforcement program consists of *ad hoc* patrols conducted by the USCG or the OLE and Massachusetts Environmental Police (MEP). Routine patrols are not conducted because of budget limitations to fund dedicated enforcement officers. When a violation is documented in the sanctuary, NOAA OLE and General Counsel prosecute the case.

Sanctuary regulations are enforced by the NOAA OLE and the USCG, through cooperative agreements which allow OLE to cross-deputize enforcement officers from state agencies. Accordingly, enforcement officers from MEP are authorized to enforce sanctuary regulations. The sanctuary currently has individual enforcement agreements with USCG and the MEP. The sanctuary continues to develop and update cooperative agreements among enforcement agencies (see Strategy ADMIN 2.5) for purposes of ensuring effective enforcement of sanctuary and other pertinent federal regulations.

PERMITTING

Permits are required in all sanctuaries for conducting activities otherwise prohibited by sanctuary regulations (current sanctuary regulations, Appendix I). Under current regulations, the sanctuary superintendent may issue, in some cases with ONMS Director's approval, a permit to conduct an activity in the sanctuary otherwise prohibited by sanctuary regulations provided the activity: 1) is research related to the resources of the sanctuary, or 2) furthers the educational value of the sanctuary, or 3) furthers the management purposes of the sanctuary (15 CFR Subpart N).

The permit application process requires the submittal of a project summary, including the exact location of activities,

description of methods, rationale for use of the sanctuary environment, explanation of environmental consequences, and plan for reporting results to the sanctuary. In considering whether to grant a permit the sanctuary superintendent (or ONMS Director where appropriate) evaluates: the professional and financial responsibility of the applicant; the appropriateness of the methods envisioned to the

purpose(s) of the activity; the extent to which the conduct of any permitted activity may diminish or enhance the value of the sanctuary as a source of recreation, or as a source of educational or scientific information; the end value of the activity; and such other matters as may be deemed appropriate (15 CFR Subpart N).

TABLE 2. SUMMARY OF REPRESENTATIVE EDUCATION AND OUTREACH PRODUCTS AND PROGRAMS DEVELOPED BY THE STELLWAGEN BANK SANCTUARY OR THROUGH COLLABORATION WITH ITS PARTNERS.

Products and Programs	Intramural	Extramural	Collaboration
Publications			
Book — Stellwagen Bank: A guide to the whales, sea birds, and marine life of the Stellwagen Bank National Marine Sanctuary. 1995.		■	Provincetown Center for Coastal Studies (PCCS)
Stellwagen Soundings — annual newspaper (bulk distribution, approx. 40,000) 4-color, 8-page, tabloid, 1995–present.	■		Bulk distribution through whale watch companies, aquariums, museums, tourism offices, NGO's
Stellwagen Banknotes — periodic newsletter (approx. 5,000 per issue) B&W, 8-page, 8.5x11 (1-2/yr) until 2008, color, 12-pages, 8.5x11 (1-2/yr) 2008–present.	■		
State of the Sanctuary Report – 2002.	■		
Whale Watch Guidelines — brochure — 2001, 2006.	■	■	NOAA Fisheries Service
Whale Safety Sticker — 2001.		■	International Fund for Animal Welfare (IFAW)
See A Spout boater education brochure, sticker, transparencies and CD — 2003, 2005, 2007.	■	■	International Wildlife Coalition (IWC) — 2003, 2005; Whale and Dolphin Conservation Society (WDCCS) — 2007
Advertising flyers and brochures from whale watch companies incorporating sanctuary information.		■	Various companies and whale research groups
Technical fact sheets on sanctuary geology and oceanography.		■	U.S. Geological Survey (USGS)
Assorted flyers and fact sheets, including sanctuary rack card, Provincetown exhibit rack card — 1994–present.	■		
Sanctuary Posters – underwater bathymetry, humpback whale, Portland shipwreck, boulder reef art, anemone forest art, map.	■		National Undersea Research Center-UConn, National Marine Sanctuary Foundation, USGS
Exhibits			
Provincetown MacMillan Wharf Kiosk — 1995–present.	■		PCCS
Provincetown Exhibit (formerly at Bradford Street, now in Aquarium Wharf) — 2001–2007.	■		PCCS
Gloucester Maritime Heritage Center — temporary exhibit 2004–2005; permanent exhibit 2006; expanded 2008–present.	■	■	Gloucester Maritime Heritage Center (GMHC), NMSF
Biodiversity Photo exhibit at Capitol Hill in Washington, DC, Independence Mall/Kingston, Cape Cod Museum of Natural History; South Shore Natural Science Center; Nantucket Whaling Museum, New England Aquarium Education Center and other locations — 1997–2001.	■		Various underwater and nature photographers, NURC-UConn, USGS
Whale Research Photo Exhibit — South Shore Natural Science Center — 2007.	■		Various whale researchers/ photographers
Revised/Updated Photo Exhibit (whale research) — South Shore Natural Science Center, other locations in future — 2007.	■		Various whale researchers/ photographers
Traveling Touchscreen Kiosks and Windowshade Exhibit for libraries, nature centers and other educational venues and public meeting places — 2006–present.	■		
NE Aquarium — interpretive signs; Immersive Theater show — Storm Over Stellwagen; Stellwagen Bank Sanctuary exhibit (two tanks and associated signage) in Gulf of Maine cold water gallery — 1997–present.	■	■	NE Aquarium (NEAq), NMSF

TABLE 2. SUMMARY OF REPRESENTATIVE EDUCATION AND OUTREACH PRODUCTS AND PROGRAMS DEVELOPED BY THE STELLWAGEN BANK SANCTUARY OR THROUGH COLLABORATION WITH ITS PARTNERS.

Products and Programs	Intramural	Extramural	Collaboration
Scituate Maritime and Irish Mossing Museum (Shipwreck exhibit) — 2003–present.	■		Scituate Maritime Museum
Woods Hole NOAA Fisheries Service Aquarium — signs, photos, and tanks with sanctuary species; distribution of sanctuary literature — 2000–present.	■		NOAA Fisheries Service
Sanctuary wall panels at Provincelands Visitor Center of the Cape Cod National Seashore — 1997–present.	■		Cape Cod National Seashore
Portable 8'x10' Pop-Up Exhibit and Portable Windowshade Panels with sanctuary overview content — 1996–present.	■		
National Aquarium in Washington DC (tank with photos) — 2003–present.	■	■	NMSF
Automatic Information System exhibit explaining marine safety technology and its use in whale conservation (2010).	■	■	U.S. Coast Guard, Cape Cod National Seashore, Halibut Point State Park
Public Outreach Programs & Events — General Public			
Sanctuary Speakers Program — staff talks to various groups, including Rotary Clubs, Power Squadrons, historical societies, etc.	■		
Stellwagen Bank National Marine Sanctuary Celebration and Great Annual Fish Count in Gloucester — 2002–2008.	■		GMHC, New England Aquarium Dive Club
Sanctuary Open House — 2006.	■		
Participation in various fairs and celebrations, including Marshfield Fair, Duxbury Bay Day, Earth Day (Boston), Gloucester Seafood Festival 1994–present	■	■	
Whale Day with inflatable right whale model at various sites, including Independence Mall, Cape Cod Mall, Boston Children's Museum, South Shore Natural Science Center 1997–present.	■	■	WhaleNet, NOAA Fisheries Service, WDSC
Stellwagen Bank Sanctuary 10th Anniversary Lecture Series — 2002.	■	■	NEAq
Stellwagen Bank lectures as part of Cape Cod Biodiversity Course with Cape Cod Museum of Natural History — 2002, 2003.	■	■	Cape Cod Museum of Natural History (CCMNH)
Steamship <i>Portland</i> Symposium with Portland Harbor Museum — 2003.	■	■	Portland Harbor Museum
Sustainable Seas Expedition (SSE) and Sanctuary Weekend on Central Wharf — 1999.	■	■	National Geographic Society (NGS), NEAq
Sanctuary Video and Lecture Series in Scituate — 2006–2007.	■		
User Group Meetings and Conferences			
Coastal Zone 97 conference (sanctuary booth).	■	■	
Boston Sea Rovers (divers) Annual Conferences (sanctuary booth) 2000–present.	■	■	
Massachusetts Marine Educators Annual Conferences (sanctuary workshops and exhibits) — 1994–present.	■	■	
National Marine Educators Conference (sanctuary workshop and exhibit) — 2001.	■	■	
Massachusetts Environmental Education Society Annual Meetings (sanctuary booth) — 1998, 1999.	■	■	
Fish Expo, Workboat Atlantic (sanctuary booth) — 2000, 2002, 2004, 2006, 2008.	■	■	
Massachusetts Lobstermen's Association Annual Meetings (sanctuary booth) — 2002–present.	■	■	
Oceans 2006 Conference (sanctuary booth).	■	■	
Cape Cod Natural History Conference (sanctuary presentations) — 2005–present.	■	■	

TABLE 2. SUMMARY OF REPRESENTATIVE EDUCATION AND OUTREACH PRODUCTS AND PROGRAMS DEVELOPED BY THE STELLWAGEN BANK SANCTUARY OR THROUGH COLLABORATION WITH ITS PARTNERS.

Products and Programs	Intramural	Extramural	Collaboration
Media Outreach			
Press releases and community calendar notices as needed (fax and e-mail distribution) 1994–present.	■		
Interviews with local print, radio, TV and cable stations as needed — 1994–present.	■		
PSA on right whales and the sanctuary 1996.	■	■	Boston University
Articles in tourism publications, including Kids on the Cape — free articles in publications (250,000 circulation) 2002-present; Official Cape Cod Guidebook (Cape Cod Chamber of Commerce) 4-page article — 2004- present.	■	■	Cape Cod Chamber of Commerce, Kids on the Cape Publication
Boston Globe Newspaper in Education supplements on “Marine Sanctuary” (2002) and “Water” (1998) with text and images provided by the sanctuary.	■	■	Boston Globe
Articles in trade publications, including Sea History, Oceanography, etc. – on-going.	■	■	
Audio-Visual Productions			
SBNMS web page development 1999–present			
Stellwagen Bank: A Sanctuary Worth Protecting – 5 minute overview video (2008)	■		Creative Resources Group
“The Wreck of the <i>Portland</i> ” one-hour HD TV program.		■	The Science Channel
“Deep Sea Detectives: <i>Portland</i> ” one hour TV program.		■	History Channel
“Massachusetts Shipwrecks” (2006) and “Wreck of the <i>Portland</i> ” (2001) half-hour TV program.		■	Chronicle Magazine (WCVB-TV5)
“Stellwagen Bank” one-hour TV program.		■	Game Warden/Wildlife Journal
“Bounty of the Banks” (1998) half-hour video.	■		
“Northern Right Whales: From Whaling to Watching” (1997) half-hour video.	■	■	Gray’s Reef NMS, Georgia Dept. of Natural Resources
“The Spirit of the Great Auk” audiotape by master storyteller Jay O’Callahan (2002).	■	■	
GreenCape radio shows with WOMB in Provincetown (5-15 minute programs) — 1998.	■		Creative Resources Group (studio time donation)
Live Video Programs of missions to the <i>Portland</i> and <i>Palmer/Crary</i> shipwrecks — 2005, 2006. DVDs of footage from programs (2007).	■	■	NURC-UConn
Education Programs K-12 and college/graduate — Guest Lectures, workshops, programs, products			
Graduate Credit course on Stellwagen Bank National Marine Sanctuary natural and cultural resources (credit from Framingham State College) — 2005.	■	■	CCMNH
Right Whale Mini Course and Lecture Series, 12 professional development points for educators — 2007.	■	■	WDCS
Northern Right Whale: From Whaling to Watching – educator book and poster — 1997.	■	■	Gray’s Reef NMS
ROV Teacher Workshops — 2004, 2006; annual support for regional ROV Competition (2003–present).	■	■	Marine Advanced Technology Education Center (MATE), New England Chapter Marine Technology Society (NE-MTS)
“Lefty the Right Whale” traveling inflatable whale program for elementary schools — 1997–present.	■		
Staff talks and workshops at various schools, High School science symposia workshops — 1994–present.	■		Mass Marine Educators (MME); Mass Maritime Academy
Annual Marine Art Contest (K-12) — 1994–present.	■	■	MME, NEAq

TABLE 2. SUMMARY OF REPRESENTATIVE EDUCATION AND OUTREACH PRODUCTS AND PROGRAMS DEVELOPED BY THE STELLWAGEN BANK SANCTUARY OR THROUGH COLLABORATION WITH ITS PARTNERS.

Products and Programs	Intramural	Extramural	Collaboration
Boston Harbor Educators Conference with Stellwagen Bank Sanctuary 15th anniversary theme (2007)	■	■	MME
Newspaper in Education Supplement (topics: water — 1998; sanctuary — 2003).	■	■	Boston Globe
Exploring Data with GIS to Experience Sanctuaries (EDGES) curriculum — 2004; Discovering Sanctuaries GIS teacher workshop — 2005.	■	■	Channel Islands, Gray's Reef and Florida Keys NMSs; National Geographic Society (NGS)
MimiFests for students (1500 students per year) — 1995–1999; teacher workshop 1995.	■	■	Barn School Trust and Brockton and Plymouth School Systems
Sustainable Seas Expedition — web pages, logs, activity in teacher resource book — 1999.	■	■	NGS
Salt Water Studies Teacher Workshop — 2004, 2005.	■	■	Waquoit Bay National Estuarine Research Reserve (WBNERR)
Cape Cod Biodiversity college course (3-week marine component) — 1998–2001.	■	■	CCMNH
Stellwagen Bank Science and Education Symposium — 1997.	■	■	MME
Student Ocean Forum — 2002, 2003, 2004.	■	■	Coastal America; NEAq
Heroes of the Planet (1999) — distance learning lecture series (subjects Sylvia Earle, Dick Wheeler, U.S. Coast Guard).	■	■	Cape Cod Community College and Cape and Islands high schools
Aquanaut Program with, cruise support and on-shore education 1994–2007.	■	■	NURC–UConn
Marine Technology and Marine Trades mini course, offered free to students and the general public — 2008-present	■	■	Massasoit Community College
Boston University Marine Program undergraduate research course in the Stellwagen Bank Sanctuary -- 2008-present.	■	■	Boston University
User Education Programs			
Whale Watch passenger education by on-board naturalists, support materials provided by sanctuary.		■	Most whale watch companies traveling into the sanctuary; some are affiliated with whale research groups
Fish and Invertebrate Identification courses for divers — 2002–2008. On-line resources 2004-present.	■	■	Reef Environmental Education Foundation (REEF); Professional Association of Diving Instructors (PADI); MIT Sea Grant
See a Spout boating safety around whales — 2001–present.	■	■	International Wildlife Coalition (IWC), WDACS, and NOAA Fisheries
Whale Naming Workshop, production of new whales CD-ROM — 2001–2007.	■	■	Whale Center of New England (WCNE), PCCS and other cetacean research groups
On-the-water Boater Education Outreach Campaign — 2001–2003.	■		Massachusetts Environmental Police (MEP)
Stellwagen Bank Flotilla of the USCG Auxiliary/Operation Cetacean Shield and other joint Stellwagen Bank National Marine Sanctuary and USCG programs — 1996–present.	■	■	USCG Auxiliary
Whale Watch Naturalist Lectures — 2002, 2006.	■	■	NEAq, WDACS
Whale SENSE – whale watch company certification and captain/naturalist education program – 2009-present	■	■	NOAA Fisheries, WDACS
Tuna Fishing Outreach Program with signage, print and television ads to reduce whale harassment incidents – 2009-present	■	■	NOAA Fisheries, On the Water Magazine, NOAA Office of Law Enforcement