National Estuarine
Research Reserve
System

National Marine
Sanctuary Program

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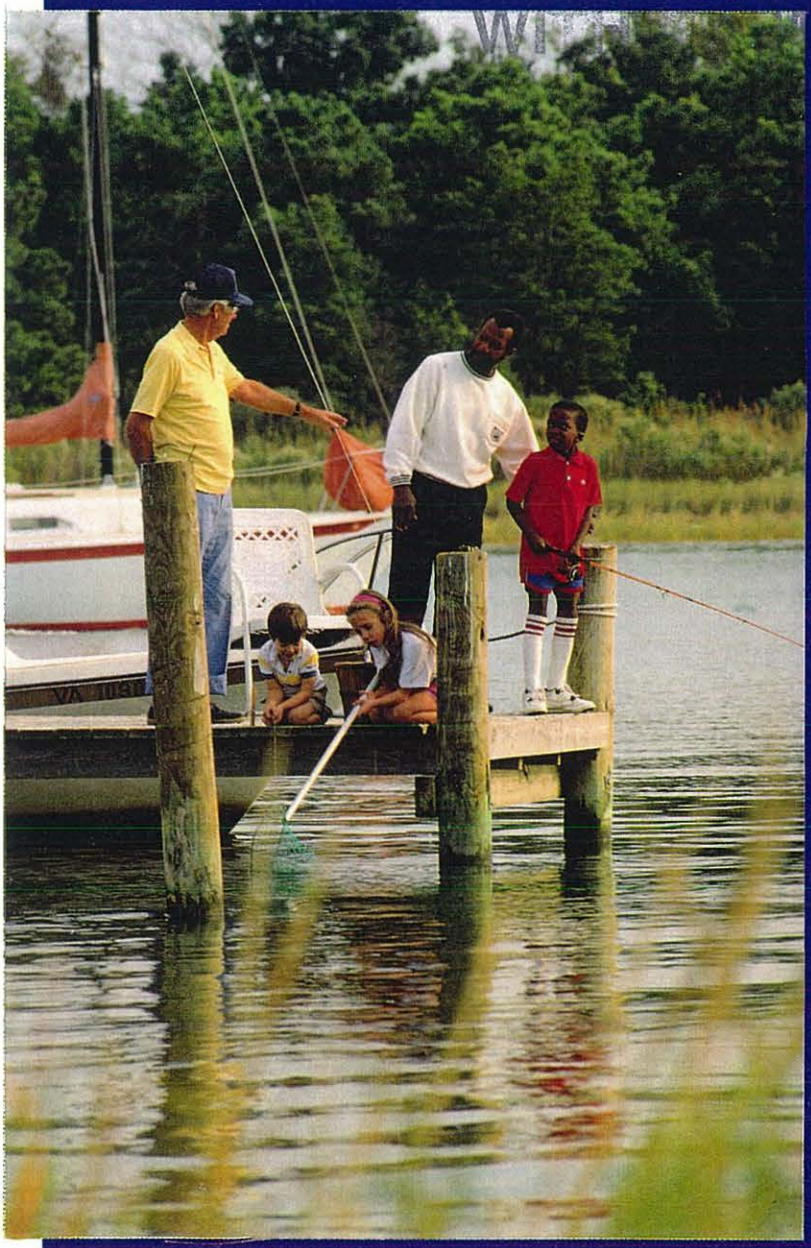

An Overview of the Sanctuaries and Reserves Division

March 1994 Congressional Briefing
Second Edition

NOAA
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT
Washington, D.C. 20235

March, 1994

Dear Reader:

The economic and environmental significance of managing and protecting the Nation's coastal and marine resources are increasing as close to 80% of the American population moves into coastal areas. NOAA's Sanctuaries and Reserves Division, through the National Marine Sanctuaries and National Estuarine Research Reserves, works towards addressing these challenges to the protection of marine and estuarine areas. The Sanctuaries and Reserves Division has built its management philosophy on the concept that NOAA must work with state and local governments as well as the private sector in protecting our Nation's marine, coastal and Great Lakes resources. Over the last two years, program complexity and diversity, public and private participation, resource protection partnerships and program recognition have grown.

This Congressional Briefing Book, used for the annual briefing hosted by the Center for Marine Conservation, summarizes the past year's activities, and sets forth the priorities and challenges for Fiscal Year 1994 and 1995. We invite you to join our efforts to protect the Nation's oceans and coasts by becoming actively involved in current programs or by suggesting new projects that build on our existing efforts and partnerships. The Sanctuaries and Reserves Division works closely with the National Fish and Wildlife Foundation to use Federal funds to match non-Federal resources (fiscal and in-kind) for projects facilitating marine protection and stewardship. We look forward to working with you to meet today's challenges for future generations.

CAPT Francesca M. Cava
Chief, Sanctuaries and Reserves Division
1305 East-West Hwy., SSMC#4, #12520
Silver Spring, MD 20910
(301) 713-3125

Cover photograph courtesy of Ann DeWitt Brooks,
Virginia Department of Environmental Quality.

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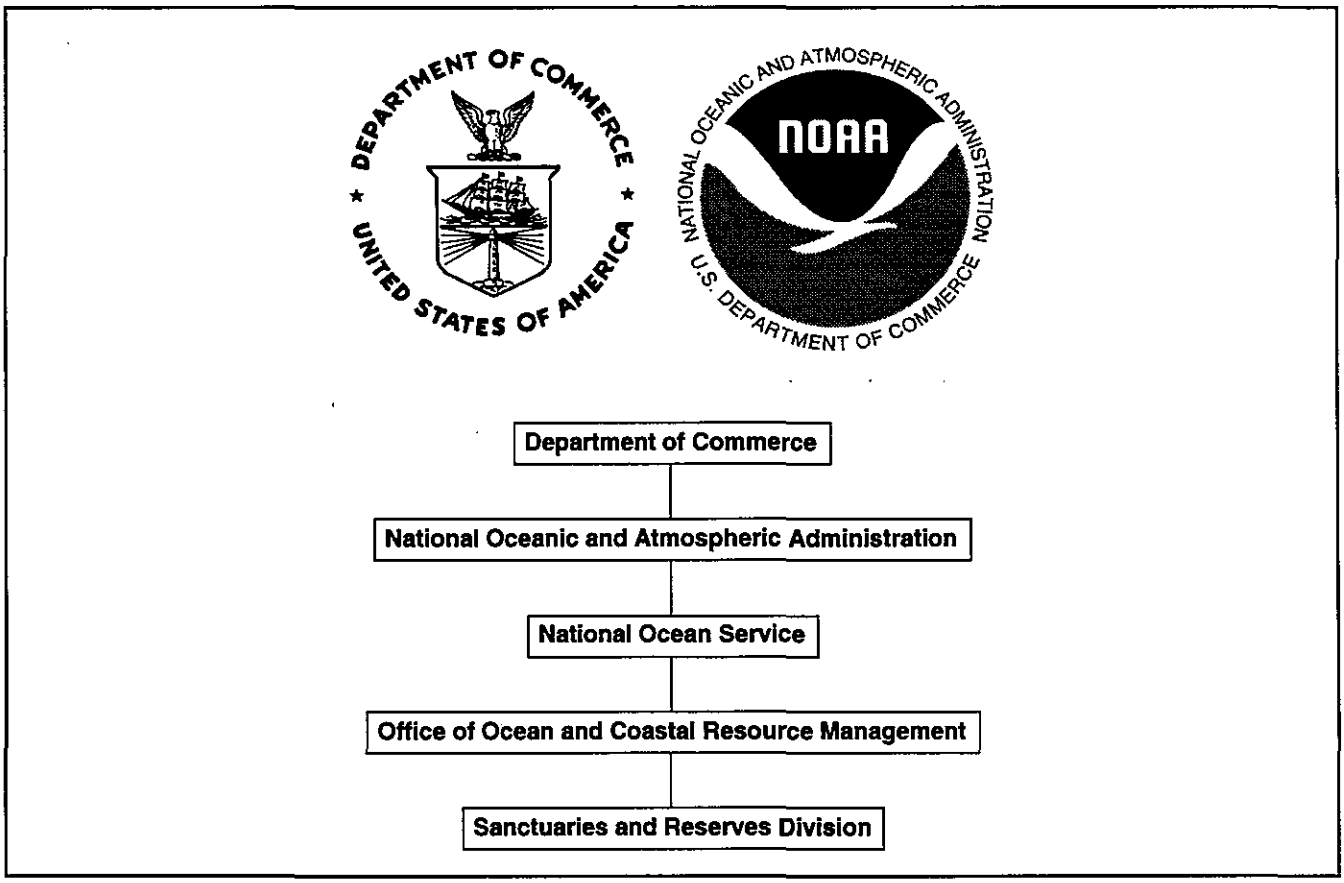
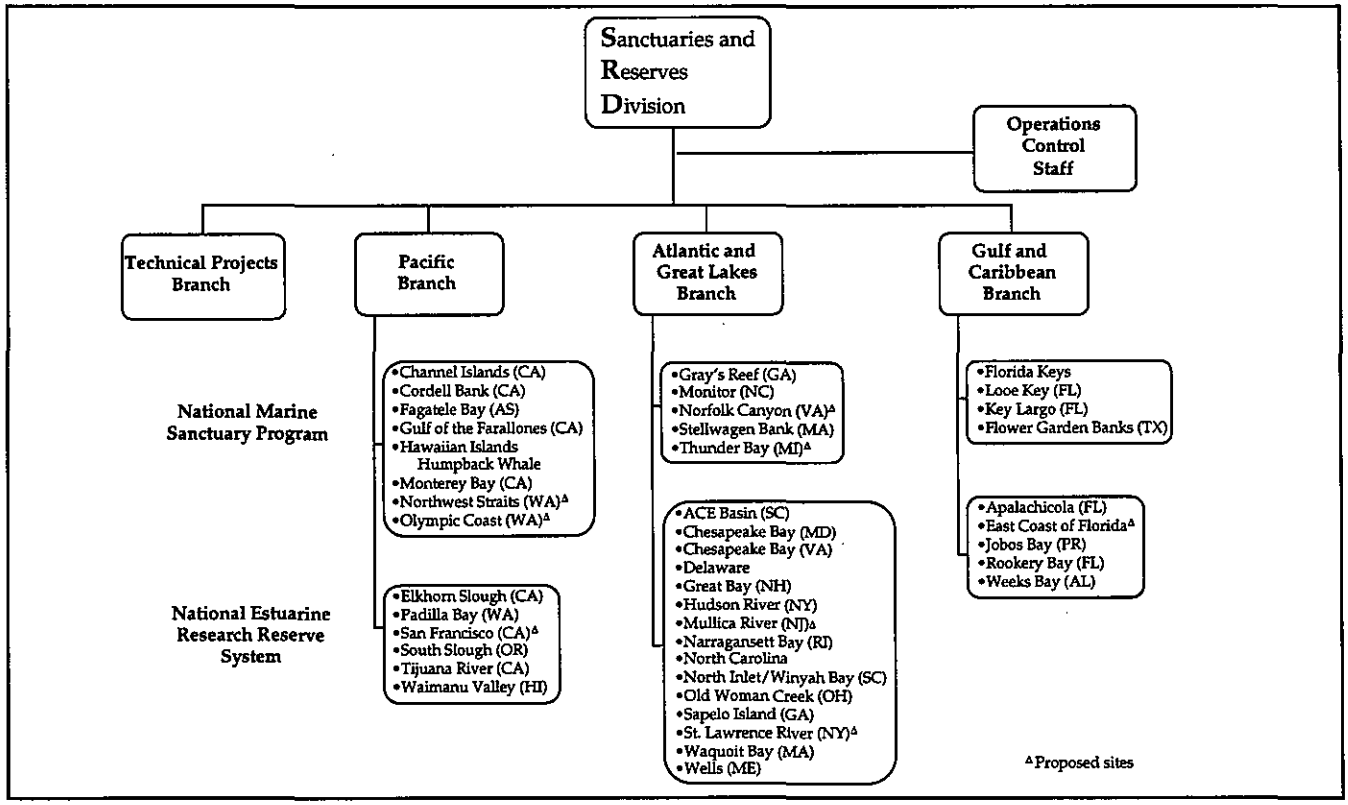
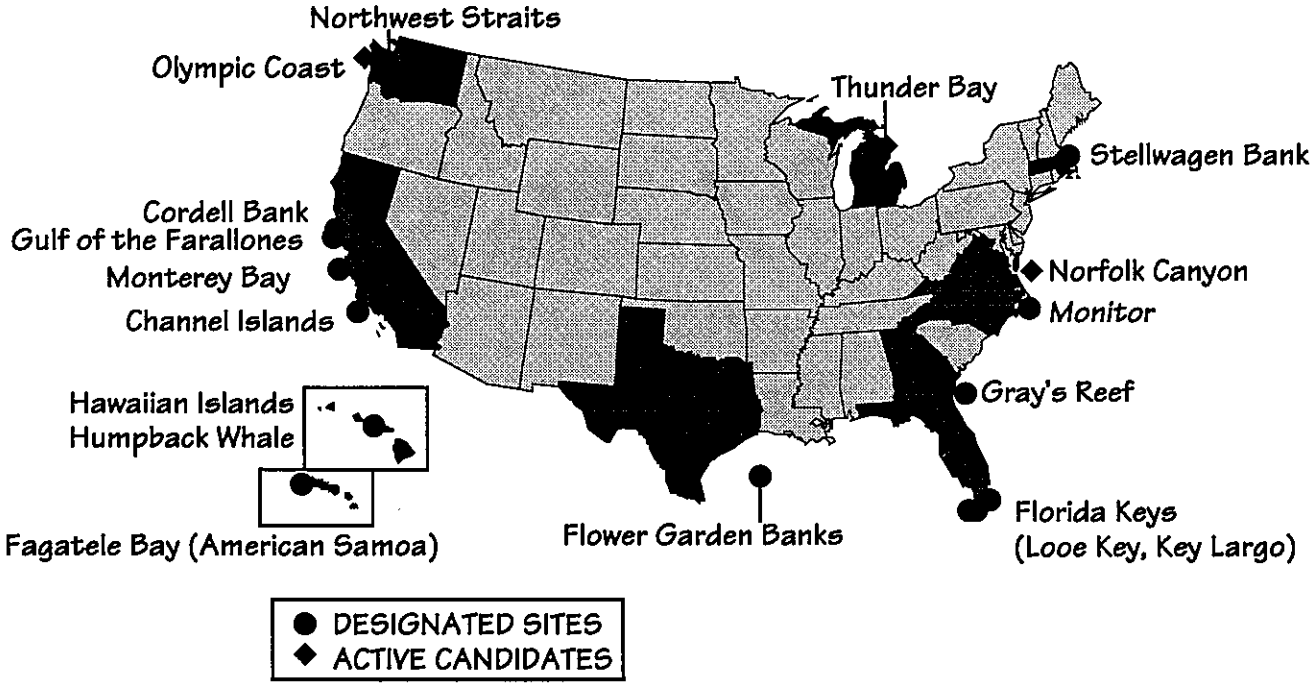
Sanctuaries and Reserves Division Organization





For more information, please contact: CAPT Francesca Cava Ph: (301) 713-3125 FAX: (301) 713-0404

The National Marine Sanctuary Program



Under Title III of the Marine Protection, Research and Sanctuaries Act of 1972, as amended, the United States Congress authorizes the designation of discrete areas of the marine environment as National Marine Sanctuaries to protect distinctive natural and cultural resources whose protection and beneficial use requires comprehensive planning and management. The National Marine Sanctuary Program was established through the Act, and is administered by the Sanctuaries and Reserves Division of the National Oceanic and Atmospheric Administration.

The mission of the National Marine Sanctuary Program is to identify, designate and manage areas of the marine environment of special national significance due to their conservation, recreational, ecological, historical, research, educational, or aesthetic qualities. The goals of the National Marine Sanctuary Program are to provide enhanced resource protection through conservation and management of the Sanctuaries that complements existing regulatory authorities; to support, promote, and coordinate scientific research on, and monitoring of, the site-specific marine resources of the Sanctuaries; to enhance public awareness, understanding, appreciation, and wise use of the marine environment; and to facilitate, to the extent compatible with the primary objective of resource protection, multiple uses of the National Marine Sanctuaries.

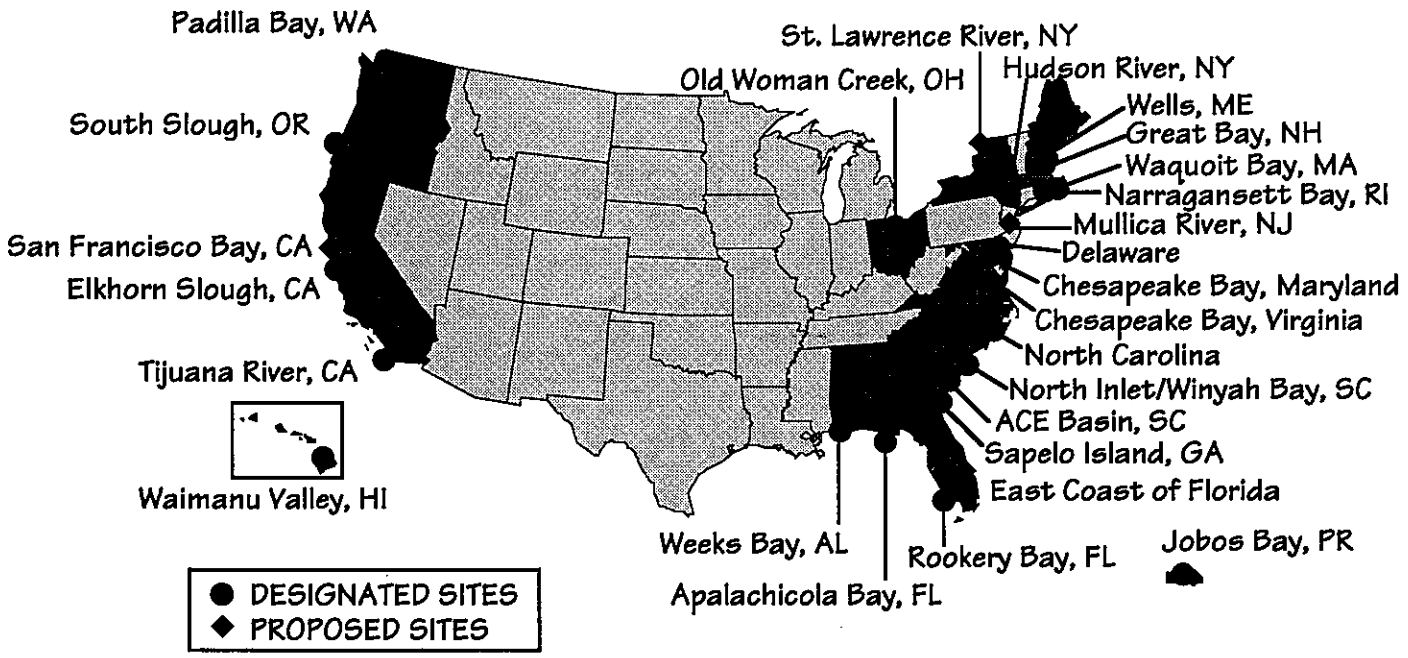
For More Information on the National Marine Sanctuary Program, please contact:

Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3125
Fax Number: (301) 713-0404

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

The National Estuarine Research Reserve System



The National Estuarine Research Reserve System was established by the United States Congress as part of the Coastal Zone Management Act of 1972. The Sanctuaries and Reserves Division of the National Oceanic and Atmospheric Administration is charged with the establishment and management through Federal-State cooperation of a national system of estuarine research reserves representative of the various regions and estuarine types in the United States.

The goals of the program are to ensure a stable environment for research through long-term protection of estuarine reserve resources; to address coastal management issues identified as significant through coordinated estuarine research within the System; to enhance public awareness and understanding of the estuarine environment and provide suitable opportunities for public education and interpretation; to promote Federal, state, public, and private use of one or more reserves within the System when such entities conduct estuarine research; and to conduct and coordinate estuarine research within the System, gathering and making available information necessary for improved understanding and management of estuarine areas.

For More Information on the National Estuarine Research Reserve System, please contact:

Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3125
Fax Number: (301) 713-0404

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Section II.

National Marine Sanctuary Program

Management Objectives for the National Marine Sanctuary Program

In FY95, new sub-objectives have been identified to supplement the original FY93/94 objectives and provide continued program development. These objectives were endorsed by management, subsequently adopted by SRD staff and continue to guide overall marine sanctuary management in SRD.

FY93, FY94 Management Objectives

Enhance program recognition, understanding and support

- Initiate the NMS Strategic Planning Process;
- Focus on Florida Keys and Monterey Bay as model sanctuaries;
- Capitalize on the momentum of public support for the Sanctuary Program by providing opportunities for public participation in sanctuary stewardship and protection decisions; establish advisory councils for all sites;
- Comply with new responsibilities stemming from the MPRSA reauthorization;
- Identify costs of sanctuary management;
- Focus on communications with and leverage resources of other Federal and state agencies;
- Initiate annual congressional briefings in collaboration with CMC;
- Strengthen existing MOU's and seek new program partners (especially states);
- Develop a Sanctuary Program business plan that includes a national facilities development plan and a conceptual plan/capital campaign for Pier 1 as a pilot effort.

Emphasize resource protection in sanctuary management

- Fund all existing sanctuaries for the first time;
- Define priorities for research, education and cultural programs, including a nationally consistent monitoring strategy;
- Initiate development of damage assessment/restoration efforts and contingency plans;
- Develop NOAA policy on vessel traffic, treasure salvage, oil and gas development, MONITOR access and DOD operations;
- Continue development of Site Characterizations;
- Clarify enforcement responsibilities; and
- Focus NMS education and research plans/projects on resource protection; hold first annual education workshop to review and redirect programs;
- Define the role of marine sanctuaries in protecting marine biodiversity;

Improve program management efficiency

- Establish marine sanctuary foundations;
- Set priorities for and/or delay new designations;
- Establish collaborative programs with other NOAA elements including development of a career ladder for NOAA Corps officers;
- Establish joint projects with other state, local and federal agencies and the private sector;
- Define user fee strategies for DOC, to offset FY95 $3 million increase;
- Develop annual plans for each sanctuary based on the NMS Strategic Plan;
- Initiate ICM process in central California for development of a water quality management plan;
- Initiate a Sanctuary Fellowship program;
- Strengthen the role of the NMS Board of Directors in decision-making process;
- Continue SRD HQ retreats - continue focus on program and staff development;
- Continue to support use of electronic mail throughout the program; and

Additional FY95 Management Objectives

- Assure all designated Sanctuaries are operational, utilizing an ecosystem management approach to sanctuary resource protection;
- Insure all sites have enforcement, education, and research personnel and programs;
- Reinstitute the Cultural Resource Protection Program (archeological resources);
- Continue Site Characterizations;
- Complete designation of Thunder Bay (Late 1995);
- Continue designation discussion with Washington State for Northwest Straits;
- Bring Hawaii Islands Humpback Whale Sanctuary on-line;
- Review site management plans older than five years;
- Reactivate Site Evaluation Process;
- Implement business, facilities and user fees plans;
- Continue collaborative outreach projects and partnerships such as NPS/NOAA Marine Learning Center at Pier 1, San Francisco, NPS/NOAA Interpretive Center, at Kalaloch, WA. and State of Florida/NPS/NOAA Key West Visitor Center;
- Continue development of a national foundation and site-specific cooperative associations.

For more information, please contact:
CAPT Francesca M. Cava
Sanctuaries and Reserves Division
1305 East-West Hwy. SSMC4-12
Silver Spring, MD 20910

Ph: (301) 713-3125 FAX: (301) 713-0404

Summary of FY94 Objectives for National Marine Sanctuaries

Channel Islands

- Promotion of non-consumptive uses of the sanctuary by sport divers through techniques including "photo safaris," lectures at dive training classes, dive photo contest, and a "look, don't take" wall display (with regulations, basic facts, brochures) for dive shops and boats.
- Expansion of sanctuary marine education to a higher grade level to supplement the 5th grade level Los Marineros.
- Import currently available research and monitoring information into a marine geographic information system, and attract additional data collection in deeper areas.
- Increase inter-agency cooperation with the U.S. Coast Guard, NMFS, and Channel Islands National Park.
- Continue to participate in oil spill contingency planning and hazardous materials training.

Fagatele Bay

- Expand education/public awareness program.
- Hire education coordinator.
- Reorganize and expand the Buddy Team/Marine Discoveries Program.
- Initiate management plan update, Phase 1:
  - Site Characterization/Resource Survey.
  - Begin developing a 5-year education/public awareness plan to be incorporated into the management plan.
- Develop and initiate a water quality monitoring program.
- Continue Marine Science Summer Camp, Summer Buddy Program, and CoastWeeks and Earth Day projects.
- Work with NMFS to develop a local MOU and enforcement plan between NMFS/NMSP/DMWR.

Florida Keys

- Complete the Environmental Impact Statement and Management Plan for the FKNMS.
- Raise the level of awareness of and support for the FKNMS in the local and national communities including knowledge and understanding of management measures such as regulations, research and monitoring, and education.
- At a minimum, continue current levels of enforcement activities, and try to expand enforcement activities throughout the Florida Keys.
- Support the National Undersea Research Center (NURC) and the Sustained Ecological Research Related to Management of the Florida Keys Seascape (SEAKEYS) programs for research and monitoring of the marine environment.
- Support, in conjunction with other Federal, State and Local agencies, a research and monitoring program to restore the ecological integrity of Florida Bay.
- Provide an administrative framework for the incorporation of the Looe Key NMS, Key Largo NMS and the Marathon Planning Office into one unit, communicate that structure to employees, and provide necessary training to equip staff to fulfill any new assignments.
- Reassess and possibly relocate offices in Key Largo, Marathon and Bahia Honda. Determine feasibility of moving Bahia Honda operations to Key West.
- Implement high priority education strategies as outlined in the draft management plan. This will include providing sanctuary information at public meetings, through video and radio media, producing a monthly newsletter, a weekly television program, a comprehensive site brochure, and develop cooperative educational endeavors with non-profit and commercial interests.
- Continue and expand volunteer support into all program areas .

Flower Garden Banks

- Continue maintenance and further evaluation and refinement of mooring buoy system.
- Increase public awareness of sanctuary regulations through cooperation with NMFS, USCG, and the Sea Grant Marine Advisory Service, and through publications (e.g., Notice to Mariners) and news letters.
- Hire an Education Coordinator.
- Complete the "Boating and Diving Guide".
- Reprint sanctuary brochures.
- Update FGBNMS pop-up display.
- Publish and distribute "biota checklists" for use by volunteer divers collecting information on sanctuary biota.
- Continue building a photo library.
- Develop series of research and education articles for publication in the Flower Gardens Fund newsletter.
- Continue Elderhostel presentations by volunteer Ann Wykowski.
- Purchase and distribute to teachers more copies (400) of the CMC publication, "The Gulf of Mexico: A Special Place".
- Encourage and facilitate management-oriented research by outside scientists by providing ship time, supplies, and staff support.

Summary of FY94 Objectives for National Marine Sanctuaries

Gray's Reef National Marine Sanctuary

- Develop a revised facilities plan for the GRNMS administrative building which will support NOAA interests in Savannah for the 1996 Olympic games.
- Support additional reef fish surveys with GRNMS staff, GRNMS video census, and joint trapping studies with the South Carolina Wildlife and Marine Resources Department.
- Initiate a comprehensive site characterization.
- Develop the GRNMS management component to the international biosphere reserve program for the South Atlantic-Carolinian Biosphere Reserve.
- Initiate work as a member of the new national Directorate for the Man and the Biosphere program to support US Biosphere Reserve operations.
- Establish an agreement with the Coast Guard and Auxiliary to provide enforcement, in conjunction with NMFS enforcement.
- Cosponsor development of an educational resource directory for the southeast; revise the Gray's Reef program brochure and publish an educational poster on the Northern Right Whale.
- Hire an Education Coordinator and a summer intern for support of program activities.

Gulf of the Farallones/Cordell Banks

- Habitat protection of Sanctuary resources will continue to be the number one priority, focusing on: a long term management strategy for ocean disposal of dredge spoil, radioactive waste site evaluation and monitoring, Santa Rosa sewage disposal, and Tomales Bay clean up.
- Continue oversight of a mitigation project to remove approximately 2.1 acres of hazardous waste (lead, arsenic, hydrocarbons, paints etc.) from a dump in Bolinas Lagoon. This area will be excavated to a contour resembling the rest of the Lagoon, revegetated, and monitored for recolonization of flora and fauna.
- Expand the GFNMS volunteer program from 50 to 75 persons. Members receive 80 hours of field identification training, and are then assigned beaches extending from Bodega Head to Ano Nuevo.
- Continue ongoing *(3 years)* intertidal monitoring program.
- Continue participation in TIME (Tarlton Institute Marine Education) and Adopt-A-Beach, two education outreach programs with name recognition and multi-racial/economic facilities. These programs have a 5-8 year history of success, diminishing cost, and increasing participation.
- Continue development of the Marine Learning Center at Pier 1, Fort Mason.
- Design and print pamphlets and brochures for CBNMS and revise and print pamphlets and brochures for GFNMS.
- Collect baseline information for the CBNMS site characterization, and determine monitoring requirements.

Hawaiian Islands Humpback Whale National Marine Sanctuary

- Initiate and complete Draft EIS and Management Plan by early Fall 1994.
- Coordinate with existing federal, state and local resource managers, develop MOU's where necessary;
- Seek and incorporate public input into development process (island-wide "town meetings", technical consultations);
- Completion of a site characterization.
- Hire Education/Outreach Coordinator, to increase visibility of NMSP's natural resource management benefits, goals and objectives for the public.
- Develop and distribute outreach brochures, information packets and newsletters.
- Develop internships to build local natural resource management skills.
- Build cooperative partnerships with the public and private sector to promote public stewardship.
- Continue consultations with the US Navy, the State and Kahoolawe Island Reserve Commission on the possible inclusion of Kahoolawe Island in HIHWNMS.
- Establish and staff a satellite office on Maui County to facilitate outreach and management efforts.

Monterey Bay National Marine Sanctuary

- Initiate two-year site characterization study.
- Perform joint study with U.S. Coast Guard to assess vessel traffic within the Sanctuary.
- Plan and begin implementation of ICM process in Central California.
- Develop a Water Quality Management Plan with signatories of the Water Quality Protection MOA.
- Improve public awareness of the Sanctuary through outreach programs, signage, information centers, a newsletter, and working with the media.
- Work with the Center for Marine Conservation Foundation to raise supplemental funds.
- Coordinate with the California Coastal Commission on permit activities, watershed studies, point and non-point source discharges, and other coastal concerns.

Summary of FY94 Objectives for National Marine Sanctuaries

Monitor National Marine Sanctuary

- Distribute the revised Management Plan, containing specific and detailed descriptions of the management options for the next five years, including a plan for increased public access;
- Initiate a pilot project for increased public access for non-research purposes utilizing a special-use permit as the mechanism and employing a concessionaire to conduct the diving operations;
- Implement an initiative for intensive Monitor research and artifact recovery, based on a cooperative effort between NOAA, the U.S. Navy and private interests; the first phase of this initiative is a conference on the *Monitor,* to be hosted by The Mariners' Museum.

Northwest Straits Study Area

- Develop, and implement a Memorandum of Agreement with Washington State Department of Ecology detailing responsibilities for the development of the DEIS. A grant to the department will support one FTE to support completion of the DEIS for a deadline of three months after the end of FY94.
- Invite Florida State resource managers, Florida Keys sanctuary manager, and a representative of Florida Keys Chamber of Commerce to Washington State to discuss benefits of state/federal partnerships. (It is proposed that this invitational travel be obligated out of FY93 funds.)
- Demonstrate the benefits of the sanctuary program's resource protection goal by working with the Friday Harbor Whale Museum to provide boater education programs for recreational whale watchers.
- Provide multi-cultural education curriculum information to both the newly designated Olympic Coast National Marine Sanctuary and to the Native American treaty tribes within the Northwest Straits study area.

Olympic Coast

- Complete the FEIS and July Designation ceremony.
- Lease, furnish and supply Sanctuary office.
- Hire a Sanctuary Manager, Education and Research Coordinators and a Secretary.
- Establish a Sanctuary Advisory Committee who will contribute to drafting of a 5-year action plan.
- Entering into MOU's as needed with state, federal, and tribal organizations.
- Pursue a site characterization, education, and monitoring initiatives.
- Purchase a boat.

Stellwagen Bank National Marine Sanctuary

- Lease, furnish and supply Sanctuary office in Plymouth, MA.
- Hire an Education Coordinator and Secretary.
- Print Federal Register Notices of Final Rulemaking and the proposed change in regulations for a oil and gas ban.
- Implement Research/Monitoring Agenda
  - Finish the Site characterization (2nd year).
  - Work with USGS on seafloor mapping in SBNMS
  - Inventory Vessel use on the SBNMS
  - Represent NOAA in Gulf of Maine Initiative.
- Implement Education Agenda/Products
  - Design and place informational kiosks
  - Train volunteer boaters for dissemination of SBNMS information
  - Host a Marine mammal entanglement workshop
- Identify and convene Advisory Committee
- Establish a cooperative enforcement effort with U.S. Coast Guard; NMFS
- Establish an on-water presence (acquire a vessel) for enforcement, education and research
- Review permits and hold consultations with other regulatory authorities active in the area.
- Start cooperative planning with the state for a Visitor Center in Plymouth waterfront area; with an emphasis on marine technology in cooperation with industry.

Thunder Bay Study Area

- Work with Michigan Sea Grant Extension to finalize the Draft Thunder Bay Inventory of Resources.
- Establish a Thunder Bay Core Group and Informal Advisory Group to finish developing a DEIS/MP and plan to submit it NOAA for internal review. Draft DEIS/MP to be published and available for public comment by Spring FY96.
- Work with the State of Michigan to conduct a through review of state regulations and propose regulations for a Thunder Bay Sanctuary.
- Work with the Thunder Bay Core Group and Informal Advisory Group to identify potential sites for sanctuary facilities, including administrative offices, education and research centers.
- Provide an opportunity for natural resource and northeast Michigan community leaders to experience the natural and cultural resources of the Bay, and learn more about present and future education and research opportunities for this area.
- Participate in multidisciplinary (biology, geology, archeology) remote sensing project on Thunder Bay in conjunction with U.S. Fish and Wildlife Service, Sea Grant, Michigan Department of State and Michigan Department of Natural Resources.
- Move office to Department of Parks and Recreation at Michigan State University.

Sanctuaries Board of Directors and Strategic Plan

Board of Directors

In October of 1992, the National Marine Sanctuary program established an informal "Board of Directors". The Board includes all sanctuary managers, on-site liaisons, the SRD Branch Chiefs and the Chief of the Division. Individuals with long-standing connections and who have been supporters of the sanctuary program have also been asked to serve as advisors to the Board. The purpose of the Board is to provide an environment for policy discussion and a venue to examine issues that go beyond the scope of a single sanctuary or region. The Board currently meets twice a year to make recommendations to the Chair, (the Division Chief) and cooperatively set and reassess division policy, recommend program direction, and to review overall allocation of division resources. Establishment of the Board has greatly facilitated communication between sanctuaries and acted as a catalyst in the development of the Program's Draft Strategic Plan. The Board is currently reviewing a Charter to formalize goals and responsibilities within the Sanctuaries and Reserves Division.

Task Forces

The board has subject specific Task Forces to address the following programmatic concerns:

- Management
- Education
- Research and Monitoring
- Outreach (Public Relations and Fund-raising)
- Contingency Planning
- Enforcement

Task Forces to address special issues are convened as appropriate. Membership on the Task Forces is supplemented with personnel outside of the Board .

- Two special Task Forces have been convened for FY94. The first will review involvement of NOAA Corps Officers; the second will reassess needs and staff support issues within the Division for both Sanctuaries and Reserves.

National Marine Sanctuary Strategic Plan

In March 1993, the Management Task Force took the lead in developing a Sanctuaries Strategic Plan. The Strategic Plan is intended to set a new course for marine resource protection and management into the next century. All Task Forces participated in formation of the guiding principals as well as developing their individual sections. This planning effort has focused staff efforts more clearly on all levels of the program. The Plan will be used to guide actions, select priorities, and identify gaps in resource protection and management of the program.

This planning process was independent of the NOAA efforts, but subsequent reviews have linked the two efforts more closely. The focal area within the NOAA plan is the Coastal Ecosystem Health Initiative (CEH). Sanctuaries and Reserves will serve as platforms for implementation of CEH and several other Administration and NOAA-wide initiatives. These include the Ecosystem Management, Sustainable Development and Biodiversity Initiatives.

The strategic plan is currently in an interim draft form, and under review by an external panel. The External Review Panel is composed of two groups that represent Federal resource trustee agencies and the major advocates and users of the marine protected areas. The Panel met in December, January and February. They will convene for the final time in May to finalize the "visionary" elements of the plan. The Final Sanctuaries Strategic Plan will be available in early Summer. The plan has three over-arching goals with numerous strategies and objectives within them.

Program Mission: The mission of the National Marine Sanctuary Program is to identify, manage and protect marine and Great Lakes areas of special national significance to ensure their continued cultural and ecologica lintegrity for future generations in the context of larger marine ecosystems. NOAA will manage Sanctuaries using ecologically sound principles of resource protection and conservation, operating education and scientific research programs that foster public understanding, appreciation and wise use of the Nation's natural and cultural marine heritage.

Goal 1. Stewardship. Protect critical coast and marine areas and, where appropriate, take steps to restore them as healthy marine ecosystems.

Goal 2. Partnership. Support and work with federal, State and local partners who share and participate in elements of vision for this program.

Goal 3. Information, Research and Education. Build a body of information to serve as a basis for making informed decisions on the state of health and trends of our coastal and marine ecosystems and to educate the world community on the value of these resources and the urgent need to protect them from further degradation.

For more information, please contact:
CAPT Francesca M. Cava
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910
Phone Number: (301) 713-3125 Fax Number: (301) 713-0404

The Site Evaluation List

What is the Site Evaluation List?

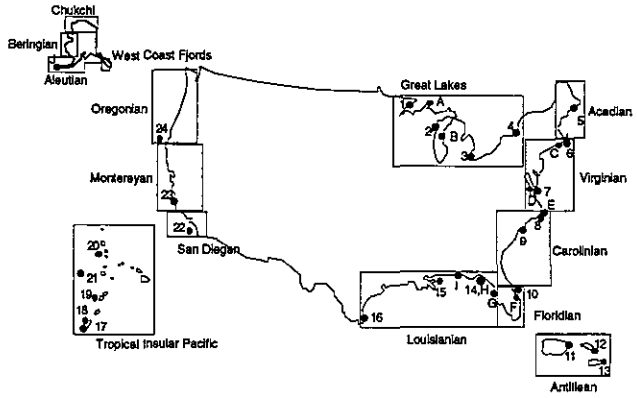
The Site Evaluation List (SEL) is the pool of sites from which future National Marine Sanctuaries are chosen. Being on the SEL does not guarantee a site will become a Sanctuary, but it is the necessary first step. A site may then be selected from the SEL to become an Active Candidate. Active Candidates are chosen based on many factors, including available staff and resources, biogeographic and natural resource representation, and relative costs and benefits of designation. Selection as an Active Candidate initiates the two-to-three year process of designation, which includes public meetings, consultation with government agencies, and preparation of an Environmental Impact Statement and Draft Management Plan. At the completion of this process, and with the approval of Congress (and with the concurrence of the Governor, for sites which include State waters), the Secretary of Commerce designates the site as a National Marine Sanctuary.

Status of the SEL

At present, there are 24 sites on the SEL based on natural resource values. Out of the original 29 on the list in 1983, five sites have been designated or are in the process of being designated. Another 10 sites have been nominated for cultural resource significance by the Marine Resource Evaluation Team which met in 1991 for that purpose.

How will sites be added to the SEL?

An evaluation of the SEL by the National Marine Sanctuary Program (NMSP) was initiated in 1989. A national committee met in 1992 to develop a process to include sites that contain significant historical resources, and areas that have potential value in conserving marine biodiversity, preserving sustainable uses, and detecting signs of global climate change. An adequate process has not yet been determined and the project was suspended due to staff and funding shortages, leaving the NMSP the original 24 SEL sites as its candidate pool.



Natural Resource Sites (1983)

1. Apostle Islands/Isle Royale (L. Superior), MI/WI
2. Green Bay (L. Michigan), Wisconsin
3. Western Lake Erie Islands, Ohio
4. Cape Vincent (L. Ontario), New York
5. Mid-Coastal Maine
6. Nantucket Sound/Shoals, Massachusetts
7. Virginia/Assateague Island, VA/MD
8. Big Rock-Ten Fathom Ledge, North Carolina
9. Port Royal Sound, South Carolina
10. Florida Coral Grounds
11. Cordillera Reefs, Puerto Rico
12. Southeast St. Thomas, U.S. Virgin Islands
13. East End, St. Croix, U.S. Virgin Islands
14. Big Bend Seagrass Beds, Florida
15. Eastern Chandeleur Sound, Louisiana
16. Baffin Bay, Texas
17. Cocos Lagoon, Guam
18. Facpi Point to Fort Santo Angel, Guam
19. Southern Mariana Islands
20. Northern Mariana Islands
21. Papaloloa Point, American Samoa
22. Cortes-Tanner Banks, California
23. Morro Bay/ Central California Coast
24. Heceta-Stonewall Banks, Oregon

Cultural Resource Sites (1991)

A. Whitefish Point/Bay (L. Superior), Michigan
B. Manitou Passage (L. Michigan), Michigan
C. Narragansett Bay, Rhode Island
D. Yorktown Fleet, York River, Virginia
E. Battle of the Atlantic, Cape Hatteras, NC
F. Douglas Beach, Florida
G. Tampa Bay, Florida
H. Apalachee Bay, Florida*
I. *U.S.S. Tecumseh*/Battle of Mobile Bay, Alabama
J. Westernmost Aleutians, Alaska

For more information, please contact:
CAPT Francesca Cava
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910
Phone Number: (301) 713-3125
Fax Number: (301) 713-0404

Research and Site Characterizations in the National Marine Sanctuaries

Research

In FY94, SRD will initiate the development of a long-range National Marine Sanctuary Program (NMSP) Research Plan which will establish and justify priorities for future research programs. The plan will identify national system-wide priorities for management-oriented research, as well as regional themes of particular concern for individual sanctuaries. The Research Plan is envisioned as the essential stimulus for obtaining significant future funding for this critical statutory goal of the NMSP.

Site Characterizations

SRD is currently conducting or planning detailed site characterizations in several National Marine Sanctuaries. A site characterization is a synthesis of existing information on baseline ecosystem data of a site. Site characterizations are based primarily on data from existing literature, not extensive field studies. Site characterizations are important for identifying data gaps and information needs, and are used as a foundation from which to develop future research and monitoring plans based upon those identified data gaps. A generic outline for a site characterization is provided below.

I. Executive Summary of the Site Characterization

II. Introduction to the [site] National Marine Sanctuary

A. Objective of the site characterization

B. The National Program and establishment of [site] NMS

C. Significance of resources

III. Environmental and Historical/Cultural Conditions That Shape the NMS

A. Geologic history & mineral resources

B. Present geology and sedimentary processes

C. Climate

D. Meteorology and physical oceanography (currents and other physical forces, physical water characteristics, seasonal and other temporal patterns)

E. Archaeological, cultural and historical resources (i.e., shipwrecks, settlements, indigenous peoples)

F. Socioeconomic uses (i.e., fishing, vessel traffic, ecotourism, recreation)

IV. Biological Communities

A. Habitat types (for each habitat type, include descriptions of appropriate algal, benthic invertebrate, fish, ichthyoplankton, mammal, and bird communities)

V. Ecosystem Function

A. Primary productivity & biomass

B. Nutrient interactions

C. Energy flow

D. Temporal and spatial variability

VI. Management Issues that Provide Research Opportunities

This section should describe the relationship between the data already presented and how the Sanctuary plans to use that information. Opportunities (including major issues) and goals should be described for each aspect of the Sanctuary, including management, research, long-term monitoring, education, and restoration. Damage assessment needs and plans should also be included.

VII. Appendices

A. Maps

B. Common species lists for biological communities

C. Lists of threatened and endangered species (State and Federal listings)

D. Bibliography (including both cited and uncited literature).

For more information please contact:
Dr. Charles M. Wahle, Chief
Technical Projects Branch
Phone Number: (301) 713-3145 Fax Number: (301) 713-0404

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Monitoring in the National Marine Sanctuaries

Introduction

The Sanctuaries and Reserves Division (SRD) has historically lacked sufficient operating funds and/or technical field staff to conduct large-scale research and monitoring programs within the National Marine Sanctuaries. However, a number of site-specific projects have been supported over the years, either with NOAA or outside funds.

Monitoring

The following is information on monitoring efforts being conducted within National Marine Sanctuaries. Due to the extreme differences between sanctuary resources and environments, monitoring programs vary considerably from site to site. The National Marine Sanctuary Program will soon begin discussions on the need to establish system-wide monitoring standards and protocols. Most monitoring is conducted in collaboration with or through partner agencies or organizations.

Gulf of the Farallones NMS (GFNMS)

- Sanctuary staff conduct much of the monitoring work in this sanctuary. The **intertidal monitoring** program, has been going on for two years. Sanctuary staff and a graduate student from Humboldt State University conduct work. Algae and sessile invertebrates are censused (parameters include species identification, percent cover, and distribution).
- **Beachwatch** is an education/research/monitoring program that uses 53 trained volunteers who commit at least one year each. They undergo 50 hours of training that includes, for example, marine mammal identification and oil spill sampling guidelines. They used photo-documentation and survey forms to record and monitor human activities, and do monthly live and dead marine mammal and seabird censuses.
- **Abalone** surveys are conducted on South Farallon Island. Repeated measurements are made of tagged animals, their distribution determined, and disease occurrence is monitored.
- In cooperation with Point Reyes, **Stellar Sea Lion** populations are monitored. DDT, PCB's, and heavy metals are monitored in sea lions and three seabird species and their prey. The distribution of sea lions is tracked in the GFNMS and in the northern quarter of Monterey Bay NMS.
- In both the GFNMS and Cordel Bank NMS, **Pelagic Monitoring** includes vessel surveys of seabirds and marine mammals. Counts and animal distribution are monitored.
- In addition to the above, NOAA Status and Trends has sampling sites in the area and NOAA's National Marine Fisheries Service conducts aerial and trawl surveys in the sanctuary.

Monterey Bay NMS (MBNMS)

The sanctuary will develop and sponsor an **intertidal monitoring** program with area researchers and volunteers following the example of the Gulf of the Farallones NMS. They are also considering a similar **subtidal monitoring** program. Generally, algae and sessile invertebrates will be censused (parameters include species identification, percent cover, and distribution).

Channel Islands NMS (CINMS)

- Undertaken by the Channel Islands National Park, the **Kelp Forest Monitoring** program includes gathering long-term data on size frequency distribution on a number of key organisms at approximately 35 stations throughout the sanctuary within a mile of the Channel Islands (20-70 feet deep). The program is in its tenth year.
- The CINMS plans to conduct **water quality** studies at anchorages in the sanctuary. The concern is the dumping of sewage by recreational, sport fishing and dive boats, but it is not known whether such discharges pose any threat.
- A **site characterization**, planned to start in the summer of 1994, will include monthly physical oceanographic measurements. Of particular interest will be temperature data as it relates to El Niño events.

Fagatele Bay NMS (FBNMS)

Water Quality - In cooperation with the American Samoa Environmental Protection Agency (ASEPA) and the Dept. of Marine & Wildlife Resources (DMWR), FBNMS is planning a quarterly water quality monitoring program that measures temperature, pH, salinity, turbidity, DO, Secchi depth, alkalinity, and conductivity at four sites in the bay. In stream samples, BOD and fecal coliform will also be measured. Semi-annually, total nitrogen and total phosphorous will be measured. The program will be evaluated after one year and modified accordingly.

Stellwagen Bank NMS (SBNMS)

- **Water Quality** - Massachusetts Water Resources Authority (MWRA) monitors ammonia, nitrate, nitrite, phosphate, silicates, chlorophyll-a, transmittance, irradiance, salinity, temperature, dissolved oxygen, DOC, DON, POC, TSS, phytoplankton and zooplankton diversity, biomass and 14-C primary production six times per year at two "farfield" stations in the sanctuary. This complements an on-going study of a proposed outfall site 11 nmi from the sanctuary in Massachussetts Bay. Results of the first two years of study are available from the sanctuary or MWRA.
- **Fish** - The site is sampled annually by NMFS during groundfish survey cruises to determine populations of commercially important species. Each spring, MWRA measures PCB, pesticides, and mercury in fillets of winter flounder, and PAH, PCB, pesticides, Ag, Cu, Cd, Hg, Pb, and Zn in the liver. Histological exams of livers are also conducted. Results are available from the sanctuary or MWRA.
- **Marine Mammals** - Sighting data are collected by the Cetacean Unit in Gloucester, the New England Aquarium in Boston, the Int's Wildlife Coalition in Falmouth, and the Center for Coastal Studies in Provincetown. Data are available from the individual organizations.

Gray's Reef NMS (GRNMS)

- The sanctuary has just started **fish censuses** to determine abundance and community composition. GRNMS divers do 15-minute video transects and record horizontal visibility and water temperature.
- As part of the Marine Resources Monitoring, Assessment, and Prediction (**MARMAP**) program, NMFS assesses the status of fish populations, including distribution, relative abundance, size-frequency, growth parameters, and critical habitat, of economically and ecologically important fish species in the sanctuary. They use tag/recapture, traps, and video to collect data. Tissue samples are frozen for future genetic analyses. Surveys funded by GRNMS started in 1993 and reports are being prepared for the sanctuary.

Florida Keys NMS (FKNMS)

- Many research efforts are currently being conducted in the Florida Keys, of which three can be considered monitoring efforts. Much of the research is funded by the National Undersea Research Center at the University of North Carolina at Wilmington (NURC/UNCW) through that center's facility in Key Largo. Day boat programs and Aquarius habitat missions are conducted regularly.
- **Water Quality** - Scientists from the Florida Institute of Oceanography (FIO), NURC/UNCW, the University of Miami, and Harbor Branch Oceanographic Institution measure inorganic nutrients, total nitrogen, total phosphorus, chlorophyll, salinity, temperature, and light attenuation on nearshore-to-offshore transects in the upper, middle, and lower Keys. The program started in 1992 and is funded by FIO's SEAKEYS (Sustained Ecological Research Related to Management of the Florida Keys Seascape) program and NURC/UNCW.
- **Long-Term Monitoring** - In the last two years, scientists from the Smithsonian Institution, Univiversity of Georgia, NMFS, the University of Maryland, and NURC/UNCW established several long-term ecological study sites throughout the Keys to monitor changes in benthic and fish communities. Plans are to establish another site at the Aquarius habitat. Also the SEAKEYS program uses seven instrumented, satellite-linked monitoring stations that span the 220 mile long reef tract to monitor oceanographic and meteorologic conditions. They have helped to document Hurricane Andrew, "The Storm of the Century", and reduced salinities caused by Mississippi River flooding.

Flower Garden Banks NMS (FGBNMS)

Funded by the USDOI/Minerals Management Service, NOAA, Mobil, Texaco, and previously by Union Oil Company, **benthic community monitoring** of the Flower Gardens coral reefs has been continually funded since 1988. Earlier data using comparable techniques are available from 1974 and 1978-1980. Using random and repetitive photographic techniques, as well as direct measurement and coring, coral populations, cover, diversity, evenness, relative abundance, and growth rates are measured annually, and fish counts are also made. Disease and bleaching incidence is assessed. Temperature has been measured every two hours at two stations (one on each bank) since 1990. A **water quality** monitoring plan will be developed in 1994 by contractors selected to conduct the reef monitoring program. In addition, more comprehensive **reef fish census** techniques will be added to the monitoring program.

For more information please contact:
Dr. Charles M. Wahle, Chief
Technical Projects Branch
Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3145
Fax Number: (301) 713-0404

Education: National Marine Sanctuary Program

Mandates for Education

One of the mandates of the National Marine Sanctuary Program (NMSP) calls for resource protection through enhanced public awareness, understanding, appreciation, and wise use of the coastal and marine environments. Education programs are established to promote and encourage a marine protection ethic amongst school children, teachers, resource users, the general public, and coastal and marine resource policy makers. Effective education and outreach campaigns represent the best investment in resource protection the NMSP and the Sanctuaries and Reserves Division (SRD) can make.

Planning for the Future

In 1993, SRD completed a strategic plan for the NMSP. An education task force was created, comprised of SRD headquarters and field staff, to draft the education component of the NMSP Strategic Plan. The plan was the focus of attention at the NMSP Education Coordinators Workshop, where it was revised based on input from staff of all Sanctuary sites. The plan will drive education goals and priorities at the national and local level.

Education Workshop

For the first time in the program's history, NMSP education coordinators came together in 1993 to share accomplishments in marine education and build on the work of the education task force. NMSP educators were fortunate to have been joined by three accomplished education coordinators from the National Estuarine Research Reserve System (NERRS) to establish a link between the Sanctuary and Reserve programs.

Workshop Results

The revised plan includes a primary goal to promote stewardship of the marine environment and identifies objectives and strategies for achieving that goal.

The workshop initiated national level coordination, program-wide planning and evaluation, and integration with the NERRS Education Program. It was a significant step toward strengthening individual Sanctuaries, the NMSP network and SRD through a unified and integrated vision for marine education.

Building on Success

Education has always played an important role in SRD's resource protection mission. Successful education programs include student curricula, field trip programs, adult lectures, resource user workshops, teacher workshops, volunteer programs, interpretive law enforcement and a wide variety of printed media. National education efforts must help the field build on these successes through increased coordination, evaluation and support. In addition, national education efforts must help carry the message of resource protection to national and international audiences. In the end, national education program coordination will guide Sanctuaries and Reserves toward establishing SRD and NOAA as a leader in coastal and marine environmental education and resource protection.

For more information please contact:
Lauri MacLaughlin, Education Coordinator
Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3145
Fax Number: (301) 713-0404

Marine Archaeology and Maritime History

Archaeological Resource Management

NOAA is committed to the preservation and management of historic and cultural resources within the sanctuaries. The shipwreck remains of the Civil War ironclad *USS Monitor* were the first designated National Marine Sanctuary in 1972. The Florida Keys, Channel Islands, and proposed Thunder Bay sanctuaries are known to have a proliferation of historic shipwrecks that hold valuable historic information and are popular destinations for many recreational divers. The designation of the Florida Keys National Marine Sanctuary has focussed NOAA's attention on the controversial issue of treasure hunting.

Historic Shipwrecks and Treasure Hunting

Historical shipwrecks are commonly used by: 1) archaeological researchers and historians/scholars to understand events and processes of the past; 2) recreational divers; 3) wreck fisherman and boaters; 4) museums and individuals who use archaeologically recovered artifacts for tourist attractions; and 5) treasure hunters seeking to remove valuable cargo for private profit. The removal of financially valuable artifacts for private profit is incompatible with responsible cultural resource management as described in the Federal Archaeological Program and is prohibited within the sanctuaries. Treasure hunting is prohibited within the Sanctuaries to preserve cultural resources for non-destructive uses such as research, education, and recreation.

Consistent with the Abandoned Shipwreck Act (ASA) of 1987, recovery of artifacts may be permissible under limited circumstance where no natural resources are destroyed and historically significant artifacts are preserved in museums with public access. NOAA is prohibited by statute from permitting the sale of archaeologically important materials found within the sanctuaries. Federal title to archaeological materials may only be transferred to private individuals under certain conditions where the material is proven to be of no archaeological value.

NOAA has successfully prosecuted divers for illegally recovering artifacts in the Channel Islands NMS (Clifton B. Craft, et al. vs. National Park Service, et al., NO. 92-1769 [C.D. Cal.]). This case was significant for the determination that NOAA can regulate salvors whose rights under admiralty law existed before the designation of a sanctuary.

NOAA's Responsibilities

Marine archaeology and maritime history responsibilities reside within the Sanctuary and Reserves Division's Technical Projects Branch. While current budget levels preclude the refilling of the now-vacant position of Archaeologist, the acting Archaeologist/Maritime Historian is endeavoring to fulfill NOAA's Federally-mandated responsibilities to advise the sanctuaries on cultural resource issues, to coordinate the issuance of permits for the disturbance of cultural resources (under Section 106 of the National Historic Preservation Act {NHPA}), and to inventory, evaluate, and nominate to the National Register of Historic Places cultural resources within the the sanctuaries (under Section 110 of the NHPA).

An historical study of the sanctuaries has been prepared to help identify potential resources and to educate sanctuary personnel about the importance of historic and cultural resources. A computerized shipwreck and archaeological site data base is being developed to identify known cultural resources within the sanctuaries. This will also be used to determine site status, site threats, and programmatic needs.

For more information please contact:
Bruce Terrell, Maritime Historian/acting Archaeologist
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, Maryland 20910

Phone Number: (301) 713-3145
Fax Number: (301) 713-0404

National Marine Sanctuary Permits and Certifications

Overview

National Marine Sanctuary regulations prohibit various activities in each Sanctuary. Certain activities determined to be incompatible with resource protection, such as ocean dumping and mineral development, are prohibited outright. NOAA permits individuals to conduct certain other prohibited activities consistent with Sanctuary purposes, such as research, education and archaeological activities. Special use permits may also be issued for certain commercial uses of the Sanctuary provided that resources are not damaged or lost. NOAA also protects Sanctuary resources though a certification of Federal and State permits.

Review of Permit Applications

Applicants submit a permit application package to the Sanctuary field office where they wish to work. Sanctuary staff evaluate the proposal and make a recommendation to the Sanctuary and Reserves Division (SRD) headquarters permit coordinator as to whether the permit should be issued and any conditions that they feel should be included in the permit. Headquarters staff approves all permits before they are issued by the appropriate field office. SRD is currently developing on a trial basis a streamlined institutional permit system for research and education activities in the Monterey Bay National Marine Sanctuary.

Special Use Permits

Special use permits may be issued for commercial activities within the Sanctuaries. They are designed for activities that:

1) establish conditions of access to and use of any sanctuary resources; or
2) promote public use and understanding of a sanctuary resource.

SRD is authorized to collect fees for the issuance of a special use permit, including costs incurred issuing the permit, cost of monitoring the conduct of the activity, and the fair market value of the Sanctuary resources used.

Certification and Approval of Existing Permits

Many Sanctuaries including Cordell Bank, Flower Garden Banks, Monterey Bay, and Stellwagen Bank National Marine Sanctuaries have stipulations in their regulations for certifying and approving permits issued by other Federal and State agencies. Individuals or agencies who hold permits at the time of Sanctuary designation must notify the Sanctuary staff of these permits within 90 days of the implementation of Sanctuary regulations. In certifying these permits, SRD may impose additional conditions necessary for resource protection and management. SRD may also approve authorities, licenses or permits obtained from other agencies after Sanctuary designation in a similar manner.

Reporting Requirements

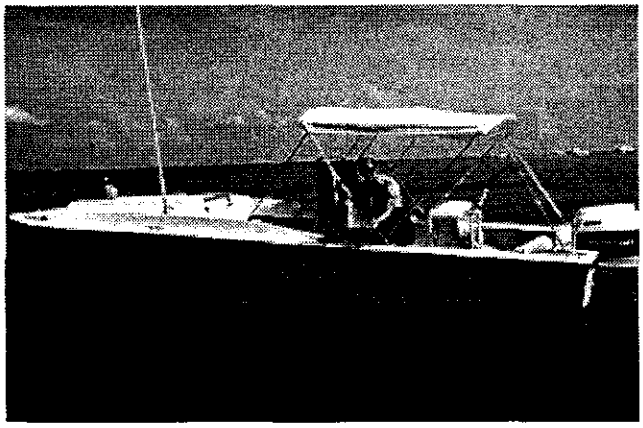
SRD requires that all permit holders submit a report within 30 days of the termination of their permit. Plans are underway to publish yearly compilations of abstracts describing permitted activities.

Voluntary Registrations

SRD is in the process of implementing a voluntary registration program for individuals engaging in activities that do not require Sanctuary permits. This system will allow Sanctuary staff to be aware of activities occurring in the Sanctuary. SRD will distribute abstracts describing these activities to all interested parties.

For more information please contact:
Helen Golde, Research Coordinator
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910
Phone Number: (301) 713-3145 Fax Number: (301) 713-0404

Enforcement within National Marine Sanctuaries



Enforcement Policy for National Marine Sanctuaries

NOAA's policy for enforcement within National Marine Sanctuaries is to prevent through education violations of the Marine Protection, Research and Sanctuaries Act, and other related conservation laws. NOAA strives to maintain a sufficient enforcement presence within the sanctuaries to respond immediately to violations, and to also have available investigative expertise to respond to complex cases.

Enforcement Goals and Methods

The goal of enforcement is to achieve compliance with the applicable laws. NOAA uses three principal enforcement methods to achieve this goal within the sanctuaries:

1. Education - NOAA emphasizes education as a primary tool to ensure that the public utilizes National Marine Sanctuaries in a manner consistent with resource conservation and protection. Education includes an effort to inform sanctuary visitors of the requirements of the regulations ***plus*** the management/ conservation rationale on which the regulations are based. The expectation is that those users of the sanctuaries who understand the rules and the rationale behind them will comply voluntarily. An anticipated additional benefit to educating visitors to the sanctuaries, particularly those from the local community, is that they will become advocates to a larger audience for responsible use of sanctuary resources. Education by enforcement officers is most frequently done during the conduct of patrols and inspections, but also involves programs that target local citizen, civic, business and government organizations.

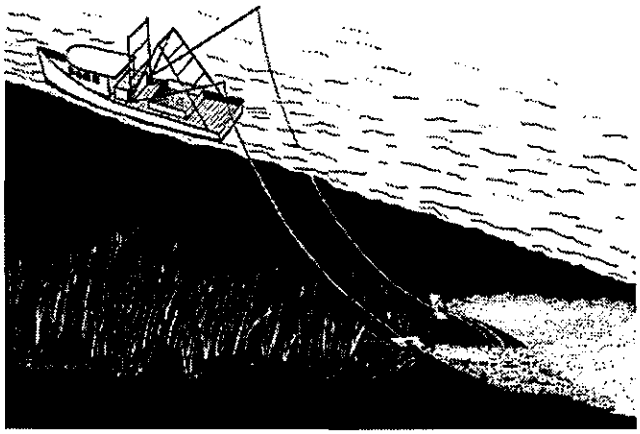
2. Patrols/Inspections - NOAA attempts to provide a high level of patrols and inspections in the sanctuaries by using enforcement personnel and equipment of the states, NOAA, United States Coast Guard, and other federal agencies. This presence is intended to ensure that users of sanctuary resources are familiar with the regulatory requirements, deter violations of the law, and provide for quick response to violations that do occur.

3. Investigations - NOAA maintains an investigative capability to ensure proper documentation of and response to unlawful acts that are complex enough to require specialized in-depth investigation. Investigations will be used to determine culpability for unlawful acts, or when personnel conducting routine patrols and inspections do not have sufficient time or expertise to fully document a case.

For more information please contact:
Gary Wood, NMFS Special Agent (SRD Liaision)
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3125
Fax Number: (301) 713-0404

Fishing Regulations within National Marine Sanctuaries



Resource Protection

Under the National Marine Sanctuaries Act (NMSA), NOAA is responsible for protecting sanctuary resources and facilitating multiple uses within the sanctuaries that are compatible with resource protection. The NMSA provides sufficient regulatory authority to accomplish these objectives, including necessary authority to further regulate fisheries should measures be necessary to supplement NMFS and/or state regulations to address specific problems at a particular sanctuary.

Regulatory measures taken by fishery management agencies in the interest of maintaining a healthy commercial fishery are generally sufficient to meet the needs of the sanctuary program. In certain instances, however, the Sanctuary program has determined that additional regulation of certain fishing methods and gear are needed to protect specific historic sites or natural resources (e.g. coral reefs or specific benthic habitats). These actions have thus far been necessary at the following sanctuaries: 1) USS MONITOR, 2) Key Largo, 3) Looe Key, 4) Gray's Reef, 5) Fagatele Bay, and 6) Flower Garden Banks.

In finding the appropriate balance between resource use and protection, additional regulation of fishing and fishing gear may be necessary in the future. The Sanctuary program would first consult with the State, the appropriate regional Fishery Management Council(s), the National Marine Fisheries Service, and/or the fishing industry. Sanctuary fishing regulations would be issued only in the event such consultation failed to provide the necessary protective measures under other authorities.

As new sanctuaries are designated, the Sanctuary Program will continue to identify its authority to regulate fishing, particularly to address habitat protection problems. However, the Program will continue to primarily rely on existing fishery management authorities to address fishery management issues where possible.

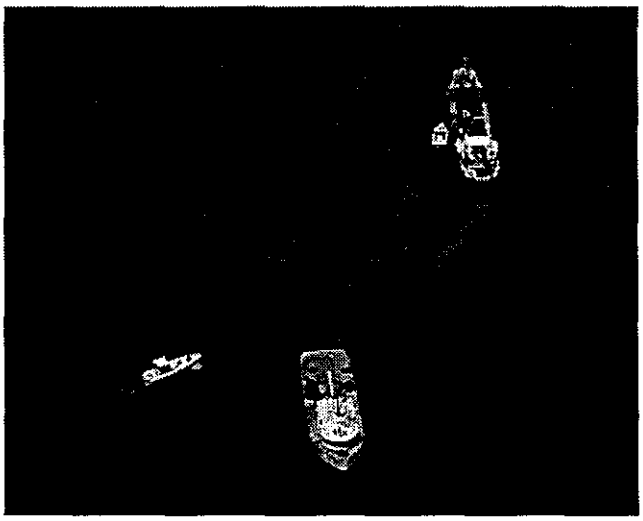
Section 304(a(5)) of the NMSA requires the Secretary of Commerce to provide the appropriate Fishery Management Council(s) the opportunity to determine whether Sanctuary fishing regulations are needed and prepare draft fishing regulations. The Secretary must accept the determination or proposed regulations unless the Secretary finds that the Council(s) action fails to fulfil the purposes and policies of the NMSA and the goals and objectives of a particular designation.

For more information please contact:

CAPT Francesca Cava
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3145
Fax Number: (301) 713-0404

Sanctuaries and Reserves Division's
Damage Assessments and Restoration Efforts



GENERAL AUTHORITY

The National Marine Sanctuaries Act (NMSA) authorizes the Under Secretary for Oceans and Atmosphere to designate areas of special national significance as National Marine Sanctuaries. Section 312, Title III authorizes NOAA to commence civil actions to recover for response costs and damages against persons who destroy, cause the loss of, or injure sanctuary resources in National Marine Sanctuaries. Sanctuary resources include any living or nonliving resource that contributes to its conservation, recreational, ecological, historical, research, educational or aesthetic value. In 1988, specific natural resource damage provisions were added to the NMSA to clarify and strengthen NOAA's ability to claim damages. Damages include compensation for:

- the cost of restoring, replacing, or acquiring the equivalent of the destroyed or damaged sanctuary resource;
- the value of the lost-use of sanctuary resources pending its restoration or replacement or the acquisition of equivalent resources or the value of a sanctuary resource if it cannot be restored, replaced, or an equivalent acquired;
- the cost of performing damage assessments; and,
- the reasonable cost of monitoring.

Funds recovered from damage actions must be spent according to specific priorities delineated in the statute. Twenty percent of recovered response costs and damages, up to a maximum balance of $750,000, must be used to finance response actions and damage assessments. The remaining funds must be spent according to this order of priority:

1. restoring, replacing or acquiring the equivalent of the sanctuary resources which were the subject of the action;

2. managing and improving the National Marine Sanctuary affected by the incident; and,

3. managing and improving any other National Marine Sanctuary.

ROLES AND RESPONSIBILITIES

When an incident injures National Marine Sanctuary resources, SRD collaborates with several other elements within NOAA to respond and to initiate the damage assessment and restoration process. Chief among these is the Damage Assessment and Restoration Program (DARP) consisting of the National Ocean Service's (NOS) Damage Assessment Center (DAC), the National Marine Fisheries Service's (NMFS) Restoration Center (RC), and the Office of the General Counsel. Other federal and state agencies may be involved and include the Coast Guard, Navy, and state environmental protection and maritime enforcement agencies.

The first step is the **Emergency Response.** During the response effort, NMS field staff strive to minimize negative impacts to sanctuary resources. This information is used to guide salvage efforts to minimize further injury, devise short-term mitigation and cleanup strategies, and support critical enforcement and litigation issues.

Once the response effort is completed, NMS and DAC staff begin a detailed assessment that documents the extent and nature of the injury. The **Injury Assessment** is used to determine whether a damage claim is pursued, to develop the damages claim and litigation strategy, and to guide the development of the restoration planning. SRD is currently developing new standardized protocols to rapidly assess injuries to the physical and ecological structure of sanctuary habitats.

After evaluation and review, a case may be referred to the Department of Justice for a natural resource damage claim under the NMSA. Efforts are directed at developing a damage claim that includes response costs, projected restoration costs (or acquisition or replacement of equivalent resources), lost-use values or the value of the sanctuary resources, costs of damage assessments, and the reasonable cost of monitoring. The result of the **Damage Assessment** process is a damages claim which is prepared by DAC.

Litigation typically involves the participation of several legal offices within NOAA as well as the Department of Justice (DOJ). Initial enforcement actions are handled by regional NMFS Office of the General Counsel - Enforcement attorneys, working closely with SRD field and headquarters staff, and General Counsel - Damage Assessment (GCDA). Case development and preliminary negotiations are handled by regional GCDA attorneys, while cases are litigated by the DOJ. General Counsel - Ocean Services participates throughout the process by providing overall policy guidance to SRD on the NMSA.

Once the damage action has been resolved and funds recovered, **Restoration** begins. This involves evaluating restoration strategies developed during the damage assessment process in light of recovered funds and selecting restoration options. Detailed plans are written as well as National Environmental Policy Act (NEPA) compliance documents. All necessary permits are obtained, needed contractors are identified, and restoration commences. NOAA sponsored a Coral Reef Restoration Workshop in 1993 to obtain recommendations from coral reef experts on various methods to restore reefs, monitoring techniques to evaluate those methods, and projects to advance knowledge about coral reef ecology. The recommendations obtained from that workshop have guided restoration planning efforts and the first phase of implementation is currently scheduled for the summer of 1994.

Long-term Monitoring plans are also developed parallel to restoration. Monitoring is essential in order to evaluate the overall success of the restoration as well as to guide midcourse corrective actions to redirect the recovery process.

For more information, please contact:
Dr. Charles M. Wahle, Chief
Technical Projects Branch
Sanctuaries and Reserves Division
1305 East-West Highway
Silver Spring, MD 20910

Phone: (301) 713-3145 Fax: (301) 713-0404

Pending Natural Resource Damage Claims Under The National Marine Sanctuaries Act

Since 1984, nine natural resource damage actions have been pursued under the NMSA by the U.S. Department of Justice (DOJ) on behalf of NOAA. The following damage actions are currently in litigation:

APEX HOUSTON: The Sanctuaries and Reserves Division and NOAA's Damage Assessment and Restoration Program have agreed in principle to a settlement for the T/V APEX HOUSTON natural resource damage action. In the winter of 1986, oil spilled from the barge T/V APEX HOUSTON (U.S. registered) while under tow from San Francisco Bay south along the California coast. The oil from this spill impacted a large area along the central California coast and injured or killed thousands of seabirds that were sanctuary resources of the Gulf of the Farallones National Marine Sanctuary (GFNMS). Particularly hard hit were common murres and marbled murrelets. While the settlement agreement has not yet been signed, the responsible party and each of the natural resource trustees (State of California, Department of the Interior, and NOAA) have expressed a willingness to accept a settlement of $6.4 million. The trustees will devote the majority of the recovered funds to recolonization and habitat acquisition projects. The proposed settlement also includes funds to reimburse the U.S. and the state for response costs, for a civil penalty assessed by the State of California and to reimburse trustees for their damage assessment costs. It is anticipated that approval of settlement will occur sometime this summer.

JACQUELYN L: On July 7, 1991, the 54-foot sportfishing vessel JACQUELYN L (U.S. registered) ran aground at Western Sambo Reef in the Florida Keys National Marine Sanctuary (FKNMS). The grounding caused extensive damage to a pristine elkhorn coral formation at the western end of the reef. On July 12, 1991, NOAA brought a civil suit against the owners of the boat for damage to the natural resources of the Sanctuary. The action is being undertaken jointly with the State of Florida as part of a broader collaborative effort to protect the FKNMS. In June, a motion for reconsideration of a decision finding a dispute of material fact on the inclusion of state waters in the FKNMS was filed. In addition, DOJ requested a motion to stay the proceedings pending a decision of the 11th Circuit Court of Appeals on a similar question in the United States v. Fisher litigation.

MELVIN FISHER, et. al.: NOAA filed a claim for damages and a request for injunctive relief against Mel Fisher and his salvage company, Salvors Inc., in the U.S. District Court for the Southern District of Miami. To date, over one hundred craters in an area known as Coffins Patch have been identified, some as large as 35-40 feet across and 10 feet deep. These holes were apparently caused by a salvage technique known as "mailboxing", a process whereby propellor wash is deflected downward toward the seafloor, creating large craters in anticipation that buried treasure will be uncovered. Our preliminary injury assessment indicates that sizeable areas of turtle grass (Thalassia testudinum) were damaged. Historical resources were also removed from the site. A evidentiary hearing on the preliminary injunction was held in Key West, Florida on May 13-14, 1992. The judge granted the injunction and Fisher's attorney has appealed the injunction. A hearing on the appeal occurred on September 27th, 1993, but no decision has been rendered.

MISS BEHOLDEN: On Saturday, March 13, the M/V MISS BEHOLDEN, a 147 foot vessel of St. Vincent and the Grenadines registry, ran aground upon Western Sambo Reef in the Florida Keys National Marine Sanctuary. The MISS BEHOLDEN was carrying a cargo of chocolate candy and cigarettes from Miami, Florida to Progresso, Mexico. Sanctuary and Coast Guard personnel were on the scene during the week the vessel remained on the reef to assist in the salvage effort and to begin assessing the injury to the coral reef. In late March, DOJ and the state of Florida filed a civil action for natural resource damages, response costs, forfeiture and civil penalties against the M/V MISS BEHOLDEN, and her owners and operators. In addition, the United States seized the vessel and her equipment but not the cargo. The vessel was auctioned in January under an order of interlocutory sale.

Several other vessel grounding incidents where sanctuary resources have been injured are under consideration as natural resource damage actions.

For more information please contact:
Dr. Charles M. Whale, Chief
Technical Projects Branch
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910
Phone Number: (301) 713-3145 Fax Number: (301) 713-0404

Sanctuaries and Reserves Division's
Current Restoration Efforts

The National Marine Sanctuaries Act (NMSA) authorizes the Under Secretary for Oceans and Atmosphere to pursue civil actions to recover response costs and damages from parties who destroy, cause the loss of, or injure sanctuary resources. Damage claims include, among other things, compensation for the cost of replacing, restoring or acquiring the equivalent of damaged sanctuary resources. NOAA currently plans to initiate in 1994 major structural restoration projects at two grounding sites for which funds were recovered: The M/V ELPIS and M/V ALEC OWEN MAITLAND. Additionally, plans are underway to initiate smaller pilot projects testing novel ecological restoration techniques at a third site in 1994: the M/V WELLWOOD.

M/V ELPIS

- On 11 November 1989, the 143 meter freighter *M/V ELPIS*, carrying 14,000 metric tons of sugar, ran aground on a coral reef community in 8.5-10 meters of water. The site is located approximately .25 nautical miles northeast of the Elbow Reef light within the boundaries of both the Key Largo National Marine Sanctuary and the Florida Keys National Marine Sanctuary.

- The grounding of the ship, as well as subsequent attempts to free it from the reef, resulted in significant amounts of damage to natural resources. Injury to the reef community included mortality of or damage to living corals and other organisms on the reef surface. Structural damage produced unstable reef substrate through the fracturing of previously stable surfaces and excavations in the reef framework (called blowholes) caused by the ship's attempts to power off the reef. Loose coral rubble, displaced by the grounding, can cause secondary mechanical damage, threatening organisms previously unimpacted. Unstable material is also unsuitable for long-term coral recovery. Coral cover loss ranged from 91-96% at the site. The area of total destruction measures approximately 2,604.75 square meters, and partial destruction encompasses an area of nearly 468 square meters.

- The reef surface impacted by the grounding was irregular, with numerous ridges, ledges, crevices, overhangs, pinnacles (ancient reef spurs) and intermittent sand flats. Prior to the grounding the area was dominated by soft corals and small hard corals totalling approximately 15-20 colonies per square meter.

M/V ALEC OWEN MAITLAND

- On 25 October 1989, the 47 meter oil field supply vessel *M/V ALEC OWEN MAITLAND* ran aground in 2-3 meters of water on a coral reef community. The site is approximately 1.5 nautical miles southwest of the Carysfort light within the boundaries of both the Key Largo National Marine Sanctuary and the Florida Keys National Marine Sanctuary.

- As with the ELPIS, The amounts of damage to living corals and other organisms, unstable reef substrate, blowholes, and coral rubble. Approximately 70% of the coral colonies and 79% of the total coral cover at the grounding site were destroyed by the grounding. The area of total destruction measured approximately 680.5 square meters, and partial destruction encompasses an area of nearly 930 square meters. Due to higher wave energy conditions at this site, secondary damage from loose rubble is significantly greater than at the *ELPIS* site. Damage which occurred since the grounding increased the size of the blowholes by 200%.

- Two distinct community assemblages were disrupted by the grounding: a very low relief community containing low coral abundance and cemented reef rock; and a moderate relief habitat dominated by small to large soft coral sea fans and fire coral colonies.

Restoration plans at both sites are directed at eliminating the threat of additional damage from loose debris, stabilizing the substrate and undertaking other measures that will enhance the rate of natural recovery at the site. These efforts will be designed to enhance the otherwise slow and uncertain natural recovery process in order to restore the ecological and aesthetic value of these sanctuary resources. Restoration priorities include: removal of unconsolidated reef rubble; reef framework stabilization; and the recreation of 3-dimensional relief destroyed at the site. Initially, the highest restoration priority will be to fill and securely cap the surface of the blowholes at the grounding sites.

A grant was awarded to the Florida Science Program of the University of North Carolina at Wilmington's National Undersea Research Center (UNCW/NURC) to solicit, evaluate, and implement monitoring projects at the ELPIS, ALEC OWEN MAITLAND, and WELLWOOD sites. Proposals are currently being reviewed. Monitoring efforts under the grant will also complement broader long-term monitoring goals to evaluate the health and status of coral reefs throughout the sanctuaries.

For additional information contact:
Dr. Charles M. Wahle, Chief
Technical Projects Branch
NOAA Sanctuaries and Reserves Division
1305 East-West Highway, SSMC 4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3145
Fax Number: (301) 713-0404

Contingency Planning in the National Marine Sanctuary Program

Contingency Planning

Contingency plans provide the basis under which agencies and individuals respond to oil spills, chemical releases, vessel grounding and other events which may threaten natural resources and human life. As a resource trustee, the National Marine Sanctuary program is involved in several levels of contingency planning.

National Contingency Plan

The National Contingency Plan provides for the basic framework and organization under which all oil and chemical response efforts are conducted. It provides for a National Response Center, which acts as a nation-wide notification and reporting point for all spill incidents, and defines the roles of the Regional Response Teams, Federal and State On-Scene Coordinators, and Special Forces.

Regional Response Teams

The Regional Response Teams are aligned within the boundaries of the Federal Regions, and provide for large scale contingency planning and resolution of issues related to response actions at the Federal-State interface level. The regional response plans generally deal with strategic issues which effect large areas, and cross many local jurisdictional boundaries.

Local Area Committees

The Local Area Committees are mandated by the oil Pollution Act of 1990. The boundaries and size of these Local Areas varies from region to region, and generally tends to follow county or city boundaries in most areas. A few Local Areas have been delineated to coincide with the limits of Coast Guard Districts or Marine Safety Office areas. The Local Area Contingency plans are much more detailed by nature and are tasked to consider several potential worst-case-scenarios for the local area, making these plans tactical in scope and effect.

Sanctuary-specific Planning

The National Marine Sanctuaries are represented at both the Regional and Local levels by involvement in the RRT and LAC process, and by information inserted into the respective plans. In addition, individual Sanctuary-specific planning and support activity is underway which will provide detailed information about the sanctuary resources needed by the response agencies in the event of an incident. The sanctuary plan will also provide policy guidance to the sanctuary manager and other staff called in to deal with the many issues which are involved in emergency response, damage assessment, and restoration planning.

Inserts to Local Area Contingency Plans

One page information briefs have been prepared for insertion into the Regional and Local Area Contingency plans for each National Marine Sanctuary. The purpose of this insert is to inform the Regional Response Team, Local Area Committee members and other individuals and agencies interested in oil and chemical spill response issues about the basic information which would be needed during the first few hours of an emergency response action. Each insert page provides a small map showing the general relationship of the sanctuary boundary to the adjacent coastline, and a listing of the exact coordinates of the boundary on the back of the page. A brief history of the sanctuary includes the date(s) of designation, reference to the major legislative mandates, and the nature of the trustee responsibility. A brief contact list for key sanctuary personnel, and a review of the major natural resources potentially at risk complete the information.

These inserts will be revised as needed and distributed to the DOC Regional Response Team representatives and Local Area Committee members as needed to maintain awareness of the National Marine Sanctuaries' existence and needs.

For more information, please contact:
CDR Todd Baxter
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3125
Fax Number: (301) 713-0404

Florida Bay

Threat to Florida Keys NMS

The degradation of the Florida Bay ecosystem from an estuary to an eutrified, hyper saline lagoon poses an imminent threat to the coral reefs and other resources of the Florida Keys National Marine Sanctuary (FKNMS). The threat is potentially greater than any other threat facing the Sanctuary.

Decline in Water Quality

The decline in Florida Bay water quality has had a cascading effect on the commercially and ecologically important resources of the Bay:

- A massive algal bloom has contributed to the destruction of thousands of acres of sea grasses and has killed a significant portion of sponge habitat essential to the development of juvenile spiny lobsters;
- The pink shrimp fishery which relies on healthy seagrass habitat has collapsed;
- Hyper saline waters with elevated temperatures hug the bottom and pour through the Keys' channels and over the reef tract contributing to stress on the coral reefs.

Florida Bay Restoration

Restoration of Florida Bay is dependent upon achieving a more "natural" timing, distribution, quantity and quality of fresh water into the Everglades National Park and Florida Bay. Although two schools of thought exist regarding the immediate causes of the recent die-offs, most scientists agree that an essential component of Florida Bay restoration is to increase the amount of clean fresh water entering the Bay. This prevailing view is compatible with the National Park Service's restoration goal.

NOAA's Participation

Research

- Sanctuary biologist Harold Hudson has a network of temperature gauges placed throughout the Keys to monitor water flowing from Florida Bay through the Keys to the ocean. This data along with coral core samples will help researchers understand how long the conditions of high water temperatures and salinity have existed and how widespread the problems are.
- Scientific review panel released an independent report stating that the problem is multifaceted and includes lack of freshwater, lack of major storm disturbance, and increased nutrient loading.

Planning

Last June, Secretary of the Interior Bruce Babbit convened an interagency task force to address problems in Florida Bay, as well as the degradation of the South Florida ecosystem. An interagency working group (the Management and Coordination Working Group) was established to coordinate policies and programs which affect the South Florida ecosystem and to further effective implementation of coordinated policies, strategies, programs, and initiatives. The Management and Coordination Working Group is drafting a plan for the restoration and maintenance of the South Florida ecosystem.

- In January of 1993, the National Park Service set up an interagency task force involving all the Federal agencies, the Florida Department of Environmental Protection, and Monroe County to develop a comprehensive research plan for Florida Bay. A comprehensive draft plan addressing the research priorities for Florida Bay was released on February 4, 1994.
- FKNMS Water Quality Protection Program Steering Committee. One of the committee's primary responsibilities is to address the degradation of Florida Bay.

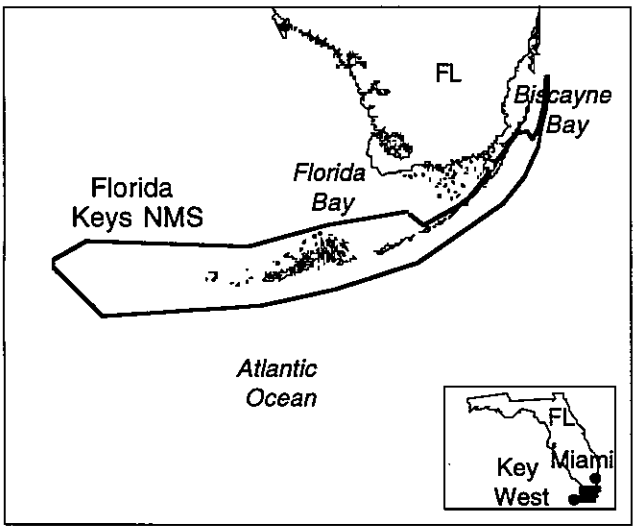
Education

- The Sanctuary's Florida Bay exhibit which provides information about the algal blooms and water input issue, and ideas on how citizens can become involved in the solution, is traveling around the county to educate the general public about the Bay's problems.
- Sanctuary staff have provided interpretation for numerous groups including a very successful Over flight Program designed to get politicians and other decision makers out into the field to see the problem firsthand.
- A song with original music and lyrics about the Sanctuary and Florida Bay is being produced.
- Staff have participated in radio talk shows discussing Florida Bay.

For more information please contact:
Billy Causey, Sanctuary Superintendent
Florida Keys National Marine Sanctuary
P.O. Box 500368
Marathon, FL 33050

Phone Number: (305) 743-2437
Fax Number: (305) 743-2357

Florida Keys National Marine Sanctuary Management Plan



2,800 nmi² of Florida state and federal waters

Background

In 1990, after a series of devastating ship groundings, outbreaks of serious coral disease and the recognition of a pattern of environmental decline in the Florida Keys, Congress passed the Florida Keys National Marine Sanctuary and Protection Act (Keys Act) to provide for the long-term protection and management of the Florida Keys ecosystem. The Keys Act mandates that: NOAA develop a comprehensive management plan; U.S. Environmental Protection Agency (USEPA), in conjunction with the Florida Department of Environmental Regulation (DER), develop a Water Quality Protection Program;
NOAA establish of a Citizen's Advisory Council to advise and assist NOAA on the development and implementation of the Sanctuary; and, NOAA consider the use of water use zoning as a management tool.

Management Plan Process

Given the mandate to produce a comprehensive management plan, the Sanctuaries and Reserves Division (SRD) in conjunction with the Office of Ocean and Coastal Resource Assessment (ORCA) have endeavored to produce an operational management plan that relies heavily on partnerships with other Federal, state, and local agencies and one that recognizes the importance of a continuous management process.

The Draft Environmental Impact Statement and Management Plan (DEIS/MP) **should be available to the public in the summer of 1994. Public hearings will be held in the Fall of 1994.**

Milestones

- Scoping meetings identifying the major issues were held in the Keys in April and May of 1991.
- An Interagency Core Group, comprised of Federal, State, and local agencies with jurisdiction in the Keys, was established to plan and develop the Management Plan.
- A secretarially-appointed Citizens Advisory Council was initiated in February, 1992. Over the course of its 15 meetings, the Council has contributed significantly to the Management Plan development.
- Management strategies addressing major issues were developed and refined with the help of local resource professionals, the Advisory Council, and the public.
- The Water Quality Protection Program was fully integrated into the Management Plan.
- NOAA has worked diligently with the treasure salvors, specifically Mel Fisher, to develop a permitting system. To date, 4 permits have been let.
- In February 1993, the Advisory Council recommended a zoning proposal to NOAA for inclusion in the DEIS/MP.
- In August 1993, the Advisory Council recommended the preferred management alternative to NOAA for inclusion in the DEIS/MP.

Resources Devoted to the Management Plan

SRD: >$1.5 million, 6 full-time employees,
to administer Sanctuary and oversee Management Plan development.
ORCA: >$1.1 million, up to 12 staff,
to provide planning and technical assistance.
USEPA/FL DER: $1.6 million, 1 full-time employee,
to produce Water Quality Plan.
Advisory Council: <$10K, 22 members,
to advise and assist with Management Plan.
Interagency Core Group: >$1 million,15 members,
to design and produce Management Plan.
Strategy Working Group: <$100K, 45 participants,
2 work sessions to develop strategies and implementation requirements.

For more information on the Florida Keys National Marine Sanctuary, please contact:
Billy Causey, Sanctuary Superintendent
Phone Number: (305) 743-2437
Fax Number: (305) 743-2357
or
Ed Lindelof, Sanctuaries and Reserves Division Contact
Phone Number: (301) 713-3137
Fax Number: (301) 713-0404

Public Access to the *Monitor* National Marine Sanctuary

Feasibility Study for Recovery of the *Monitor's* Turret

Research at the *Monitor* National Marine Sanctuary during the past several years revealed that the *Monitor's* hull is disintegrating at a much faster rate than before. Some estimates state that the hull may collapse completely in five years or less. As a result of this new information NOAA must reevaluate the feasibility of recovering major hull components and artifacts before they are damaged or destroyed. During FY-94, NOAA will prepare a feasibility study for recovery of the *Monitor's* turret, significant machinery, hull components, and other artifacts. This study must focus on planning, recovery, conservation, interpretation, and exhibition; it must also address possible partners and sources of funding. The U.S. Navy has expressed an interest in assisting NOAA in raising the turret, and NOAA is preparing to invite the Navy to assist in *Monitor* research. If major recovery proves not to be feasible, NOAA must review other options, including recovery of smaller artifacts, stabilization of the hull in place, and opening the site to increased non-research diving.

Regulations Prohibit Non-Research Access to the USS Monitor

Regulations for the *Monitor* NMS are the most restrictive of all the sanctuaries regarding public access. The *Monitor* has always been considered an archaeological research site; non-research access has been prohibited because uncontrolled access is considered a threat to the archaeological and historical value of the *Monitor.*

In challenges to denial of previous applications for diving on the *Monitor,* NOAA lost its argument for denying access on the grounds that diving to such depths is unsafe, but won cases denying permits on the grounds that the proposals did not constitute legitimate research. NOAA won another case because the applicant did not submit sufficient information on the proposed methodology or professional qualifications of the researchers. Numerous applications for private research expeditions to the *Monitor* which contained sufficient documentation have subsequently been permitted during the past few years.

Special-Use Permit for Non-Research Access Considered for 1994

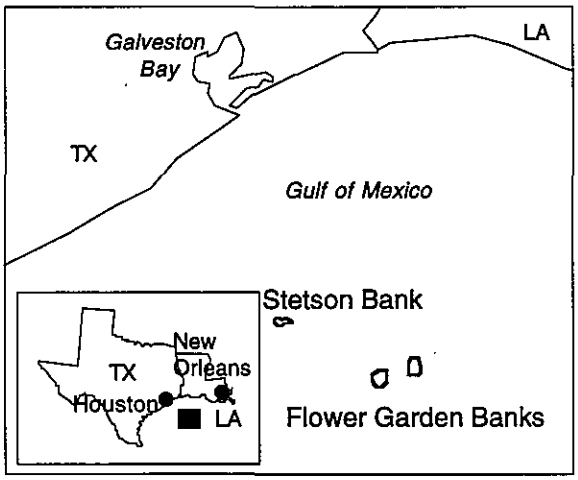
NOAA plans to issue a Special-Use Permit for non-research access to the *Monitor* during 1994. A concessionaire, selected on a competitive basis, would be granted a Special-Use Permit for taking divers to the *Monitor* for non-research purposes within a two to three week period during the summer dive season. NOAA will accept proposals for a concessionaire who will be responsible for planning and conducting the dives, as well as assuring that the *Monitor* and its contents are not damaged by any activities. If the initial effort is successful, special use permits could be issued on a regular basis in the future. As this special use permit for the Monitor sanctuary is a change from NOAA's previous access policy, public comments are also being solicited.

For more information please contact:
John Broadwater
Monitor National Marine Sanctuary
Building 1519
Fort Eustis, Virginia 23604-5544

Phone Number: (804) 878-2973
Fax Number: (804) 878-4619

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Stetson Bank: Inclusion in Boundaries of Flower Garden Banks National Marine Sanctuary



Stetson Bank

On February 22, 1994, Representative Solomon P. Ortiz (D-Texas), Chairman of the House Merchant Marine and Fisheries Subcommittee on Oceanography, Gulf of Mexico, and the Outer Continental Shelf, introduced legislation (H.R. 3886, Rept. 103-441) to modify the boundaries of the Flower Garden Banks National Marine Sanctuary (FGBNMS) to include Stetson Bank. The bill was ordered reported without amendment by the Oceanography Subcommittee on March 10, 1994, and by the full Merchant Marine and Fisheries Committee on March 16, 1994. H.R. 3886 was passed by the House on March 21, 1994. There has been no opposition to this bill. This bill is now awaiting Senate action.

Background

Stetson Bank is a popular sport diving site located approximately 30 nautical miles to the northwest of FGBNMS (which is located about 110 nautical miles offshore from the Texas/ Louisiana border). Stetson Bank is composed of uplifted sedimentary layers of claystone and siltstone, which have eroded differentially to create sharp ridges and pinnacles. Stetson Bank supports a spectacular array of invertebrates and fishes, and is well known for shell collecting and spear fishing. The depletion of these resources, and evidence of anchor damage, have stimulated the sport diving community to seek protection through federal regulations and programs similar to those at the Flower Garden Banks. One sport diving association, the Gulf Reef Environmental Action Team (GREAT), has installed, and maintains, two mooring buoys at the site. GREAT also initiated a Stetson Bank monitoring program in October, 1993.

During the summer of 1993, representatives of the sport diving community launched a grass roots campaign designed to encourage Members of Congress to support legislation to provide protection for Stetson Bank through National Marine Sanctuary Program (NMSP). In September, 1993, SRD and GCOS staff met with Oceanography Subcommittee staff. NOAA stated an official no objection position to the addition of Stetson Bank to the FGBNMS. The Minerals Management Service (MMS) has already defined the Stetson Bank areas as off limits for oil and gas production, and FGBNMS regulations would be applied to the site. Inclusion of Stetson Bank in current FGBNMS monitoring, education, and enforcement programs is possible without a major budget increase in the NMSP however, SRD does not have the funding and staff needed to go through the full designation process. The Committee Report (House Report 103-441) makes it clear that the Committee does not intend for this minor boundary change to trigger NEPA.

For more information please contact:
Dr. Steve Gittings, Sanctuary Manager
Flower Garden Banks National Marine Sanctuary
1716 Briarcrest Drive, Suite 702
Bryan, Texas 77802
Phone Number: (409) 847-9296 Fax Number: (409) 845-7525

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

NOAA/Coast Guard Vessel Traffic Study for California's National Marine Sanctuaries

Background

The 1992 reauthorization of the Marine Protection, Research, and Sanctuaries Act (MPRSA) required a vessel traffic study to be performed for the Monterey Bay National Marine Sanctuary. A report to Congress is expected by the end of 1994. The U.S. Coast Guard at about the same time was considering the need to re-examine their current traffic lanes and approaches to California ports. Given these factors, the proximity of Gulf of the Farallones and Cordell Bank National Marine Sanctuaries, and the additional presence of Channel Islands National Marine Sanctuary, the decision was made to include all four California Sanctuaries in the study.

The spirit of the vessel traffic requirement was to focus on large commercial vessels, including oil tankers. The decision was made to consider recreational traffic as well, and the lack of organized information for management decisions.

Meetings have been held with the Coast Guard in Monterey and San Francisco, and additional contacts have been made in Washington, D.C. The general structure of the study places responsibility for commercial traffic with the Coast Guard and for recreational traffic with NOAA. A notice of the study was placed in the *Federal Register* and public comments accepted .

Current Status

NOAA's portion of the study takes a two phase approach. Phase One, which has already begun, involves a contractor organizing and analyzing all existing information, including all the public comments submitted in response to the notice in the Federal Register notice. Several meetings have been held with the contractor to date and a final report is due in late Spring 1994. An Interim draft of the report was submitted to Congress in April of 1994, the final report is not anticipated until the end of calendar year 1994. If the report shows that additional information is necessary, Phase Two will involve the use of aerial and surface surveys, possibly through Coast Guard aircraft and vessels. A contractor will probably be necessary for Phase Two as well. The Coast Guard is relying on existing information for their side of the study.

The report to Congress will be based on the information used for Phase One of the study. Phase Two will be a year long effort that will obtain the full seasonal spectrum of boating patterns and trends. The information obtained from the study will be used to make decisions regarding appropriate measures to deal with impacts, if any, from vessel traffic within the Sanctuary.

For more information please contact:
CDR Terry Jackson, Sanctuary Manager
Monterey Bay National Marine Sanctuary
299 Foam Street, Suite D
Monterey, CA 93940
Phone Number: (408) 647-4201
Fax Number: (408) 647-4250

or

Elizabeth Moore, Monterey Bay NMS - Headquarters Liaison
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910
Phone Number: (301) 713-3141
Fax Number: (301) 713-0404

Motorized Personal Watercraft in Monterey Bay National Marine Sanctuary

The sanctuary regulation limiting use of motorized personal watercraft in the Monterey Bay National Marine Sanctuary was declared void in the U.S. District Court on August 24, 1993.

Current Status

On October 7, 1993, Doug Hall, Deputy Assistant Administrator of NOAA, endorsed the decision of OCRM to appeal the decision of the U.S. District Court. A request was made to the Department of Justice on the same day to file an appeal. NOAA is still awaiting the decision of the Solicitor General of the Department of Justice as to whether or not to file an appeal. In the meantime, an Intent to Appeal has been filed, preserving NOAA's right to appeal.

Background

Motorized personal watercraft (e.g., jet skis and also called thrillcraft) are defined by the Monterey Bay National Marine Sanctuary (NMS) regulations as "any motorized vessel that is less than fifteen feet in length as manufactured, is capable of exceeding a speed of fifteen knots, and has the capacity to carry not more than the operator and one other person while in operation." No regulation of and prohibition of use of motorized personal watercraft in specified areas were both regulatory alternatives presented in the Draft Environmental Impact Statement (DEIS). The preferred alternative in the DEIS was no regulation.

Decision to Regulate

The decision to regulate motorized personal watercraft in the Monterey Bay NMS was based on numerous factors, among them:

(1) the high density and vulnerability of nearshore flora and fauna;
(2) the combination of high speed, high maneuverability, and small size of motorized personal watercraft (which is what causes them to pose a threat to marine mammals and seabirds);
(3) at least one report of an operator of a motorized personal watercraft running over a sea otter in Monterey Harbor (August 1990); and
(4) conflicts with other recreational users.

Over a hundred comments were received on this issue during the DEIS comment period (August 3-October 3, 1990); all supported either a total prohibition or regulation. Publication of the Final Environmental Impact Statement (FEIS) and final regulations in 1992 limited the operation of motorized personal watercraft to four zones and access routes within the Sanctuary. The four zones were based as much as possible on traditional areas of motorized personal watercraft use near the four harbors within the Sanctuary boundaries.

Personal Watercraft Industry Association Lawsuit

Kawasaki Motors submitted written comments on July 20, 1992, well after the public comment period, stating disagreement with the definition of motorized personal watercraft and requesting NOAA to reconsider its intent to regulate motorized personal watercraft. The Personal Watercraft Industry Association (PWIA), representing Kawasaki and other manufacturers, submitted a petition to NOAA on November 17, 1992, to repeal the motorized personal watercraft regulation. In a *Federal Register* notice dated March 22, 1993, NOAA announced its decision to deny the petition.

PWIA, a private individual, and a dealer of Kawasaki products, among them motorized personal watercraft, filed suit in U.S. District Court, District of Columbia, against NOAA on July 2, 1993, seeking a judgment making the motorized personal watercraft regulation void. A hearing was held on August 12, 1993. On August 24, 1993, the judge ruled in favor of the plaintiffs, voiding the regulation on the basis that "because the record does not support the different treatment of personal watercraft and other vessels, the challenged regulation is arbitrary and capricious."

For more information please contact:
CDR Terry Jackson, Sanctuary Manager
Monterey Bay National Marine Sanctuary
299 Foam Street, Suite D
Monterey, CA 93940
Phone Number: (408) 647-4201 Fax Number: (408) 647-4250

or

Elizabeth Moore, Monterey Bay NMS - Headquarters Liaison
Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, MD 20910
Phone Number: (301) 713-3141 Fax Number: (301) 713-0404

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Monterey Bay Water Quality Management Program

The Monterey Bay National Marine Sanctuary (MBNMS) Final Environmental Impact Statement/ Management Plan calls for the development of a water quality protection program to respond to regional needs and concerns. The purposes of the water quality program are to: (1) identify corrective actions that address point and nonpoint source pollution problems in order to restore and maintain the environmental integrity of the Sanctuary and its resources; and (2) assign responsibilities for the implementation of the program among the Governor, the Secretary of Commerce, and the Administrator of the EPA or their designees in accordance with applicable Federal and state laws.

The Office of Ocean and Coastal Resource Management's Sanctuaries and Reserves Division (SRD) and the Office of Ocean Resources Conservation and Assessment's Strategic Environmental Assessments (SEA) Division are working together to facilitate a multi-watershed approach to water quality management for the MBNMS. The Monterey Bay work integrates operational management activities into a system-wide approach, conducting assessments to provide better information for regional decision making. This coupling of efforts enables NOAA to demonstrate quickly how it is responding to regional concerns and need with timely results.

A driving force behind the program is the June 1992 Memorandum of Agreement (MOA) between NOAA, EPA, CA EPA, CA State Water Resources Control Board, CA Regional Water Quality Control Board (Central Coast Region, and San Francisco Bay Region), CA Coastal Commission, and the Association of Monterey Bay Area Governments. The MOA was established in recognition of the need for an ecosystem based water quality management process that integrates the mandates and expertise of existing coastal and ocean resource managers and scientists, and protects the nationally significant resources, qualities, and compatible uses of the MBNMS.

The signatories of the MOA represent the principal agencies involved in water quality protection planning. All have agreed to work together to develop a comprehensive water quality protection program for the Sanctuary. In addition to the eight MOA signatory agencies, a "Core Group" of other Federal, State and local agencies, and representatives of various user groups and non-governmental organizations has been established to participate in the water quality management process.

Project Summary

Phase I: Issue Identification and Strategy Development

The objectives of this phase are to organize existing information, identify issues/problems, develop a spatial framework for assessing issues, and begin the planning process. Tasks include: researching data sources; defining and prioritizing Sanctuary/regional issues and problems; assessing and organizing relevant existing data; and conducting a Water Quality Issue Identification/Strategy Development Workshop.

Phase II: Strategy Revision and Characterization

The objectives of this phase are to develop a cogent set of proposed strategies, characterize the impacts of their implementation, and understand their relationship with existing programs and standards. Tasks associated with this include: consolidation and refinement of strategies; evaluation of existing programs and standards; strategy characterization (environmental impacts and socioeconomic consequences of implementing proposed strategies); and characterization of implementation costs and required institutional arrangements. Characterization activities will be accomplished by conducting a series of work sessions with the Core Group and smaller "Focus Groups" of experts.

Phase III: Analysis and Prioritization of Strategies

The objectives of this phase are to further analyze proposed strategies. Tasks associated with this include: identifying short- and long- term priorities; prioritizing strategies based on criteria developed through characterization activities; and adding the necessary detail to the cost of implementation and institutional arrangements required to initiate management actions.

Phase IV: Program Plan Development

The objectives are to complete the Program Plan document and finalize the Management Process. Tasks associated with this include developing the Draft Management Plan, which includes a series of Action Plans and the necessary regulations and MOAs, conducting the necessary reviews, public workshops, etc., and production of a final Program document. It is also important to establish a continuing management process that reviews the impacts of actions taken, provides a mechanism to modify management strategies when appropriate, and allows for input and participation in decision making.

For more information please contact:
CDR Terry Jackson, Sanctuary Manager
Monterey Bay National Marine Sanctuary
299 Foam Street, Suite D
Monterey, CA 93940
Phone Number: (408) 647-4201 Fax Number: (408) 647-4250

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Section III.

National Estuarine Research Reserve System

FY 94 Management Objectives for the National Estuarine Research Reserve System

Enhance Program Recognition, Understanding and Support

- Through development of a Strategic Plan, clarify the definition of Research Reserve System and establish a clear program vision;
- Address findings of the NERRS Review Panel;
- Strengthen the relationship between the Research Reserves and the CZM Programs;
- Improve communications between Reserves, SRD and the Reserves, and with other Federal and state agencies;
- Develop marketing and fund-raising strategies;
- Increase public support for NOAA and the Research Reserve System;
- Take an active role in the 1995 reauthorization of the CZMA;
- Identify costs of establishment and long-term management of Reserves;
- Establish a national foundation for supporting Reserves;

Emphasize Resource Protection in Reserve Management

- Work with States to improve research, education, land acquisition, and site facilities;
- Establish contingency and restoration plans;
- Increase support of site characterization development efforts for Reserves;
- Establish nationally-consistent monitoring programs;
- Work with Reserves to establish interpretive-enforcement programs on the State level, using the marine sanctuary program as a model;
- Establish site-specific stewardship program.

Improve Program Management Efficiency

- Increase SRD staff dedicated to the Reserve Program;
- Establish a headquarters budget for NERRS to provide adequate funds for Operations and Management of NERRS program functions;
- Work with sites to develop up-to-date Management Plans;
- Establish collaborative programs with other NOAA elements;
- Synthesize NERRS research and monitoring data and establish a database for information sharing;
- Initiate a NMS/NERRS fellowship (intern) program;
- Improve efforts to address recommendations in Section 312 Evaluation Findings;
- Complete the Standard Operating Procedures effort;
- Streamline headquarters grants management procedures.

For more information, please contact:
June Cradick
Sanctuaries and Reserves Division
1305 East-West Highway, SSMC 4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3133
FAX Number: (301) 713-0404

Sanctuaries and Reserves Division Role in the Management of the National Estuarine Research Reserves

Federal Partnership

It is a goal of the Sanctuaries and Reserves Division (SRD) to improve the Federal aspect of the State-Federal partnership which is the foundation of the National Estuarine Research Reserve System (NERRS).

SRD staff members currently have the following responsibilities related to Research Reserves:

Development of Environmental Impact Statements and Management Plans

- Provide guidance from a national perspective, regulations, models from other sites, etc.;
- Review and respond to site nominations, draft documents; and
- Assist with public meetings, dedication ceremonies, etc.

Programmatic Assistance

- Provide technical assistance related to resource management, education, research, monitoring, administration, facility development, and land acquisition.
- Establish and maintain on-going working relationship with Reserve manager and staff to stay abreast of major site initiatives - progress and relay important information from SRD, (communication should occur at least once a week);
- Visit site at least annually to meet staff and interested individuals, and to maintain familiarity with physical setting and facilities;
- Provide guidance concerning Federal regulations and policies (SOP's);
- Provide information concerning how other Reserves address like issues (i.e. resolving user conflicts) ; and
- Use reserves to assist SRD with programmatic or budget issues.

Participate in Section 312 evaluations, including review of awards, development of issues, site visit and review of findings.

Promote the use of sites as field laboratories and for environmental education programs.

Coordinate review of proposals for competitive research awards.

Assist in the development of funding priorities and fund-raising.

Provide assistance related to securing non-Section 315 funding for the Reserves.

Increase the System's visibility.

Cooperative Agreements and Grants

- Work with site staff to identify and prioritize appropriate tasks and budgets;
- Review and process awards - act as liaison between the NOAA Grants Office and the Reserve;
- Review financial and programmatic reports to ensure that work is progressing smoothly and that funds are spent properly;
- Assist with award extension and reprogramming; and
- Maintain accurate and up-to-date files.

A Sanctuaries and Reserves Division goal for 1994 is to strengthen it's commitment to the Reserves.

For more information please contact:
June Cradick or Randy Schneider
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3133
Fax Number: (301) 713-0404

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Coastal Resource Management Workshops

Introduction

Coastal Resource Management Workshops are a series of one-day technical training workshops that are offered to environmental professionals involved in planning, regulation, and management. Rookery Bay National Estuarine Research Reserve (RBNERR) initiated the program and has been conducting these workshops bi-monthly since 1989. The workshops have provided a forum for environmental professionals to learn technical information, discuss current issues, and apply recent research findings. The workshops are offered at no cost to the participant. Each workshop focuses on a specific management topic such as use and effects of pesticides, oil spill response, storm water management, water quality monitoring, watershed management, coastal restoration, and exotic plant control. Morning discussion sessions are followed up by afternoon field trips to get offer participants a first-hand look at the topics under discussion.

History

In 1993, after observing the success of RBNERR's program, the Florida Coastal Management Program (CMP) decided to expand the Coastal Resource Managers Workshops statewide. Apalachicola National Estuarine Research Reserve, Tampa Bay--an EPA National Estuary Program site, and an environmental consortium are now all offering workshops for coastal decision makers based on the Rookery Bay model.

Expansion System-Wide

Due to the demonstrated success of these workshops and the partnerships established by the National Estuarine Research Reserve System (NERRS) and Coastal Zone Management (CZM) programs, efforts are now underway to expand these workshops nationally via the NERRS. The NERRS Education Coordinators recognized these workshops as one of their top priorities for new §308 funds. The two directives from the Office of Ocean and Coastal Resource Management (OCRM) to use the 308 funds were to 1) forge partnerships with Coastal Management Programs, and 2) address non-point pollution. As proposed, the workshops address both directives.

FY 94 Workshops

Ninteen NERRS sites are scheduled to begin offering Coastal Resource Management Workshops in 1994. The funds ($3,000 per site) are to be applied for through the individual state's Coastal Management Program with the understanding that the workshops will be co-sponsored with NERRS and held at NERRS sites. The funds can be used for advertising the workshops, travel expenses, mailings, refreshments, materials and supplies, travel expenses for NERRS or CZM staff to attend a workshop in Florida, or whatever else is required to implement the program. The NERRS and CZM staff will select workshop topics that address non-point pollution or other relevant issues, specifically tailored to the needs of the hosting reserve's surrounding community. The workshops can be used as a forum to highlight best management practices along with recent research and monitoring efforts of NERRS sites.

For more information, please contact:
June Cradick or Paul Salop
Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3133
FAX Number: (301) 713-0404

National Estuarine Research Reserve System Construction and Acquisition Funds - FY94

In Fiscal Year 1994 Congress appropriated $5,000,000 in the Construction Account for the National Oceanic and Atmospheric Administration (NOAA) for acquisition of real property and construction for the National Estuarine Research Reserve (NERR) Program.

Managers of the National Estuarine Research Reserves met in November 1993 to discuss individual site proposals for these funds. Their requests, totaling more than $6,300,000, were submitted to the NOAA Sanctuaries and Reserves Division (SRD) within the Office of Ocean and Coastal Resource Management. SRD established criteria for reviewing the proposals and allocated the available funds.

Of the 22 designated Research Reserves, only two did not request funds. Many of the remaining sites were allocated the entire requested amount. Six sites will receive funds to acquire land and 17 sites will receive funds for facility, trail, and exhibit design or construction; States are required to provide match for the Federal funds. The required match for land acquisition is 50%. The State match for facility construction is 30%. The projects will begin in mid to late calendar year 1994. It is anticipated that all of the acquisition, design, and construction projects funded in FY 1994 will be completed within two years.

Following is a preliminary breakdown, by site, of the NERRS FY 1994 construction and aquisition funds. A brief description of funded projects is given along with the dollars allocated.

ACE Basin NERR, South Carolina
$180,000 - Acquisition of property within reserve boundaries, along with existing structures to use as lab and office space.

Apalachicola Bay NERR, Florida
$80,000 - Acquisition of one of two candidate sites adjacent to existing headquarters property to allow for expansion of facilities.
$409,000 - Construction of a 6300 sq. ft. office/research lab complex to replace existing facility that will be converted into an environmental education facility.

Chesapeake Bay NERR, Maryland
$600,000 - Construction of a visitors center for Otter Point Creek Component, including parking, security, and all infrastructure requirements.

Chesapeake Bay NERR, Virginia
$100,000 - Facility design for center to house research, education, and dormitory functions.

Delaware NERR
$500,000 - Construction of a one-mile roadway, parking facilities, kiosk, security gates and electricity to provide efficient public access to the site.

Elkhorn Slough NERR, California
$150,000 - Planning and construction of exhibits for reserve's visitor center.

Great Bay NERR, New Hampshire
$235,000 - Development of the Sandy Point Discovery Center, including development of indoor and outdoor exhibits, signage, security system, and lab and classroom facilities.

Hudson River NERR, New York
$100,000 - Stabilization of existing structures and improvement of public access to Hudson River sites.

Jobos Bay NERR, Puerto Rico
$250,000 - Development of existing visitors center site, construction of laboratory facilities, exhibits, and a boardwalk, along with renovation of dormitory facilities.

Narragansett Bay NERR, Rhode Island
$350,000 - Development of a 2000 square foot headquarters building to include a biological research facility, visitors center, and office space.
$50,000 - Renovations to caretakers cottage and dormitories to include roof replacement, addition of insulation, and upgrades to plumbing, heating, and electrical systems.

North Carolina NERR
$250,000 - Acquisition of remaining seventy acres of privately-owned tracts on Masonboro Island.

North Inlet-Winyah Bay NERR, South Carolina
$10,000 - Purchase of materials to complete reserve boardwalk and signage, to be constructed by staff and volunteers.

Old Woman Creek NERR, Ohio
Although $225,000 in funds was requested the State of Ohio was unable to generate matching funds.

Padilla Bay NERR, Washington
$320,000 - Acquisition of tidelands and uplands within original reserve boundary as appropriate.
$35,000 - Design work and minor construction to focus on such issues as boat/vehicle storage, laboratory improvements, educational facilities, access for handicapped individuals, and security.

Rookery Bay NERR, Florida
$250,000 - Initiation of facilities construction for a research laboratory, classrooms, additional office space, and a dormitory.

Sapelo Island NERR, Georgia
No funds requested.

South Slough NERR, Oregon
$211,000 - Expansion of existing reserve facilities to accommodate increased visitor usage.

Tijuana River NERR, California
$125,000 - Completion of internal and external exhibits at the visitors center.

Waimanu Valley NERR, Hawaii
No funds requested.

Waquoit Bay NERR, Massachusetts
$200,000 - Construction on the gate house to bring it up to code to allow its use as a dormitory.
$100,000 - Exhibit design and construction for visitors center.

Weeks Bay NERR, Alabama
$150,000 - Construction of an auditorium and visiting researchers facility (lab and dormitory space.)

Wells NERR, Maine
$120,000 - Design and construction of auditorium and classroom space.

For more information, please contact:
June Cradick
Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3133
Fax Number: (301) 713-0404

Development of a Strategic Plan for the National Estuarine Research Reserve System

Background

A System-wide Strategic Plan is being developed to support the NERR program in realizing its full potential as a focal point for coastal zone management, education and research. The intent of the Strategic Plan is to clearly identify and articulate the Program's long term vision based on its statutory mission and goals. Once completed, the NERRS Strategic Plan will become the basis for the development of a five year implementation and operation plan. The NERRS Strategic Plan Committee, consisting of representatives from six designated reserves and OCRM staff, was established by then Acting OCRM Director Frank Maloney. OCRM Associate Director Joseph Uravitch has overall responsibility for plan development. The Committee has met twice and a draft plan has been prepared based on input received from OCRM and NERR staff. Specific education and research plans are being developed by NERR education and research staff and OCRM in concert with development of the overall plan.

Development of the Plan

The first meeting was held on August 30-31, 1993, at the Old Woman Creek NERR in Huron, Ohio. This meeting focused on discussions of program definition including operating philosophy, organization values and culture, and program strengths and weaknesses. Building upon the philosophical discussions of this meeting, the Committee focused on the drafting of a mission statement and definition of five program goals at the second meeting, held at the Wells NERR, Wells, Maine, on October 14-15, 1993. Goals identified pertain to partnerships, representative protected areas and stewardship, informed coastal management and stewardship, scientific understanding through research, and education. Team members prepared first draft objectives for each goal. These and the mission statement were discussed by reserve management, education and research staff with OCRM staff at the annual NERRS workshop held at the Rookery Bay NERR, Naples, Florida, in November 1993.

Present Status

The first working draft of the NERRS Strategic Plan was distributed for NERR and OCRM comment on January 27, 1994. The comment period closed on February 25, 1994. OCRM is reviewing these comments with the intent of publishing the next draft for review in the Spring of 1994. This version of the Strategic Plan will incorporate continued work by the education and research groups. The Strategic Plan is scheduled for completion in 1994. Following its completion, work will begin on development of a five year operating plan to begin its implementation.

For more information, please contact:
June Cradick
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3133
Fax Number: (301) 713-0404

National Estuarine Research Reserve System Review Panel Report

Review Panel

In January 1993, the Assistant Administrator of the National Oceanic and Atmospheric Administration (NOAA) for the National Ocean Service established a panel of experts to conduct an independent review of the National Estuarine Research Reserve System (NERRS). Members of the Panel include:

- Robert Knecht - University of Delaware (chair),
- Franz Anderson - University of New Hampshire,
- William Eichbaum - World Wildlife Fund,
- Rosanne Fortner - Ohio State University,
- John Humpke - The Nature Conservancy,
- Mort Mather - Laudholm Trust,
- Allen Putney - US Office - International Union for Conservation and Nature and Natural Resources, and
- David Slade - Coastal States Organization.

The Panel was asked to formulate recommendations on how to enhance the position of the program in providing critical research, education, and information to policy makers responsible for the management and protection of the nation's coasts.

The Panel interviewed representatives from NOAA staff and visited the Apalachicola Florida Reserve and the Weeks Bay, Alabama Reserve. They also sent questionnaires to Reserve and Coastal Zone Management Managers to receive their input for the review.

Based on their review, site visits, and input from Reserve and CZM Managers, the Panel forwarded their draft report to the Reserves and OCRM in July 1993. The Panel forwarded their final report to the National Ocean Service in October 1993.

Report Recommendations

The Review Panel's Report makes thirteen recommendations for improving the Research Reserve System:

1. Developing the National Dimension;
2. Coupling NERRS to Coastal Resources Management Needs;
3. Creating a "Strategic Planning Process";
4. Expanding the Research Program;
5. On the Need for an Estuarine Coordinating Mechanism at the National Level;
6. Completing a Representative NERR System;
7. Strengthening the Education Program;
8. Funding the NERRS Program;
9. Forging a Strong State-Federal Partnership;
10. Organizational and Leadership Issues;
11. The Role of Foundations and Other Non-Profit Organizations;
12. International Aspects; and
13. Multiple Component Reserves.

Efforts to Respond

The SRD has already begun to respond to the Review Panel's recommendations. An Education Coordinator has been assigned to the NERRS program through an IPA agreement with the State of Florida. A draft strategic plan has been prepared for the System. Discussions are underway concerning organizational and leadership issues at SRD headquarters.

For more information please contact:
June Cradick
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3133
Fax Number: (301) 713-0404

National Estuarine Research Reserve System
Biogeograpic Classification Scheme

Introduction

The National Estuarine Research Reserve System was established to provide a nation-wide network of protected areas dedicated to research and education. In order to be sure all regions and habitat types are represented by this network when it is complete, a biogeographic classification scheme and typology of national estuarine areas have been developed.

Biogeographic Classification Scheme

The coastlines of the United States and its territories have been divided into the following areas based on their biologic and geographic characteristics:

Acadian
1. Northern Gulf of Maine (Eastport to Sheepscot River)
2. Southern Gulf of Maine (Sheepscot River to Cape Cod)

Virginian
3. Southern New England (Cape Cod to Sandy Hook)
4. Middle Atlantic (Sandy Hook to Cape Hatteras)
5. Chesapeake Bay

Carolinian
6. Northern Carolinas (Cape Hatteras to Santee River)
7. South Atlantic (Santee River to St. Johns River)
8. East Florida (St. Johns River to Cape Canaveral)

West Indian
9. Caribbean (Cape Canaveral to Ft. Jefferson and south)
10. West Florida (Ft. Jefferson to Cedar Key)

Louisianian
11. Panhandle Coast (Cedar Key to Mobile Bay)
12. Mississippi Delta (Mobile Bay to Galveston)
13. Western Gulf (Galveston to Mexican border)

Californian
14. Southern California (Mexican border to Pt. Conception)
15. Central California (Pt. Conception to Cape Mendocino)
16. San Francisco Bay

Columbian
17. Middle Pacific (Cape Mendocino to Columbia River)
18. Washington Coast (Columbia R. to Vancouver Island)
19. Puget Sound

Great Lakes
20. Lake Superior, including St. Marys River
21. Lakes Michigan and Huron, including Straits of Mackinac, St. Clair River, and Lake St. Clair
22. Lake Erie, including Detroit River and Niagara Falls
23. Lake Ontario, including St. Lawrence River

Fjord
24. Southern Alaska (Prince of Wales Island to Cook Inlet)
25. Aleutian Islands (Cook Inlet to Bristol Bay)

Sub-Arctic
26. Northern Alaska (Bristol Bay to Demarcation Point)

Insular
27. Hawaiian Islands
28. Western Pacific Islands
29. Eastern Pacific Islands

Current NERRS Representation

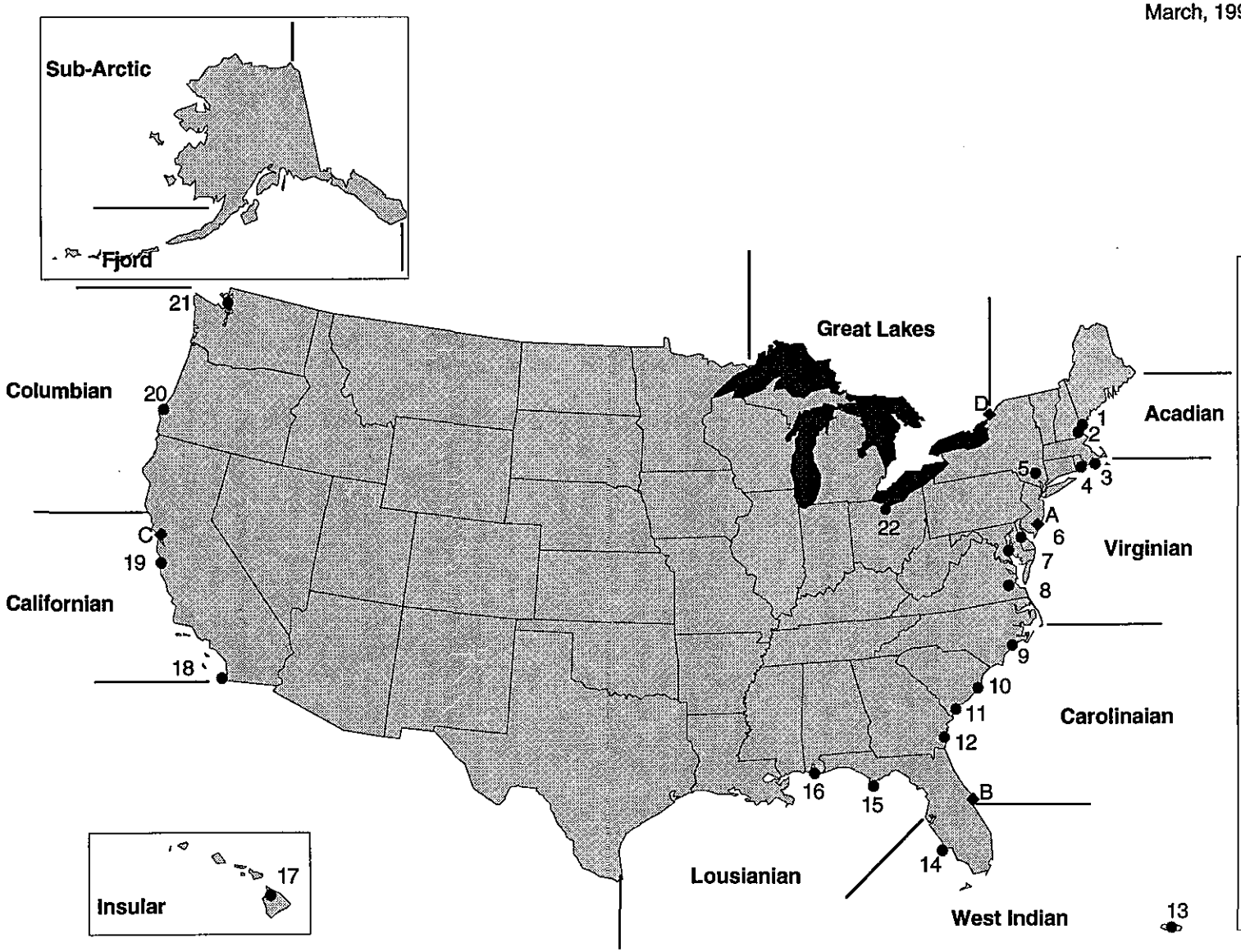
The Program's priority for new Reserves will be sites nominated from biogeographic regions not currently represented. At present, there are no Reserves in the Fjord or Sub-Arctic areas. In addition several of the subareas have no representation: Acadian/Northern Gulf of Maine; Louisianian/Mississippi Delta; Louisianian/Western Gulf of Mexico; Columbian/Washington Coast; Great Lakes/Western Lakes; Insular/Western Pacific Islands; and Insular/Eastern Pacific Islands.

For more information please contact:
June Cradick
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3133
Fax Number: (301) 713-0404

The National Estuarine Research Reserve System and Biogeographic Regions of the United States

March, 1994



Designated Sites

1. Wells, ME
2. Great Bay, NH
3. Waquoit Bay, MA
4. Narragansett Bay, RI
5. Hudson River, NY
6. Delaware
7. Chesapeake Bay, MD
8. Chesapeake Bay, VA
9. North Carolina
10. North Inlet/Winyah Bay, SC
11. ACE Basin, SC
12. Sapelo Island, GA
13. Jobos Bay, PR
14. Rookery Bay, FL
15. Apalachicola Bay, FL
16. Weeks Bay, AL
17. Waimanu Valley, HI
18. Tijuana River, CA
19. Elkhorn Slough, CA
20. South Slough, OR
21. Padilla Bay, WA
22. Old Woman Creek, OH

Proposed Sites

A. Mullica River, NJ
B. East Coast of Florida
C. San Francisco Bay, CA
D. St. Lawrence River, NY

§312 Evaluations of National Estuarine Research Reserves

Background

The National Estuarine Research Reserve Program is authorized by the Coastal Zone Management Act (CZMA) of 1972, as amended. Section 312 of the CZMA requires NOAA to conduct continuing reviews of the overall management of each NERR site. These program evaluations are conducted by OCRM's Policy Coordination Division (PCD), with participation by program staff from SRD. Evaluations are generally conducted every 3 years, but may vary depending on the severity of management problems at any given site.

The Evaluation Process

The CZMA and its implementing regulations establish formal procedural guidelines for conducting §312 evaluations of NERRS sites. The major steps, in chronological order, are: establishment of the FY evaluation schedule in consultation with the states; development of the review team, issues, schedule, and site visit agenda; formal notifications of the state, Federal Register and Congress; press releases and local media notices; site visit and public meeting; production of Draft Findings; state comments on Draft Findings; release of Final Findings to state and public within 120 days of the last public meeting held in the state.

Evaluation Criteria

The state's overall management of the NERRS site is evaluated on three general criteria: (a) adherence to the approved Final Management Plan (FMP); (b) adherence to the terms of federal financial assistance awards; and (c) adherence to required actions from previous §312 evaluations. Specific evaluation criteria established by NERRS and §312 regulations include the adequacy of the state's implementation of the FMP's required: staff roles; research plan; education and interpretation plan; public access; facility development plan; acquisition plan; resource protection plan; and inter-governmental MOU's with NOAA.

Evaluation Findings and Consequences

The fundamental conclusion of each evaluation is whether the state is adequately adhering to its aforementioned statutory programmatic responsibilities. States found in adherence may be give "Program Suggestion" recommendations to improve the program. States found not in adherence may be placed on "Interim Sanctions", a formal process under §312 which allows OCRM to suspend and redirect financial assistance in order to address serious programmatic deficiencies. States on Interim Sanctions which do not meet the mutually agreed-upon work plan and timelines may have their NERRS designation withdrawn by the Administrator, after required inter-governmental consultation and public review. Dedesignation also requires the state to repay all cumulative acquisition costs for the site.

Current Evaluation Schedule and Status of FY-93 NERRS Evaluations

In FY-93, 6 NERRS sites were evaluated. Three sites: Jobos Bay (PR), Tijuana River (CA), and Sapelo Island (GA), have been found to be not adhering to the programmatic requirements. (Since their evaluations in FY-93 these Reserves have made significant progress in addressing their programmatic deficiencies.) Only one NERRS site, Waimanu Valley (HI), is currently on Interim Sanctions, and the state has recently requested to withdraw voluntarily from the national program. Two NERRS sites scheduled for evaluation in FY-94 include: Chesapeake Bay (VA), and Apalachicola Bay (FL).

Emerging Evaluation Issues for OCRM

1) Management Plans. Several NERRS sites either lack an approved FMP or are behind schedule in their required revision. This situation impedes effective evaluation since the FMP lays out the underlying review criteria, and could legally jeopardize future federal funding based on the NERRS regulations.

2) Dedesignation Costs. With the possibility of several sites going on Interim Sanctions, OCRM needs to develop a consistent approach to allowable reimbursement plans for dedesignated sites.

3) Consistent SRD Program Policies. Historical inconsistencies in the application of NERRS policies over time and among regions has led to difficulties in equitably evaluating sites which have effectively been held to different performance standards by headquarters. Resulting sanctions cases could thus result in charges of favoritism and bias. The ongoing development of NERRS Standard Operating Procedures, combined with only two scheduled NERRS evaluations in FY-94, may alleviate this problem before it becomes critical.

For more information please contact:
Dr. Charles M. Wahle or June Cradick
Sanctuaries and Reserves Division
Phone Number: (301) 713-3128
Fax Number: (301) 713-0404

March, 1994

Coastal Zone Management Act §315 Reauthorization and Implementing Regulations for the National Estuarine Research Reserve System

Background

Several aspects of National Estuarine Research Reserve (NERR) System implementation need to be changed or updated. Problems range from relatively complex ones, such as coordination with other research programs in the Federal government, to more simple ones, such as the inability to award education funds to non-governmental entities. Problems can be rectified through three courses of action: (1) revising statutory language during the 1995 reauthorization of the Coastal Zone Management Act (CZMA); (2) revising language in the NERR implementing regulations at 15 CFR Part 921; and (3) developing or revising NERR Program policies at the office level.

An effort has been made by OCRM staff and NERR managers to identify implementation problems and potential solutions. At the present time, these are only discussion points, however, a consensus needs to be developed in order to most efficiently direct Federal, state, and non-governmental resources. Some of the key issues identified by OCRM and NERR staff are listed below.

Potential Statutory Issues

- **PROGRAM GOALS:** Complete the NERR system by filling gaps in biogeographic representation as an explicit goal for the program. Approximately 14 subregions out of 29 are not represented.
- **STEWARDSHIP:** Include stewardship and resource management as primary program goals or functions of the NERR Program, in addition to research and education.
- **PROGRAM COORDINATION:** Include language requiring coordination: (1) between NERRS and CZM programs, and (2) of NERR research and monitoring programs with NOAA and other Federal research and monitoring programs, in particular, Federal programs that manage overlapping estuary projects, such as the EPA and USFWS.
- **FUNDING:** (1) In the short term, appropriations are needed at levels authorized in order to designate new reserves and to enable reserves to become fully operational; (2) A separate authorization and appropriation for acquisition and construction is needed.
- **EDUCATION AND INTERPRETATION:** Enable NOAA to award 100%, or system-wide, education grant funding to entities other than state agencies. This is already the case for research and monitoring.
- **RESERVE FOUNDATION:** Authorize the creation of a national foundation for the purposes of raising funds, supporting reserve activities, undertaking reserve-related projects, doing promotional work, and performing other appropriate functions.

Potential Regulatory or Policy Issues

- **MULTI-COMPONENT RESERVES:** Look at the utility of having a central site at which to focus activities and facilities, and various satellite sites. Are additional multi-component reserves needed to improve biogeographic representation?
- **RESEARCH:** Examine the policy on whether NERR sites should be eligible to be recipients of NERR research funds.
- **MONITORING:** Examine the 3-phase monitoring program. Should the current policy be a regulatory requirement or are there other monitoring options?
- **EDUCATION:** Require that all sites produce certain standard educational materials, e.g., brochures and posters.
- **EVALUATION:** The requirement to evaluate sites every three years should be relaxed to allow flexibility in the review schedule, based on recent performance.
- **COORDINATION:** Promote a policy that explicitly encourages states with approved coastal management programs to use the Reserves in conducting program-related research and to use research results.
- **INFORMATION SYNTHESIS AND TRANSFER:** Require NOAA to synthesize NERR research/ monitoring data; establish a database for information sharing.
- **STAFFING:** Minimum staffing levels for sites or the ability to carry out equivalent functional requirements need to be identified.

For more information, please contact:
Randall Schneider
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, Maryland 20910
Phone Number: (301) 713-3125
Fax Number: (301) 713-0404

Research in the National Estuarine Research Reserves

Competitive Research

Research funds are available from the Sanctuaries and Reserves Division (SRD) on a competitive basis to any public or private university, qualified public or private institution, individual, or coastal state (including Great Lakes states, Puerto Rico, Virgin Islands, Guam, American Samoa, and the Northern Marianas Islands) to conduct research within the National Estuarine Research Reserve System (NERRS). Approximately $700,000 per year in research funds are used to support management-related research that will enhance scientific understanding of Reserve environments, provide information needed by Reserve Managers and coastal zone decision makers, and improve public awareness of estuaries and estuarine management issues. The primary research objective is the study of natural and anthropogenically-induced change in the ecology of estuarine and estuarine-like ecosystems that comprise the NERRS. A series of two-year research priorities serve as the foci within this larger objective. These are:

FY 1993, 1994: Non-point source pollution
FY 1995, 1996: Habitat restoration
FY 1997, 1998: Effects of habitat alteration on coastal ecosystems

In the first year of a research focus, one- or two-year projects will be funded. In the second year of a focus only one year projects will be considered.

Research Funded by Other Institutions

Although SRD can only fund a limited amount of research each year, research at the Reserve sites is encouraged. Projects are frequently conducted by university faculty members, graduate students, state employees, and independent researchers. These projects are funded through a variety of sources such as State Agencies and other Federal programs (e.g., National Science Foundation (NSF), Sea Grant, Environmental Protection Agency). Chief among other programs performing research at NERR sites is the NSF's Land Margin Ecosystem Research (LMER) program. Waquoit Bay NERR has received LMER funding from OCRM/SRD for the past four years. Several other Reserves are also under consideration for future NSF funding. Research Coordinators at the sites facilitate research by assisting with logistics and providing laboratory and field facilities and assistance.

Program Development Grants

Several NERRS sites have traditionally experienced difficulty in obtaining competitive research funds. Contributing factors include a lack of (1) basic research infrastructure or equipment, (2) baseline site characterizations and monitoring data, and/or (3) preliminary project-specific data to form testable hypotheses. In order to correct this situation and foster a strong system-wide research program, SRD Technical Projects Branch is implementing a program of grants to address the above deficiencies for individual sites. Priority consideration is given to sites not receiving competitive research grants during the previous two years. This program, initiated in FY 1993, has received widespread support from the NERRS Research Coordinators.

For more information please contact:
Alice Stratton, Ecologist
or
Dr. Charles M. Wahle, Chief
Technical Projects Branch
Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, MD 20910

Phone: (301) 713-3145
Fax: (301) 713-0404

Monitoring in the National Estuarine Research Reserves

Three-Phase Monitoring Program

The Sanctuaries and Reserves Division provides each National Estuarine Research Reserve (NERR) approximately $20,000 per year to conduct long-term monitoring of the site. The purpose of the monitoring is to gain basic knowledge of the biological and physicochemical processes occuring at each site. A National Three-Phase Monitoring Program was developed to standardize the granting process for the monitoring functions. The three phases consist of:

Phase I - Environmental Characterization

Baseline characterization studies are conducted as a means of developing a description of the environment and ecological characteristics of the Reserve site. These studies include the compilation, synthesis, and analysis of existing environmental data available from the scientific literature, file data, etc., as well as limited field assessments to increase the baseline of knowledge concerning the environmental parameters of the Reserve site. Any gaps in the knowledge of environmental parameters are also identified during this phase.

Phase II - Development of a "Site Profile"

Synthesis of information gathered during Phase I and the publication and distribution of a "Site Profile" document. This document will provide interested parties (i.e., researchers, students, policy-makers, managers, interested public, government, etc.) a thorough knowledge of research conducted to date at the site; a synthesis of existing information on the ecology, geomorphology and hydrology of the site; and a compilation of missing parameters and information required to answer important questions that have not been fully addressed. It is estimated that within three to five years of a Reserve's designation, Phase II will be completed.

Phase III - Long-term Monitoring

Monitoring activities will be initiated for the systematic collection of selected biological and physico-chemical data within the Reserve for the purpose of detecting changes and to provide a database for future studies and management decisions. The monitoring program at each site can be targeted to obtain missing information and/or study sensitive parameters identified in the site characterization completed in Phase II.

System-wide monitoring

SRD recently convened a workshop of all Research Coordinators for the NERRS to develop a national system-wide monitoring program for tracking status and trends in coastal ecosystem health in the United States. SRD is currently working with all of the NERRS to coordinate this system-wide monitoring program which will focus on three different ecosystem characteristics:

(1) Abiotic Factors: include atmospheric, water quality (i.e., contaminants, nutrients), and physical (i.e., tidal range, ground water and freshwater flow, bathymetry) parameters.

(2) Biodiversity: includes habitat and population characteristics

(3) Watershed and Land Use Classifications: include changes in consumptive and non-consumptive uses.

It is expected that this nationally cohesive monitoring program will also be integrated into other existing national and regional programs (i.e., LTER, LMER, NEP, Bay-Estuary Program EMAP, Status and Trends, etc.).

For more information please contact:
Dr. Charles M. Wahle, Chief
Technical Projects Branch
Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, MD 20910
Phone Number: (301) 713-3145 Fax Number: (301) 713-0404

Education: National Estuarine Research Reserve System

Mandates for Education

Mandates of the National Estuarine Research Reserve System (NERRS) call for resource protection through enhanced public awareness, understanding, appreciation, and wise use of the coastal and marine environments. One of the most unique qualities of the NERRS is the commitment to incorporate research, monitoring, resource management and education within one Federal-state partnership program. All of these components are designed to work together and provide the means to achieve sound coastal management practices.

A primary goal of the education program of the Reserves is to facilitate the link between the results of research and those individual groups that effect the future of coastal resources. Thus, the education programs of the NERRS serve a wide variety of audiences including coastal resource planners, managers and decision makers, environmental professionals, school children, teachers, resource users, and the general public. Effective education and outreach campaigns represent the best investment in resource protection the NERRS and the Sanctuaries and Reserves Division (SRD) can make.

Planning for the Future

As the NERRS has matured over the past twenty years, the desire to develop a more cohesive network of sites has evolved. An important step in this process is the development of a NERRS Strategic Plan. Education coordinators met initially in November 1993 to begin drafting the education component of the plan. This plan will drive education goals and priorities at the national and local level.

Education Workshop

The draft plan was the focus of attention at the NERRS Education Coordinators Workshop held in January 1994, where it was revised based on input from staff of most Reserve sites. National Marine Sanctuary Program educators were invited to participate in an effort to establish coordination between the Sanctuaries and Reserves programs. In addition, the new SRD education coordinator was able to attend and provide national perspective and support.

Workshop Results

The revised education plan includes guiding principles for NERRS education programs and identifies primary objectives and strategies for achieving them. Educators made an important milestone in implementing the plan by identifying priority projects for 1994 education grants that support the mission and objectives of the plan.

The workshop provided the opportunity for national level coordination, program-wide planning and evaluation, and integration with the NMS Education Program. It was a significant step toward strengthening individual Reserves, the NERRS network and SRD through a unified and integrated vision for estuarine education.

Building on Success

Education has always played an important role in SRD's resource protection mission. Successful education programs include student curricula, field trip programs, adult lectures, teacher workshops, volunteer programs, and a wide variety of printed media. National education efforts must help the field build on these successes through increased coordination, evaluation and support. In addition, national education efforts must help carry the message of resource protection to national and international audiences. In the end, national education program coordination will guide Sanctuaries and Reserves toward establishing SRD and NOAA as a leader in coastal and marine environmental education and resource protection.

For more information please contact:
Lauri MacLaughlin, Education Coordinator
Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3145
Fax Number: (301) 713-0404

CALIFORNIA
San Francisco Bay
Proposed National Estuarine Research Reserve

On May 21, 1993 Governor Pete Wilson of the State of California formally nominated sites within the San Francisco Bay to be included in the National Estuairne Research Reserve System. The nomination package for the San Francisco Bay National Estuarine Research Reserve (SFBNERR) proposes a multi-component reserve, consisting of six salt and tidal brackish marshes.

The SFBNERR is proposed to be managed by the San Francisco State University. The University is curretly home to a number of internationally-known scholars in the fields fo aquatic and conservation biology, geochemistry and geographic information systems. The University also operates the Romberg Tiburon Center for Environmental Studies, a field center for research on San Francisco Bay and its environs.

On December 6, 1993, Under Secretary Dr. James Baker approved the following sites as components for inclusion in the proposed SFBNERR, and therefore eligible to proceed with the next steps towards designation:

South Bay: Bair Island Ecological Reserve
Central Bay: Corte Madera Marsh
San Pablo Bay: China Camp State Park
Petaluma River: Petaluma Marsh
Suisun Bay: Rush Ranch

Because a site in the Delta area was not selected, Dr. Baker's letter requested additional information regarding the ecological characteristics of the two proposed Delta sites, Lower Sherman Island and Browns Island.

SRD is currently reviewing a response from Governor Pete Wilson, that included the necessary information needed to make a decision regarding the site in the Delta. His letter has also asked that the Suisun Bay Component include Peytonia Ecological Reserve and Hill Slought Wildlife Area. A decision and response is being prepared by SRD for Dr. Baker's signature.

A cooperative agreement totalling $75,000 has been awarded to SFSU, to begin collection of information on the approved sites, hold public meetings and prepare a draft management plan and environmental impact statement.

For More Information, please contact:
Mike Vasey, Acting Reserve Manager
San Francisco Bay
National Estuarine Research Reserve (proposed)
San Francisco State University
Department of Biology
San Francisco, CA 94132

Phone Number: (415) 338-1957
Fax Number: (415) 338-2295

or:

Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, Maryland 20910

Phone Number: (301) 713-3141
Fax Number: (301) 713-0404

Headquarters Site Liaisons: Cheryl Graham and Elizabeth Moore
Pacific Branch Chief: Debra Malek

FLORIDA
East Coast Florida
Proposed National Estuarine Research Reserve

The Florida Department of Environmental Protection's Bureau of Sanctuaries and Reserves has received a site selection award from NOM for the purpose of investigating areas along the east coast of Florida suitable for designation as a National Estuarine Research Reserve. A site selection committee has been established which includes representatives from the Florida Department of Education, the Governor's office, the Florida State University Marine Lab, the Rookery Bay and Apalachicola Research Reserves, the State Coastal Zone Management Office, and the Bureau as well as SRD. Staff have collected data, visited sites and conducted numerous public meetings in the areas which are being considered - Indian River Lagoon; Guana, Tolomato, and Matanzas Rivers (GTM); Mosquito Lagoon; and Banana River.

In a March, 1994 meeting of the Governor and Cabinet of the State of Florida, the state selected the GTM as the most desirable site for nomination. The proposed reserve is located in the Carolinian biogeographic region. The extent of the proposed reserve jurisdictional area will be decided on or before July, 1994 at a second Governor and Cabinet Meeting. Work is expected to begin shortly on preparation of a Draft Environmental Impact Statement (DEIS) and Draft Management Plan (DMP).

For More Information, please contact:
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, Maryland 20910

Phone Number: (301) 713-3141
Fax Number: (301) 713-0404

Headquarters Site Liaison: Paul Salop
Gulf Branch Chief: Ed Lindelof

NEW JERSEY
Mullica River
Proposed National Estuarine Research Reserve

In July 1993, Governor Florio nominated the Mullica River Great Bay estuary for inclusion in the NERRS Program. The site, located in southern New Jersey, is regarded as one of the least-disturbed settings in the densely populated urban corridor of the northeastern United States. The proposed reserve encompasses 114,047 acres. The site incorporates a great variety of terrestrial, wetland, and aquatic habitats, ranging from protected state forests to barrier islands.

Governor Florio has assigned administrative responsibilities for the site to the State Department of Environmental Protection and Energy's Office of Land and Water Planning and day-to-day management responsibilities to Rutgers University, Institute of Marine and Coastal Sciences.

SRD completed its review of the proposal and in an October 13, 1993, letter from Frank Maloney to Mike DeLuca, the Mullica River project manager, additional information was requested to specifically address the following program site selection principles: (1) a description of the process used to solicit public views on project; (2) the site's contribution to the biogeographical and typological balance of the system; (3) the site's ecological characteristics; (4) assurances that the site's boundaries approximate an ecological unit; (5) the site's suitability for long-term research; (6) the site's compatibility with existing and potential land and water uses and approved coastal and estuarine management plans; and (7) the value of the site for education and interpretive efforts.

Following SRD's review and acceptance of the required information, Under Secretary Dr. James Baker approved the State's site selection proposal. In his October 29, 1993 letter to the Governor, Dr. Baker notified the state that is it now eligible to apply for financial assistance to prepare a draft management plan and draft environmental impact statement.

The State has applied for FY 94 funding to assist with preparation of the DEIS/DMP. It will also hold a public scoping meeting May 2, 1994, to present a preliminary draft management plan outline and to solicit comments on issues related to the preparation of the DEIS and DMP. Public comments will be accepted until May 16, 1994.

For More Information, please contact:
Michael De Luca, Project Manager
Mullica River
National Estuarine Research Reserve (proposed)
Institute of Marine and Coastal Sciences
Rutgers University
P.O. Box 231
New Brunswick, NJ 08903

Phone Number: (908) 932-9489 x512
Fax Number: (908) 932-8578

or:

Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, Maryland 20910

Phone Number: (301) 713-3132
Fax Number: (301) 713-0404

Headquarters Site Liaison: Dolores Washington
Atlantic & Great Lakes Branch Chief: Randy Schneider

NEW YORK
St. Lawrence River
Proposed National Estuarine Research Reserve

The St. Lawrence River is part of the Eastern Great Lakes biogeographic province and is the connecting waterway between the Great Lakes and the Atlantic Ocean. The area being examined is along a 36-mile stretch of the river (between Waddington and Massena) currently owned by the New York Power Authority (NYPA). The St. Lawrence Eastern Ontario Commission (SLEOC) is in the process of selecting sites that will be incorporated into a NERR. They are working with the NY Power Authority, Department of Environmental Conservation, Office of Parks, Recreation and Historic Preservation, Department of State, U.S. Fish and Wildlife Service, St. Lawrence County Planning Board and the St. Lawrence Aquarium and Ecological Center, Inc. The state received a $10,000 site selection award in 1989 to examine potential sites. At the present time, the SLEOC is favoring an area encompassing 5895 acres.

Bald eagles and osprey use habitat along the river, and Muskellunge, Lake Sturgeon and Walleye are important recreational and ecological species found in the river. The proposed St. Lawrence Aquarium and Ecological Center could offer excellent visitor's center, laboratories, and auditoria for NERR involvement.

Base and resource overlay maps for the area and the data collection phase are complete. The state must submit a nomination package by the Governor and have this approved by OCRM before proceeding with development of the draft management plan and environmental impact statement.

For More Information, please contact:
Dr. Daniel Palm, Project Manager
St. Lawrence River Basin
National Estuarine Research Reserve (proposed)
317 Washington Street
Watertown, NY 13601

Phone Number: (315) 785-2460
Fax Number: (315) 785-2242

or:

Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, Maryland 20910

Phone Number: (301) 713-3132
Fax Number: (301) 713-0404

Headquarters Site Liaison: Doris Grimm
Atlantic & Great Lakes Branch Chief: Randy Schneider

Section IV.

Opportunities and Partnerships in Progress

Examples of Existing and Potential Fund Raising Projects

The National Fish and Wildlife Foundation

The Sanctuaries and Reserves Division (SRD) and the National Fish and Wildlife Foundation (NFWF) are developing collaborative efforts to increase the visibility and accessibility of the National Marine Sanctuary Program. The NFWF operates by awarding challenge grants to match private-sector funds, often generating double or triple matches. SRD has allocated $175,000 as match for the NFWF to co-fund National Marine Sanctuary (NMS) Program projects during FY94. Specific projects include a reef census in the Flower Garden Banks NMS, expanding Coral Reef Classroom in the Florida Keys NMS, and a Fishermen's workshop in Fagatele Bay NMS.

SRD and NFWF have initiated a major fund raising project to develop a Marine Learning Center at San Francisco's Pier One. An architectural design firm has completed an initial scoping of the Marine Learning Center. Next steps include the hiring of a point person in San Francisco, raising local and political support, and planning for a capital campaign.

Los Marineros

Los Marineros is a marine science education and environmental awareness program for fifth-graders in the Santa Barbara School District. This year long program consists of comprehensive curriculum and teacher training, exciting classroom science activities, and an impressive itinerary of field trips to local marine-related sites. Developed and implemented in 1987 by CAPT Francesca M. Cava and a group of dedicated volunteers of the Channel Islands National Marine Sanctuary, Los Marineros has since expanded from one pilot class to 26 classes (800 students) at eight district elementary schools. Through the cooperative agreement with the Santa Barbara Museum of Natural History, SRD provides two part-time staff (a total of 50 staff hours per week) who generate all of the financial support for the program's supplies and activities. Grants from corporations, nonprofit foundations, local government environmental funds, and community service clubs enable the program to continue at a high level of quality. Networking within the community by the program coordinator contributes greatly to the success of Los Marineros and results in favorable recognition for the National Marine Sanctuary Program.

Florida Keys Coral Reef License Plate Initiative

Florida State Senator Daryl L. Jones (representing the Florida Keys area) is planning, with assistance from The Wilderness Society, to introduce legislation to set up a specialty automobile license plate with a "save the coral reef tract" theme. Fees from Florida residents who purchase the specialty license would go into a fund that is used to support reef protection activities. "Manatee" and "Florida Panther" license plates that were made available in 1990, have generated $1 million to $2 million per year in use fees.

Flower Gardens Fund

The Flower Gardens Fund was established by the Gulf of Mexico Foundation (GOMF) in conjunction with (through a Memorandum of Understanding entered into in July, 1993) the Flower Garden Banks National Marine Sanctuary. The GOMF is a private nonprofit organization created by the members of the original Citizen Advisory Committee of the Environmental Protection Agency sponsored Gulf of Mexico Program. The Flower Gardens Fund is used to support education, monitoring and research projects at the Flower Garden Banks. To date, approximately $13,000 has been raised through contributions from the oil industry and sport diving industry.

Friends of the *Monitor* Fund

The Mariners' Museum located in Newport News, Virginia, has established the Friends of the *Monitor* Fund which is used to accept donations from benefactors who wish to support the *Monitor.*

"Friends of the Reserve" Foundations

Nonprofit "friends of the reserve" organizations which raise funds for NERRS site activities have been established at most of the sites, including Weeks Bay, Elkhorn Slough, Tijuana River, Apalachicola Bay, Rookery Bay, Sapelo Island, Wells, Waquoit Bay, Great Bay, South Slough, Narragansett Bay, ACE Basin, North Inlet-Winyah Bay, Chesapeake Bay (VA), and Padilla Bay. Some of these fund raising activities have been extremely successful. For example, the Laudholm Trust began in 1982 as a grass-roots, nonprofit organization to preserve Laudholm Farm from development. It has raised private funds ($3.5 million during the most recent 5-year effort) to match federal funds that have been used to develop and operate the Wells National Estuarine Research Reserve. Another example is the Weeks Bay Foundation which recently raised $100K in private and corporate donations to support the construction of nature trails and exhibits associated with the new visitors' center at the Reserve.

For more information, please contact:
CAPT Francesca M. Cava
Phone Number: (301) 713-3125 Fax Number: (301) 713-0404

Memoranda of Understanding and Cooperative Agreements

The Sanctuaries and Reserves Division uses Memoranda of Understanding (MOU), Memoranda of Agreement (MOA) and Cooperative Agreements to leverage resources and facilitate partnerships for resource protection and management.

• MOA between **DOC and Department of the Army** for interagency coordination for the review of permits under Section 10 of the River and Harbor Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the MPRSA.

• MOA between **OCRM and Center for Marine Conservation** provides a framework for cooperation to aid and promote interpretive, scientific, and educational activities; solicit private donations; and jointly fund projects.

• MOA between **OCRM and U.S. EPA/California EPA/State and Regional Water Resources Control Boards/California Coastal Commission/Association of Monterey Bay Area Governments** lays out process for interagency coordination on water quality related permit reviews.

• MOA between **NOAA and State of Florida** for joint consultation and cooperation for the protection of the Florida Keys NMS resources during the "interim" period until the comprehensive management plan becomes effective.

• MOU between **OCRM and the Gulf of Mexico Foundation** (a private non-profit organization) provides for coordination and cooperation in using money donated to the Foundation's "Flower Gardens Fund" for research and education projects for the Flower Garden Banks NMS.

• MOA between **SRD and Hawaii Office of State Planning** delineates the respective roles in developing a management plan and implementing regulations for the Hawaiian Islands Humpback Whale NMS (through 7/12/95).

• MOU between **NOS and Joint Oceanographic Institutions Incorporated** provides a framework for entering into joint research efforts with NOS funding.

• Cooperative Agreement between **OCRM and NAUI** provides a framework for conducting interpretive, historical, scientific, and educational activities through mutual funding; and for the solicitation of private donations to support these activities.

• Cooperative Agreement between **SRD, the National Undersea Research Program (NURP), and the National Undersea Research Center (NURC) at the University of North Carolina** to provide for coordination and future funding agreements between NURC and the Florida Keys NMS. An overarching agreement is *being drafted* between **SRD and NURP.**

• Cooperative Agreement between **SRD and The Nature Conservancy** provides a framework for cooperative efforts in the NMSP and NERRS (with an initial emphasis on the Florida Keys NMS efforts) that include mutual funding, and fund raising efforts.

• Cooperative Agreement between **OCRM and the Mariners' Museum** to set forth and establish the terms and conditions for management of the *Monitor* NMS National Collection of "Artifacts and Papers.

• MOA between **OCRM and National Fish and Wildlife Foundation** confirms the intent of SRD and NFWF to jointly fund, develop and implement projects to promote the NMSP.

• MOA between **NOS and NOAA Corps Operations** provides a plan for assignment of NOAA Corps officers to positions in SRD through FY92 (but remains in effect until canceled).

• Cooperative Agreement between **OCRM and North Carolina Department of Cultural Resources** provides for future funding awards to promote interpretive, historical, scientific, and educational activities related to the sinking, modern day search, exploration and preservation of the USS MONITOR and artifacts.

• Joint Statement of Purpose between **OCRM, and the Office of Wetlands, Oceans and Watersheds of EPA.**

• MOU's between **OCRM and Reserve management authorities of all the States in which there are NERRs** describe the purpose, mission, goals and objectives, and State and Federal management roles for the NERRS. (The agencies vary between states, but this is a vital link in the State--Federal Partnership in the NERRS system.)

• MOU bewteen the **SRD and the Student Conservation Association (SCA)** for the purpose of providing student conservation interns. (In Draft.)

• MOU between **NOS and SUNY at Stony Brook Marine Sciences Research Center (MSRC)** allows NOS to access MSRC technical expertise and to fund research projects to be conducted by MSRC.

• MOU between **OCRM and Texas A&M University Sea Grant College Program** provides general framework for cooperative efforts and fund sharing to support the education, research and monitoring activities of the Flower Garden Banks NMS.

• MOU between **NOS and USFWS, Ecological Services** to promote interactive, cooperative efforts between OCRM and the USFWS Bay/Estuary Program (In Draft).

• MOU between **NOS and Woods Hole Oceanographic Institution** provides a framework for entering into joint research efforts with NOS funding.

For more information, please contact:
CAPT Francesca M. Cava
Phone Number: (301) 713-3125 Fax Number: (301) 713-0404

Raising Public/Private Revenue to Support the National Marine Sanctuary Program

User Fees, Special Use Permits, and Business Plan

The Department of Commerce requires the Sanctuaries and Reserves Division to offset it's annual Congressional appropriation by raising $3 million in FY95 through Marine Sanctuary User Fees. SRD is in the process of developing a user fees plan, a preliminary draft of which must be ready by April 1st. This will include suggestions on necessary legislative language to authorize imposition of user fees and concession fees.

Legislative Interpretation

Title III of the Marine Protection, Research and Sanctuaries Act was amended in 1988 to add Section 310, codified at 16 USC §1441, which authorizes the issuance of Special Use Permits as is necessary to: **(1) establish conditions of access to and use of any Sanctuary resource, or (2) promote public use and understanding of a Sanctuary resource.** This legislation also authorizes the collection of fees for the issuance of Special Use Permits. These fees are to be assessed at a rate equal to the sum of the costs of issuing the permit, the costs incurred as a result of the activity (including costs of monitoring the activity) and an amount which represents the fair market value of the use of the Sanctuary resource and a reasonable return to the U.S. Government. The fees can be used to cover the costs of issuing and administering the permits and for the expenses of designating and managing National Marine Sanctuaries.

GCOS and SRD have interpreted the intent and authority of Section 310 as authorizing SRD to issue permits for commercial activities in the National Marine Sanctuaries. Furthermore, SRD may charge a fee for these permits, the revenue from which will be put back into the NMSP. In practice, this allows the program to charge user fees for permitted commercial activities.

Current Status of Special Use Permits

SRD is planning on issuing a special use permit for a dive operator to lead a limited number of non-research dives in the Monitor National Marine Sanctuary. In addition, SRD is currently evaluating several permit requests for commercial activities within the Florida Keys National Marine Sanctuary.

NOAA response to User Fee proposal:

The Sanctuaries and Reserves Division is currently working with the National Marine Fisheries Service to develop a comprehensive plan on how NOAA will address the issue of user fees. Some current concerns include:

1. Defining a method of collecting user fees that minimizes monitoring and enforcement costs;
2. Addressing the legal questions about NOAA's ability to establish user fees in state waters;
3. Identifying and drafting the necessary statutory authority to implement a user fee program; and,
4. Identifying who the sanctuary user groups are and what their impacts are, if any, on sanctuary resources.

Implementation Steps:

- Extensive negotiations for sanctuaries that include state waters would be needed to determine the Federal share of the fees.
- Legislation would be required to keep the revenue, in the program.
- Monitoring and enforcement programs would have to be developed and costed.

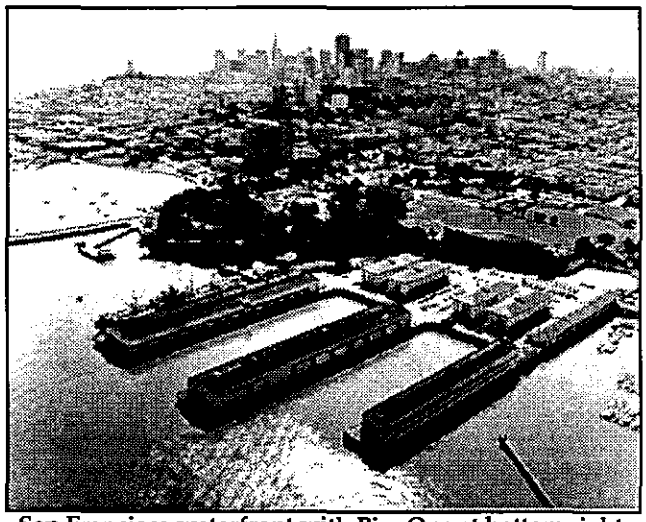
NOAA proposes a business plan:

NOAA is developing, in cooperation with the National Fish and Wildlife Foundation (NFWF), a business plan that would examine the full range of resources that could be raised to support the program. This plan will provide a blueprint for activities to increase public awareness and non-federal funding for Sanctuaries. The NFWF was chosen because of its unique status and history in forging public-private partnerships for natural resource conservation. Since 1984, the Foundation has leveraged $108 million dollars with $37 million in federal funds for 873 grants. The Business plan may include:

- the use of volunteers,
- in kind services and support,
- user permit processing,
- user fees for all users,
- concession fees,
- licensing and endorsements,
- fund raising, and
- establishment of local and national foundations.

For more information, please contact:
CAPT Francesca Cava or Debra Malek
Sanctuaries and Reserves Division
Phone: (301) 713-3125 FAX: (301) 713-0404

Pier One Marine Learning Center
San Francisco, California



San Francisco waterfront with Pier One at bottom right.

Proposed Learning Center

NOAA's Sanctuaries and Reserves Division has initiated steps to develop its first Marine Learning Center at San Francisco's Pier One. The Pier is one of the last remaining urban waterfront sites available for public use on the West coast. With three National Marine Sanctuaries (Cordell Bank, Gulf of the Farallones, and Monterey Bay) and the proposed San Francisco Bay National Estuarine Research Reserve located offshore, NOAA has a vested interest in fulfilling its mandate of marine research and public education in the San Francisco Bay area. NOAA will be filling a significant void in marine education caused in part by recent education budget cuts in the state of California.

Site History

In 1972, Congress designated several thousand acres of California shoreline as public land within the Golden Gate National Recreation Area (GGNRA). Within the GGNRA (a component of the National Park Service) is historic Fort Mason, located at the edge of San Francisco Bay. Together with the nonprofit Fort Mason Foundation, the GGNRA has converted the former military facility into a diversified cultural center. Today the Fort Mason Center is home to over 50 nonprofit organizations, a conference center, a 440-seat theater, two pavilions, several restaurants, and a maritime library, attracting close to 2 million visitors a year.

Of the three piers located adjacent to Fort Mason, only Pier One remains inaccessible to the public. However, the GGNRA recently announced its intention to convert Pier One to public space. Both the GGNRA and the Fort Mason Foundation have long believed in the need for a Marine Learning Center in San Francisco.

Making it Happen

The concept of a Marine Learning Center at Pier One has been discussed for well over a decade. Although the primary concept has remained more or less consistent, actual program and management strategies have varied widely. In the Fall of 1993, NOAA contracted for an initial scoping study to define the general concept, determine the receptiveness of the local community, measure the local national political support, and evaluate the economics of a Marine Learning Center.

The study concluded that no "insuperable obstacles" to Pier One exist. It determined that a "Center will be financially stable, and may even make a certain amount of money for capital improvements." It further found that "the mission of the Marine Learning Center can fill an important gap in the Bay Area comprehensive marine ecology interpretation."

To date, Pier One has been a project of partnership. The National Park Service, Fort Mason Center, National Fish and Wildlife Foundation, Center for Marine Conservation, and the Monterey Bay Aquarium are just some of the groups working with NOAA. For its part, NOAA must raise $1 million for the development of a comprehensive feasibility study, complete with engineering and operational plans, with construction of the facility and exhibits to follow. Initial analyses estimate total project cost to be about $13 million, with funding coming from both public and private sectors.

Benefits to the Community

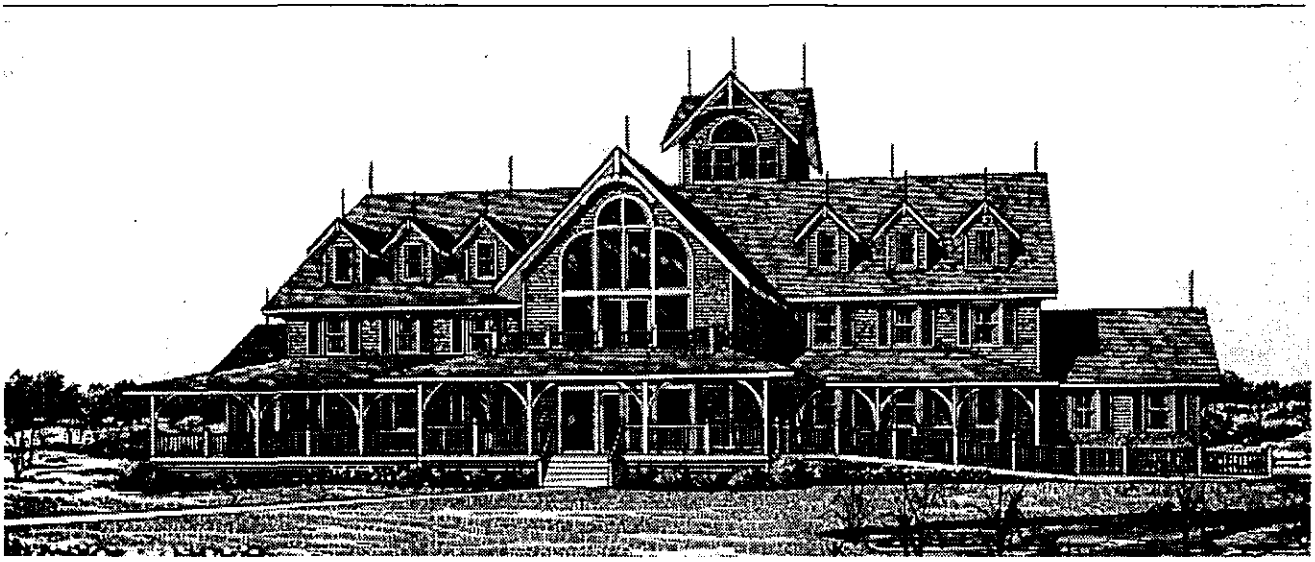
A marine learning center at Pier One would improve the quality of marine education and public awareness in the Bay area, create jobs, support commerce and sustainable development, and further promote San Francisco as an international tourist destination. Factors in favor of a successful marine learning center include a commitment to quality marine education from the community and non-government organizations in the area; the existing popularity of Fort Mason Center; a location just a short walk from Fisherman's Wharf; public access to the Pier from boat, car, public transportation, or foot; and the proximity to three National Marine Sanctuaries and a proposed National Estuarine Research Reserve.

For more information, please contact:
Captain Francesca M. Cava, Chief
NOAA, Sanctuaries and Reserves Division
1305 East West Highway, 12th Floor
Silver Spring, MD 20910

Phone: (301) 713-3125
Fax: (301) 713-0404

Graveyard of the Atlantic Museum

Hatteras Village, North Carolina



The Graveyard of the Atlantic Museum was proposed in an amendment to the 1988 reauthorization for the Marine Sanctuaries, Research and Protection Act of 1972. The amendment, which was authored by North Carolina Congressman Walter B. Jones, required that a plan for suitable display in coastal North Carolina of artifacts and materials from the Civil War ironclad *Monitor* be developed. This interpretation plan, prepared by NOAA in May 1989, proposed the *Monitor* Trail, an interpretation plan that incorporated the history of the ship from design, construction and launch, battle, sinking and finally discovery.

In the Plan, North Carolina was identified as one of the four principal components of the *Monitor* Trail. The proposed facility in the Hatteras area that would tell the story of the "Graveyard of the Atlantic," where the *Monitor* lies, was deemed the most feasible site.

A Graveyard of the Atlantic Museum Committee was formed by residents of Hatteras Village, to pursue funding for the proposed museum. NOAA's Sanctuaries and Reserves Division agreed to assist with the preparation of exhibit material on the *Monitor* to be included in the proposed museum.

In 1993, North Carolina Congressman H. Martin Lancaster secured a Federal appropriation of $800,000 to begin construction of the Graveyard of the Atlantic Museum. The Graveyard of the Atlantic Museum Committee is currently seeking matching funds from state, local and private sources. The proposed museum can provide the following opportunities for the *Monitor* National Marine Sanctuary:

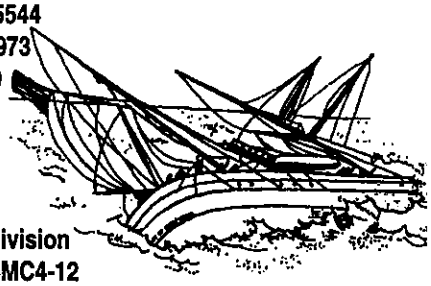
- A permanent display, on the North Carolina coast, depicting the USS Monitor and the *Monitor* National Marine Sanctuary;
- A possible seasonal office for sanctuary staff involved in on-site research;
- A possible seasonal education program developed by sanctuary staff.

The Sanctuaries and Reserves Division of NOAA continues to support the concept of the Graveyard of the Atlantic Museum.

For more information please contact:
John Broadwater
***Monitor* National Marine Sanctuary**
Building 1519
Fort Eustis, Virginia 23604-5544
Phone Number: (804) 878-2973
Fax Number: (804) 878-4619

or

Cheryl Graham
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, Maryland 20910
Phone Number: (301) 713-3132
Fax Number: (301) 713-0404



Presidio Proposal

Headquarters: Gulf of the Farallones/Cordell Bank National Marine Sanctuaries
Headquarters: San Francisco Bay National Estuarine Research Reserve (proposed)

Background

The National Oceanic and Atmospheric Administration (NOAA) of the Department of Commerce has headquarters offices for two National Marine Sanctuaries on Presidio grounds. NOAA expects that the multi-component San Francisco Bay National Estuarine Research Reserve may also have its offices on the site once designation of the reserve is completed. These three sites are components in nationally-recognized research and resource protection programs. The Gulf of the Farallones National Marine Sanctuary (GFNMS) is internationally recognized as an IUCN Man in the Biosphere Reserve (MAB). The National Marine Sanctuary Program acts as a steward of the marine environment, and has worked for comprehensive resource protection for over 20 years. The National Estuarine Research Reserve System is a state-federal partnership that promotes the importance of our national estuarine areas through research and education. These ocean and coastal programs provide a natural counterpart to the other environmental efforts currently proposed for the Presidio.

The NOAA sites are also expected to interact with a proposed Marine Learning Center on Pier One in nearby Fort Mason Center, under the jurisdiction of the Golden Gate National Recreation Area (GGNRA). This cooperative venture between the GGNRA, the National Fish and Wildlife Foundation, and NOAA's Sanctuaries and Reserves Division is in the scoping stage. The proposed Marine Learning Center would provide unique opportunities for public interaction, education and observation of the San Francisco Bay marine environment. This center would be both a national and international destination with access by land and ocean.

Status

The Gulf of the Farallones/Cordell Banks National Marine Sanctuaries have a Memorandum of Understanding with the Park Service, GGNRA. Under this MOU, office space is made available; adjacent pier and berthing facilities, as well as housing for 4-10 visiting scientists and other staff, and laboratory and computer workstations are under discussion. The state of California is working with NOAA on the designation of the National Estuarine Research Reserve, which may require similar office and housing space.

For more information, please contact:

Ed Ueber, Sanctuary Manager
Gulf of the Farallones and Cordel Bank
National Marine Sanctuaries
Fort Mason, Building #201
San Francisco, CA 94123

Phone Number: (415) 556-3509
Fax Number: (415) 556-1419

or

CAPT Francesca M. Cava, Chief
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3125
Fax Number: (301) 713-0404

Potential Conversion of Mobil Oil Natural Gas Production Platform In Flower Garden Banks National Marine Sanctuary

NOAA must help decide the fate of a natural gas production platform located in Flower Garden Banks National Marine Sanctuary.

Mobil Oil Platform HI-A389A

Mobil platform HI-A389A is located in depths of 125 m within the boundaries of the Flower Garden Banks National Marine Sanctuary (FGBNMS), about 185 km east of Freeport, Texas, and 1.5 km east of the coral reef cap (17 m depth) of the East Flower Garden Bank. HI-A389A is predicted to reach the end of its production life around 1995. By federal law, the platform must be removed within one year; an alternative is to convert the platform to a full-time research and training station.

Possible Use as a Marine Research and Training Facility

The National Marine Sanctuary Program (NMSP) and several other NOAA programs have a strong interest in the use of this platform as a research and training station. NMSP is a member of the Flower Gardens Ocean Research Project (FGORP) which includes other industry and marine research professionals. FGORP has already been successful in making platforms, transportation (helicopters and supply vessels), and room and board on platforms available to Gulf researchers, and is currently researching the conversion of HI-A389A into a research/ training platform.

Liability and financing ($300K-$400K annual operating costs) seem to be the major impediments to making this platform conversion a reality. Possible solutions include using the Texas Artificial Reef program to cover liability, and using funds that would otherwise be used to remove the platform to create an endowment fund to generate the revenues needed to support maintenance and operational costs of the research/training station.

Mobil Requests NOAA Review

Mobil has initiated discussions with the FGBNMS Manager, Steve Gittings, on what options for platform removal NOAA will prefer when HI-A389A reaches the end of production. Options range from using explosives 20 feet below the mud line to sever the platform legs, to cutting the legs at various depths; from towing the severed platform ashore to toppling it in place to create an artificial reef. The option of maintaining the platform as a research and training station is the most beneficial, but will create a financial burden and the responsibility of removing it in the distant future.

Because HI-A389A is within the FGBNMS, and its removal will impact sanctuary resources, NOAA, through the NMSP, must respond to Mobil's request for comments on removal options, and must therefore decide what level of committment it will make to the platform conversion concept.

For more information, please contact:

Steve Gittings, Sanctuary Manager
Flower Garden Banks National Marine Sanctuary
1716 Briarcrest Drive, Suite 702
Bryan, Texas 77802

Phone Number: (409) 847-9296
Fax Number: (409) 845-7525

or

Chris Ostrom, Senior Project Manager
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3137
Fax Number: (301) 713-0404

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Proposed Carysfort Lighthouse Offshore Marine Research Facility in the Florida Keys

History

The Carysfort Lighthouse was erected in 1852. After more than 140 years it continues to operate as an active lighthouse to warn sailors and boaters of hazardous shoals.

Location

Situated approximately six nautical miles off the upper Key Largo shore, the lighthouse stands within the Key Largo component of the Florida Keys National Marine Sanctuary.

Configuration

The lighthouse, listed on the National Historic Register, rises 120 feet above mean high sea level on eight steel legs arranged in a circle supporting a cone-shaped structure. The sloping posts are braced together by diagonal tension members. The living quarters consists of a two-floor structure located between the metal columns. Freshwater holding tanks occupy a large portion of the first floor. A spiral staircase leads to the light tower which extends 40 feet above the second floor living quarters.

Rehabilitation Project

The location and configuration of the lighthouse make it an ideal candidate for conversion to an offshore research facility. At the request of members of the Pennekamp Coral Reef Institute (PCRI) Former Congressman Dante Fascell included $200,000 in NOAA's FY 1991 budget for a feasibility study and development of detailed reconstruction plans for the Light. PCRI contracted with Post, Buckley, Schuh, and Jernigan, Inc. (PBSJ) to develop the plans.

SRD has closely monitored the project through meetings with PCRI, PBSJ and the U.S. Coast Guard. In October 1993, the Coast Guard granted preliminary approval for the project. PCRI has committed to raise the $400,000 needed for the construction. Their fund-raising activities will begin shortly.

SRD is working closely with the Coast Guard to begin necessary formal reviews of the proposal required under NEPA, as well as negotiating a permit for the facility and an MOU with the Coast Guard which will define long-term responsibility for maintenance and operation of the facility.

For more information, please contact:
June Cradick
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910

Phone Number: (301) 713-3133
Fax Number: (301) 713-0404

Challenge Grant Opportunity
The National Marine Sanctuary Fellowship Program

In order to promote its educational mandate and to facilitate the development of professionals for the field of marine protected area management, the National Marine Sanctuary program has initiated a challenge grant process with the National Fish and Wildlife Foundation to establish an annual graduate level Marine Sanctuary Fellowship program. This program would place fellows at National Marine Sanctuary sites around the country for nine months to allow hands-on experience in sanctuary operations and management. Daily activities might include conducting scientific field work, assisting with the sanctuary's outreach and education mandates, assisting with management tasks such as issuance and review of permits, coordination of resource protection with state and local agencies, etc. This program will provide an educational experience to promote knowledge of the day-to-day demands and issues in marine protected area management.

The Marine Sanctuary Fellowship Program is inspired by the Sea Grant Fellowship program. Application for this process would be competitive. Women and minority students will be particularly encouraged to apply. Candidates would be selected by a panel and required to interview with sanctuary managers to identify a jointly agreed upon project(s) that would contribute to the overall NOAA goal of marine resource protection and management.

Each Marine Sanctuary Fellowship will last for 9 months and include a $20,000 stipend or matching contribution to the stipend. The Sanctuaries and Reserves Division (SRD) of NOAA plans to initiate this program through a pilot effort targeted to select 3 Fellows in the first year, dependent upon availability of non-Federal match. This pilot effort will focus in states that already have designated marine sanctuaries - California, Texas, Hawaii, Florida, Washington, Georgia and Massachusetts. Sea Grant institutions around the country are encouraged to participate. The ultimate goal of the program is to establish annual Fellowship opportunities at all sanctuary sites.

In FY94, NOAA/SRD has allocated $30,000 ($10K per Fellow) to the National Fish and Wildlife Foundation towards this pilot fellowship program and is seeking matching funds from institutions interested in participating in this program.

For more information or sponsorship ideas, please contact:

CAPT Francesca M. Cava, Chief
Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, MD 20910

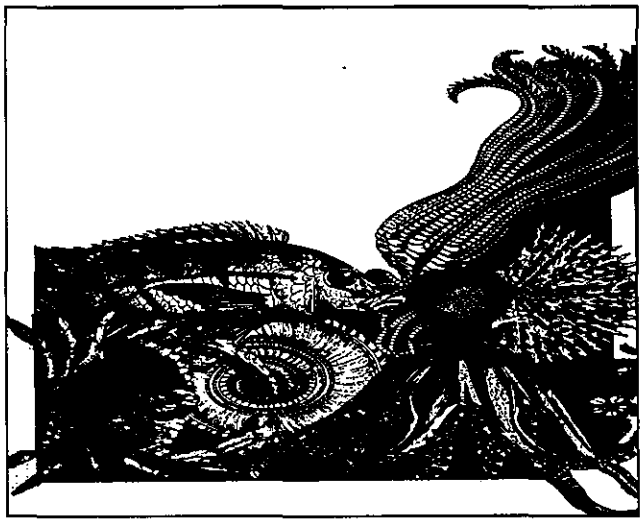
Phone Number: (301) 713-3125
Fax Number: (301) 713-0404

- or -

Dr. Jerry Clark, Director
National Fish and Wildlife Foundation
1120 Connecticut Ave. NW, Suite 900
Washington DC, 20036

Phone Number: (202) 857-0166
Fax Number : (202) 857-0162

Biodiversity Initiative



Position of the Clinton Administration

The development of a national and international biodiversity program has become a priority for the Administration. President Clinton has made the U.S. a signatory to the Biodiversity Convention. As a result, the U.S. is actively engaged in developing a U.S. component of an international biodiversity program. The President has also announced the creation of a National Biological Survey (NBS) "to inventory, monitor, and study the Nation's biological resources in order to provide resource managers with comprehensive data on biodiversity and ecosystems for the wise stewardship of U.S. natural resources". The Department of Interior has taken the lead among the federal agencies in this effort.

NOAA's Biodiversity Initiative

NOAA's Marine and Estuarine Biodiversity Initiative serves as the marine complement of the NBS. Given the overwhelming evidence that anthropogenic activities are contributing to a loss of diversity on all scales (genetic to ecosystem) and the resulting negative economic and ecological consequences of this, it is imperative for NOAA to take the lead and implement a comprehensive and coordinated program to enable a sustainable economic future for our Nation and a healthy coastal environment for future generations.

Sustaining biodiversity is an essential part of maintaining healthy coastal ecosystems that serve as cornerstones of any effort to protect and in some cases, manage the recovery of marine resources, including fisheries. Without a healthy coast, coastal tourism vital to coastal communities will also lag. The Biodiversity Initiative advances the Department of Commerce's ability to achieve sound environmental assessment, prediction and stewardship and maintain a diverse living aquatic and marine resource base for future generations' economic opportunities. This Initiative brings together many of the research and stewardship goals embodied in other NOAA program initiatives, specifically recovering protected resources, rebuilding U.S. fisheries, recovery of protected threatened species, assessing global change, and promoting healthy coastal ecosystems.

Necessary Actions

The Biodiversity Initiative calls for: 1) a five year demonstration project; 2) a comprehensive Survey, research and monitoring plan; 3) a conservation and management strategy; 4) a sound infrastructure to support research and conservation; and 5) a data and information network.

Biodiversity Demonstration Projects

NOAA will use National Marine Sanctuaries and National Estuarine Research Reserves in biodiversity demonstration projects, to illustrate that maintaining biodiversity is an integral part of sustaining ecosystem health and must be part of comprehensive ecosystem management and stewardship. Biodiversity is a vital part of healthy coastal ecosystems which are the foundation of sustainable development of coastal resources and future survival of the Nation's coastal protected areas. These biodiversity projects will:

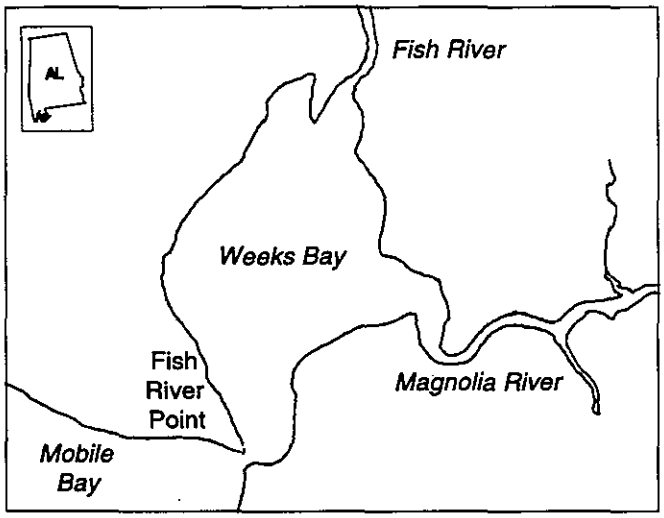
- Conduct intensive surveys to inventory biodiversity in selected Marine Sanctuaries and Estuarine Reserves;
- Conduct several demonstration projects in selected Sanctuaries and/or Reserves in which a range of activities will be performed, including biodiversity-related research (genetics, taxonomy, ecology), monitoring and site characterizations, and workshops, outreach, and coordination activities;
- Identify and develop marine biodiversity capabilities across line and program offices, in coordination with the Department of Interior and other appropriate organizations as the first step toward developing a marine component of the National Biological Survey; and,
- Identify specific biodiversity research and management goals, as well as existing and needed capabilities for long-term information and conservation needs.

For more information please contact:
Dr. Charlie Wahle, Chief
Technical Projects Branch
Sanctuaries and Reserves Division
1305 East West Highway, SSMC4-12
Silver Spring, MD 20910
Phone Number: (301) 713-3145 Fax Number: (301) 713-0404

Section V.

General Site Information

ALABAMA
Weeks Bay National Estuarine Research Reserve



Size: 3,028 acres Province: Louisianian

Significant Resources

Weeks Bay NERR contains forested uplands, wetlands and swamps, salt marsh, tidal flats, seagrass beds, and open water. These habitats provide support for a variety of organisms, including critical nursery grounds for fish and shellfish. Endangered species, including the Alabama Red-Bellied Turtle and Black Pine Snake, can be found here. Over 330 species of birds have been identified within the Reserve, including nearly 100 resident species, 125 wintering species, and 85 spring and fall migrants. More than 50 mammal, 70 reptile, 40 amphibian, and 180 fish species can be found in the waters and surrounding lands of the Reserve.

Staff and Facilities

Five permanent employees and three contract employees staff the Reserve. A volunteer force of approximately fifty people assist in various programs of the Reserve. A 4,000 square foot interpretive center, two miles of nature trails, a classroom, office space, an observation deck, research lab, and specimen display area are some of the facilities present on-site. Easy water access and publicly-owned boat launching sites increase the opportunities for public use.

History and Location

Weeks Bay, a small estuarine embayment of Mobile Bay, Alabama, was designated as a Reserve in 1986.

Uses and Programs

Ongoing research programs include assessment and abatement of non-point source pollution, hydrodynamic modelling, and inventories of fauna and flora. Education programs including guided boat tours of the Reserve, nature walks, information brochures, a guest lecture series, slide presentations, and an extensive, hands-on specimen collection are designed to educate the public about the resources of Weeks Bay. The Reserve conducts a teacher training program that allows the teachers to bring students for site visits. An extensive volunteer program enhances public involvement in coastal resource protection and helps support Reserve programs.

Site Accomplishments and Goals

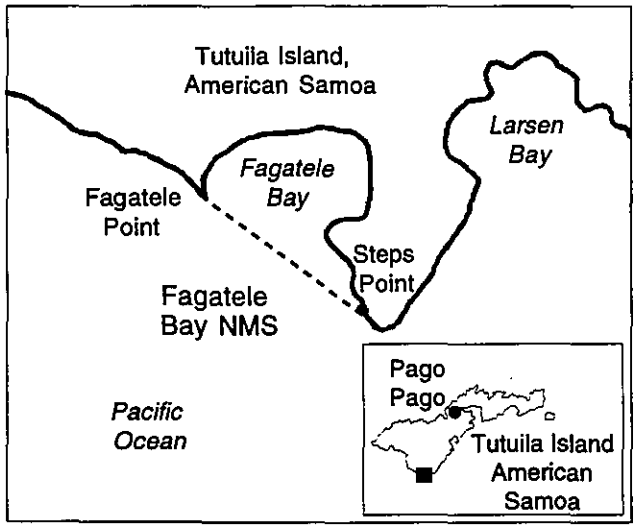
Weeks Bay was designated an Outstanding National Resource Water in 1992. A carnivorous plant bog is being restored, and a display area for living specimens is under construction. The extensive collection of plant and animal specimens, cultural and archaeological artifacts, and published literature about the area continues to grow. Planning has begun for the addition of a facility to house visiting researchers.

For more information, please contact:

Thomas McAlpin, Reserve Manager
Weeks Bay National Estuarine Research Reserve
Office of the Governor
Department of Economic and Community Affairs
11300 U.S. Highway 98
Fairhope, Alabama 36532

Phone Number: (205) 928-9792
Fax Number: (205) 928-9792
(same line: call first)

AMERICAN SAMOA
Fagatele Bay National Marine Sanctuary



Size: 0.28 nmi²; American Samoa territorial waters

Significant Resources

Fagatele Bay National Marine Sanctuary protects the waters surrounded by an eroded volcanic crater on the island of Tutuila in the territory of American Samoa. The embayment opens to the southern Pacific Ocean and is home to a fringing reef system. This smallest and most remote of all the sanctuaries is the only true tropical reef in the National Marine Sanctuary Program.

Fagatele Bay contains the deepwater coral terraces that are unique to high islands of the tropical Pacific. This naturally productive ecosystem provides habitat for a diverse array of marine flora and fauna. Invertebrates such as sea anemones, lobsters, limpets, clams, octopi, and sea urchins are found here, along with the hard and soft corals that compose the fringing reefs. Tropical fish are abundant; 229 species have been recorded to date. The endangered hawksbill sea turtle and threatened green sea turtle can both be found in the vicinity. Endangered humpback whales occasionally use the outer waters of the bay. About a dozen species of seabirds and waterfowl nest in the vicinity and use the bay as a feeding area. Of late, the bay has borne damage from a number of natural sources, including a crown of thorns starfish infestation in the late 1970's, Hurricane Val in 1992, and a recently discovered coral reef bleaching episode.

Human Use and Values

The main use of Fagatele Bay is subsistence fishing, although sport fishing does occur. Only traditional fishing methods are permitted and the taking of invertebrates is prohibited. Some levels of nonconsumptive recreational uses exist and are expected to increase. No military or shipping activities occur. The site may contain cultural resources relating to the prehistoric Polynesian people.

Site Designation and Regulations

Fagatele Bay was placed on the List of Recommended Areas in 1982 and made an Active Candidate later the same year. It was designated as a National Marine Sanctuary in April 1986. Regulations prohibit damaging or removing natural, historical, or cultural resources; use of spear guns, pole spears, bow and arrows, seines or fixed nets, explosives, weapons, and handlines onshore; commercial fishing; and discharging of substances.

Staff and Facilities

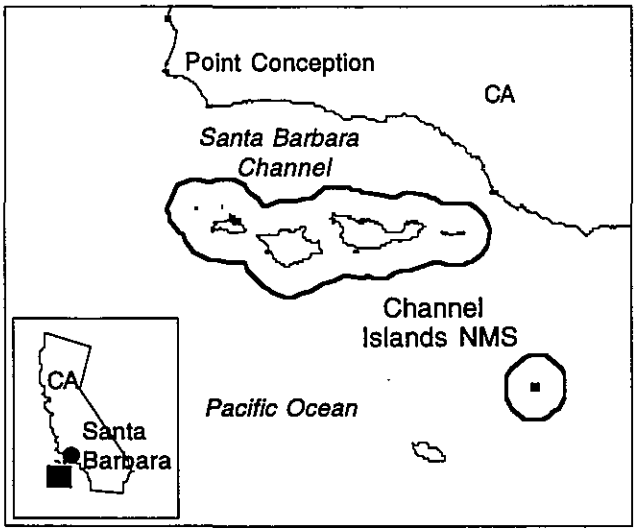
Fagatele Bay NMS has been staffed by an onsite coordinator for the past six years. An education coordinator is scheduled to be hired early this year. Staff members are American Samoa Government (ASG) employees based in Pago Pago and operate through a cooperative agreement between NOAA and ASG's Economic and Development Planning Office. The Sanctuary Office is leased from the Department of Marine Wildlife Resources (DMWR). Enforcement is provided by a National Marine Fisheries Service agent stationed in American Samoa and assisted by DMWR conservation officers.

For more information, please contact:

Nancy Daschbach, Sanctuary Coordinator
Fagatele Bay National Marine Sanctuary
P.O. Box 4318
Pago Pago, AS 96799

Phone Number: 011-684-633-7354
Fax Number: 011-684-633-7355

CALIFORNIA
Channel Islands National Marine Sanctuary



Size: 1,252 nmi²; CA state and federal waters

Significant Resources

The Channel Islands National Marine Sanctuary, located approximately 25 miles off the coast of Santa Barbara, California, encompasses the waters surrounding San Miguel, Santa Rosa, Santa Cruz, Anacapa and Santa Barbara Islands from mean high tide to 6 nautical miles offshore, and completely surrounds the Channel Islands National Park. The Channel Islands are in a transition zone due to the convergence of warm and cool ocean currents. Extensive beds of giant, southern palm, and feather boa kelp and rocky intertidal areas support invertebrate populations of sponges, crabs, abalone, lobster, sea stars, sea urchins, octopi, and squid. Over sixty species of birds breed in the Sanctuary. Twenty-seven species of whales and dolphins visit or inhabit Sanctuary waters. The Channel Islands support one of the largest and most diverse populations of pinnipeds in the world, providing feeding and nursery areas for five resident and one transitory species of seals and sea lions. The secluded, relatively undisturbed waters of the Sanctuary provide a full or part-time home for several endangered species, including blue, humpback and sei whales, southern sea otters, Guadeloupe fur seals, the California brown pelican, and the California least tern. Lining the ocean floor in this region are a wealth of prehistoric artifacts from the Chumash Indians as well as the remains of over 100 historic shipwrecks.

Human Use and Values

Although relatively remote from the heavily urbanized mainland, a high level of recreational activities are supported by access through regular boat trips, and by charter boats and planes. The site supports commercial fisheries such as sea urchin, mackerel, halibut, abalone, anchovy, rockfish, crab, and lobster. Military activities occur in parts of the Sanctuary, and oil extraction and shipping lanes lie in the vicinity. Extensive scientific research also occurs in and around the Sanctuary.

Site Designation and Regulations

In 1977 the Channel Islands was one of three California sites chosen for further study as a National Marine Sanctuary (others were Monterey Bay and Point Reyes-Farallon Islands). In September 1980, the site was designated as a Sanctuary. Regulations prohibit the deposition or discharge of substances or materials; hydrocarbon activities; alteration of the seabed; removing or damaging cultural resources; disturbing marine mammals and birds by operating motorized aircraft at less than 1000 feet over the Sanctuary; and operating commercial transport vessels within one nmi around an island.

Staff and Facilities

A Manager, Education Coordinator, Publications Coordinator, and Los Marineros program staff are responsible for the daily operation of the Sanctuary. Surveillance and enforcement are provided by National Park Service rangers through an interagency agreement with the Channel Islands National Park. The Sanctuary has a cooperative agreement with the Santa Barbara Museum of Natural History, to provide a wide range of educational programs including the Sea Center, an aquarium and education facility, and Los Marineros, a marine education program for children.

For more information, please contact:

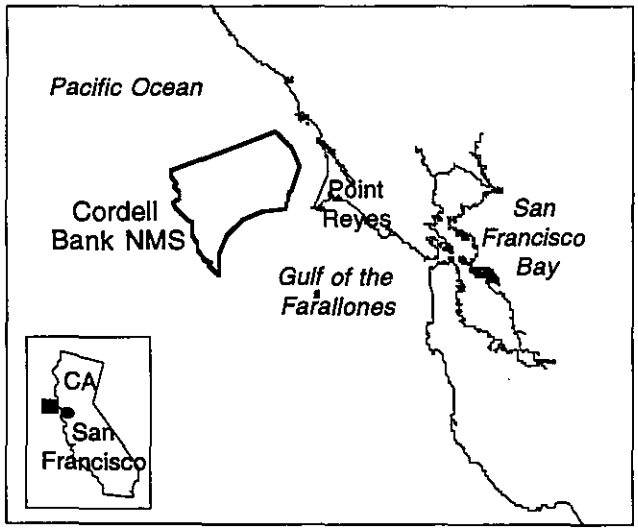
LCDR John Miller, Sanctuary Manager
Channel Islands National Marine Sanctuary
113 Harbor Way
Santa Barbara, CA 93109

Phone Number: (805) 966-7107
Fax Number: (805) 568-1582

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

CALIFORNIA
Cordell Bank National Marine Sanctuary



Size: 397 nmi²; federal waters off California

Significant Resources

Cordell Bank, the northernmost seamount on the California continental shelf, is a granitic formation submerged between depths of 50 to 200 meters. The 9.5-mile bank is roughly elliptical in shape, covering an area of 18-square nautical miles. Upwelling of nutrient rich waters, deep light penetration, and wide depth ranges provide productive habitat for an unusual assortment of marine species. Several of the species were previously undescribed in these waters at such depths, such as purple hydrocoral. On the bank rich communities of invertebrates such as sponges and anemones flourish. The area is a paradise for fishermen and advanced divers. Many species of fish have been recorded, though the bank is dominated by rockfish in both variety and abundance. Many of the marine mammals found here are endangered or threatened: right, blue, fin, sei, humpback and sperm whales, and Steller sea lions. Fifty species of seabirds, including the endangered brown pelican, use the bank as a feeding area. Four species of sea turtles (green, leatherback, Pacific ridley, and loggerhead), all endangered or threatened species, are also found in the Sanctuary.

Human Use and Values

The abundance of the rockfish population supports a valuable commercial and recreational fishery over and near Cordell Bank. Divers also use the Sanctuary. Shipping lanes for traffic from the ports of San Francisco Bay pass the bank. Regular naval operations occur in the vicinity. Cultural and historical resources may be present.

Site Designation and Regulations

Cordell Bank was placed on the List of Recommended Areas in 1981, and was named as an Active Candidate in 1983. The Sanctuary was designated in May 1989. Regulations prohibit depositing or discharging substances or materials; removing or injuring Sanctuary resources, and hydrocarbon activities.

Staff and Facilities

Cordell Bank NMS is administered by the staff of the Gulf of the Farallones NMS, which includes a Manager, Education Coordinator, and Research Coordinator based in Fort Mason in San Francisco. Programs for the Cordell Bank Sanctuary are linked to those for the Gulf of the Farallones NMS for research, education, and management. Cordell Bank is expected to benefit from the development of the Pier One Learning Center in San Francisco, which involves the conversion of a warehouse through a Federal, State, and community partnership into a marine learning center.

For more information, please contact:

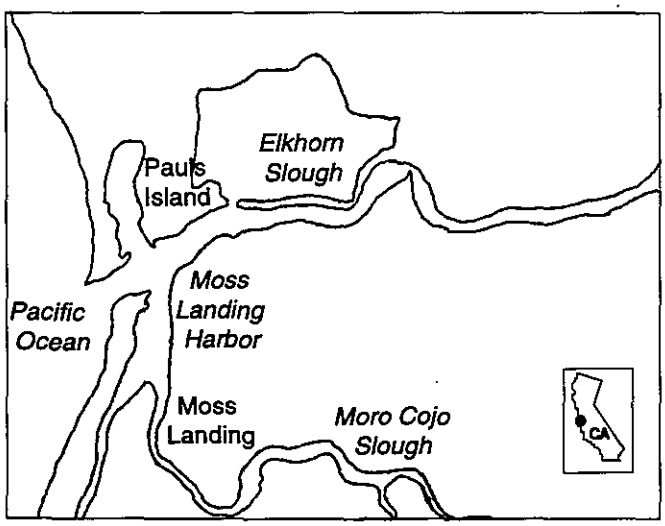
Edward Ueber, Sanctuary Manager
Cordell Bank National Marine Sanctuary
Fort Mason, Building #201
San Francisco, CA 94123

Phone Number: (415) 556-3509
Fax Number: (415) 556-1419

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

CALIFORNIA
Elkhorn Slough National Estuarine Research Reserve



Size: 1,385 acres Province: Californian

Significant Resources

Elkhorn Slough contains not only the second largest salt marsh in California, but also coastal dunes, grasslands, woodlands, maritime chaparral, mud flats, freshwater ponds, and open water. These natural communities provide nursery areas for fish and are a critical stop along the Pacific flyway for migratory birds. Marine mammals resident in the Reserve are harbor seals, sea lions, and sea otters. Bird populations are composed of primarily migratory, water-associated species, with population peaks in fall and spring; endangered birds that use the Reserve include the California brown pelican, California least tern, and peregrine falcon. The Reserve provides nursery grounds for many fish species, including the Pacific herring, starry flounder, and several species of shark. The site contains Indian middens.

Staff and Facilities

The 2,500 square foot visitor's center is the central interpretive facility of the Reserve. Additional facilities include a library, small lab, five miles of hiking trails, and weather station. One hundred volunteers work with six full-time and four part-time staff members in the daily operation of the site. Volunteers provide such support as interpretive services, assistance in research projects, and maintenance of trails.

History and Location

Elkhorn Slough NERR received final designation in 1980. The Reserve is located 3.5 miles east of Moss Landing in central California.

Uses and Programs

Teacher training programs, special events and workshops, brochures, outreach at local community and science fairs, and interpretive nature walks are some of the features of the Reserve's education program. Research activities have been funded and conducted by various public and private groups. Monitoring tracks mussel tissue (conducted by the state), water quality (conducted by volunteers), and the weather (on-site station of the National Weather Service). Habitat restoration is an ongoing project. Moss Landing Marine Laboratory is located nearby. Surrounded by areas dominated by agricultural and heavy industrial uses, the Reserve offers many recreational uses such as kayaking, fishing, hiking, and birding.

Site Accomplishments and Goals

The Reserve has trained over 1,200 teachers to utilize Reserve facilities and enhance their environmental education programs. Over 10,000 students visited the Reserve on field trips last year alone. Substantial strides are being made regarding the removal of exotic vegetation on the Reserve with the elimination of fifteen acres of eucalyptus trees and the planting of thousands of oaks in their stead. The Reserve has been instrumental in the modest beginnings of a geographic information system (GIS) that will include the Reserve and vicinity. Accurate bathymetric mapping is required to help resolve a severe tidal erosion problem.

For more information, please contact:

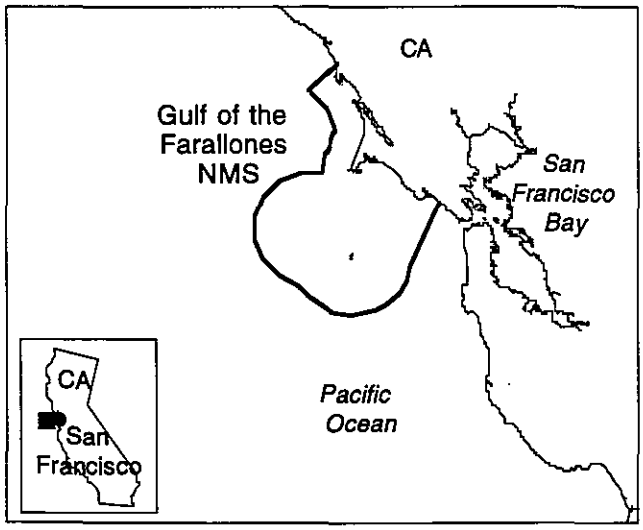
Steve Kimple, Reserve Manager
Elkhorn Slough National Estuarine
Research Reserve
1700 Elkhorn Road
Watsonville, California 95076

Phone Number: (408) 728-2822
Fax Number: (406) 728-1056

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

CALIFORNIA
Gulf of the Farallones National Marine Sanctuary



Size: 948 nmi²; California state and federal waters

Significant Resources

In the Gulf of the Farallones National Marine Sanctuary, gusting winds, ocean currents and the rotation of the earth combine each spring and summer to produce an explosion of marine life. The Sanctuary contains a complete spectrum of marine habitats, from the extensive wetlands of Tomales Bay and Bolinas Lagoon to subtidal reefs at Duxbury Reef to pelagic and deep ocean waters up to 46 nmi offshore. These productive natural communities support a complex array of species including bull and giant kelp, eelgrass, coralline algae, and invertebrates such as brittle stars and anemones are also in this area. Organisms including clams, snails, crabs, and a diverse population of fish species vary widely over season and habitat type. Within the Sanctuary are nurseries and spawning grounds for commercially valuable species such as Dungeness crab, Pacific herring, sole, and rockfish. Marine mammals include six species of pinnipeds, and twenty-two species of cetaceans, including the endangered blue whale. California's largest breeding population of harbor seals lives there along with California sea lions and elephant seals. Nesting sea bird populations are significant resources of the site; the Sanctuary has the largest concentration of breeding sea birds in the continental United States.

Human Use and Values

The Sanctuary experiences a high volume of recreational uses including sport fishing and whale- and bird-watching. Over 9,000,000 people visited the Sanctuary in 1992. Highly productive commercial fisheries and private mariculture operations occur within the boundaries. Shipping lanes converge in the Sanctuary. Military maneuvers occur on a regular basis. Oil and gas exploration is prohibited. The Sanctuary contains numerous shipwrecks including the *San Agustin*, a Spanish galleon sunk in 1595. Prehistoric resources are likely.

Site Designation and Regulations

In 1977 the Point Reyes-Farallon Islands site was selected to be studied for its potential to become a National Marine Sanctuary, along with Monterey Bay and the Channel Islands. Gulf of the Farallones NMS received final designation in January 1981. Regulations prohibit discharging of substances; altering the seabed; hydrocarbon activities; operating a commercial transport vessel within two miles of and flying motorized aircraft under 1000 ft within one nmi of specified biologically sensitive areas; and removing or damaging any historical or cultural resources.

Staff and Facilities

A Sanctuary Manager, Research Coordinator, Education Coordinator, and Secretary are based in Fort Mason in San Francisco. The staff also manages Cordell Bank NMS, and shares education, research, and management programs with the sister Sanctuary. The staff has developed volunteer programs to monitor the shorelines, including photo documentary and organism identification. The Sanctuary is also participating in the development of the Pier One Learning Center in San Francisco through a Federal, State, and community partnership.

For more information, please contact:

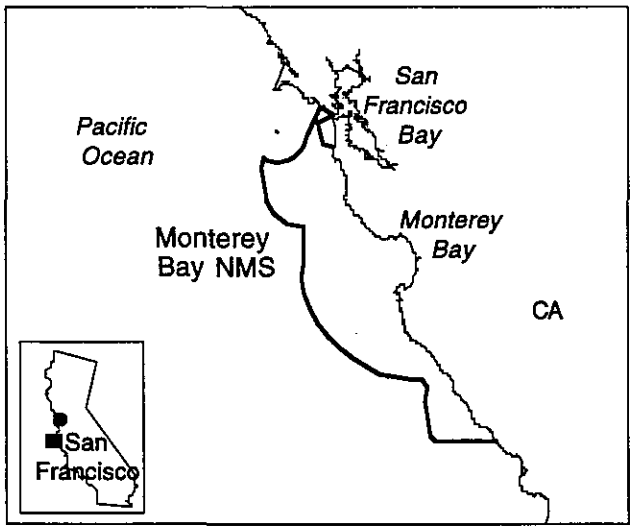
Edward Ueber, Sanctuaries Manager
Gulf of the Farallones National Marine Sanctuary
Fort Mason, Building #201
San Francisco, CA 94123

Phone Number: (415) 556-3509
Fax Number: (415) 556-1419

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

CALIFORNIA
Monterey Bay National Marine Sanctuary



Size: 4,024 nmi²; CA state and federal waters

Significant Resources

Monterey Bay NMS is located in a broad transition zone between the Oregonian biogeographic province to the north and the Californian province to the south. The Sanctuary's most significant feature is the Monterey Canyon, the deepest and largest submarine canyon incising the continental shelf of North America. The nutrient-rich currents that nourish the area and make possible the highly productive and diverse habitats and marine life. The mosaic of soft and hard bottoms, submarine canyon, rocky and sandy intertidal areas, and kelp forests of giant and bull kelp support a rich and abundant population of marine flora and fauna. The species-rich invertebrate population includes soft coral, sponges, clams, snails, crab, shrimp, abalone, sea urchins, mussels, and sea anemones. Over 345 species of fish are found in the Sanctuary and include pelagic, demersal, and benthic species. About 94 species of birds have been identified as utilizing the bay; the site is important to seabirds as a migratory stopover and as wintering grounds. The threatened marbled murrelet breeds in the Sanctuary area. Four species of sea turtles (leatherback, green, loggerhead, and Pacific ridley), all of whom are threatened or endangered, occur within the waters of the Sanctuary. Breeding, feeding, and migration areas are provided for over 26 species of marine mammals including several endangered species such as the southern sea otter and the grey whale. Over 300 shipwrecks may occur within the boundaries and significant prehistoric cultural sites exist throughout the site and coastal area

Human Use and Values

The Sanctuary is accessible and hosts a high level of recreational use. Commercial fisheries such as salmon, rockfish, swordfish, tuna, squid, and anchovy are important to the regional economy, as is tourism. Oil and gas extraction, sand mining, and designation of ocean dump sites are prohibited within the Sanctuary. Major shipping lanes and military activity occur in portions of the site. Numerous education and research programs are conducted throughout the Sanctuary.

Site Designation and Regulations

In September 1992, Monterey Bay received final designation and became the largest Sanctuary in the national system. Regulations prohibit hydrocarbon activities; depositing or discharging substances or materials; taking or damaging Sanctuary resources; altering the seabed; and operating motorized aircraft at less than 1000 feet over specified biologically sensitive areas.

Staff and Facilities

The Sanctuary staff is based in Monterey and includes a Manager, Assistant Manager, Education Coordinator, Water Quality Specialist, Program Specialist, NMFS Enforcement Agent, and Administrative Assistant. The staff has recently moved into permanent office quarters that include a small publications display area. A small boat, used for educational purposes, is maintained at the Monterey Harbor near the U.S. Coast Guard pier. Fort Ord, a local military base, is scheduled to be turned over to civilian authorities; the Sanctuary staff is working closely with the authorities to develop any appropriate additional facilities that might benefit the Sanctuary.

For more information, please contact:

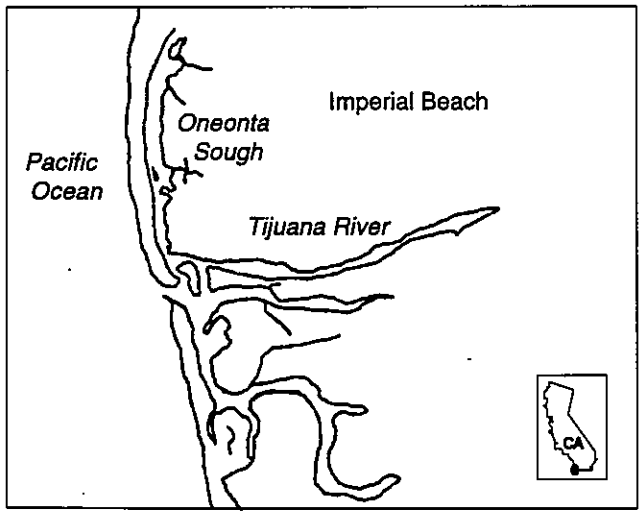
CDR Terry Jackson, Sanctuary Manager
Monterey Bay National Marine Sanctuary
299 Foam Street, Suite D
Monterey, CA 93940

Phone Number: (408) 647-4201
Fax Number: (408) 647-4250

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

CALIFORNIA
Tijuana River National Estuarine Research Reserve



Size: 2,513 acres Province: Californian

Significant Resources

The ecosystem of the Tijuana River NERR, the southernmost estuary in the United States, contains riparian and upland habitats, agricultural land, beaches, barrier dune systems, mud flats, salt marsh, coastal sage, and open water. The salt marsh-dominated habitat is characterized by extremely variable streamflow, with extended periods of drought interrupted by heavy floods during wet years. Over 370 species of birds including several endangered species such as California brown pelican, Belding's savannah sparrow, light-footed clapper rail, California least tern, snowy plover, and least Bell's vireo occur here. Approximately 26 prehistoric sites have been identified in the uplands adjacent to the Reserve.

Staff and Facilities

Three permanent and three temporary employees staff the Reserve. Twenty-five volunteers assist in various facets of the Reserve's operation. A 6,500 square foot visitors center houses exhibits, student lab, library, theater/meeting room. Additional buildings include offices and a garage/ shop. Other facilities include four miles of walking trails, four miles of equestrian trails, and two miles of public beach. Research facilities include a two-acre field tidal laboratory.

History and Location

Tijuana River NERR received its designation in 1982. Joint land management is conducted by the California Park Service and the U. S. Fish and Wildlife Service. The Tijuana River NERR is an intertidal coastal estuary on the border between California and Mexico, with three-quarters of its watershed in Mexico.

Uses and Programs

The principle education programs are MARSH (Marsh Awareness with Resources of Slough Habitats), and the three-week, field-based programs for 5th grade intercession students from the local district. Materials are produced in both English and Spanish and are distributed through workshops at the Reserve and in Mexico. Other programs include interpretive walks for the public, theme days such as "Estuary Day," participation in community events, and public presentations. New activities include watershed study and volunteer monitoring. Research projects have included watershed management techniques for wastewater discharges and the nature of artificial wetlands as a mitigation tool.

Site Accomplishments and Goals

The Reserve lists among its accomplishments the visitors center, a 500-acre restoration plan, the Pacific Estuarine Research Laboratory, bilingual education programs, nationally significant body of published estuarine research, fifteen-year data set of biological monitoring, and the completion of an ecological profile of the estuary. The site is becoming increasingly involved with planning efforts throughout the watershed, especially in Mexico.

For more information, please contact:

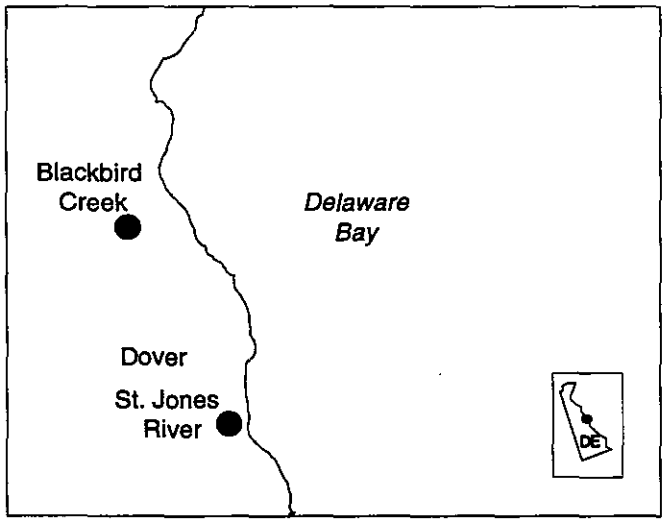
Joanne Kerbavaz, Reserve Manager
Tijuana River National Estuarine Research Reserve
301 Caspian Way
Imperial Beach, California 91932

Phone Number: (619) 575-3613
Fax Number: (619) 575-6913

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

DELAWARE
Delaware National Estuarine Research Reserve



Size: 8,600 acres Province: Virginian

Significant Resources

The Delaware NERR features full range tidal wetlands dominated by saltmarsh cordgrass and salt hay, open water of creek, river, and bay areas, and buffered by freshwater wooded fringe, farmlands, and meadows. The Reserve is endowed with a rich pre-history and a historic 18th century plantation setting. The Reserve is adjacent to the Delaware Bay and contains, in conjunction with the neighboring Ted Harvey Conservation Area, nearly 100 species of birds; this important portion of Delaware's shoreline has been designated as part of the Western Hemisphere Migratory Shorebird Reserve Network. The cultural and historic resources of the component have been intensively surveyed, resulting in an identification of 32 archaeological sites in the St. Jones component and 73 prehistoric sites of the Blackbird Creek Component.

Staff and Facilities

Reserve operations and programs are overseen by a staff of five. A volunteer corps is being developed to assist the staff in monitoring, education, and trail maintenance. Current facilities available to the Reserve include a visitors center that focuses on the historical and cultural aspects of the region, fishing pier, 1300 ft. boardwalk, two miles of trails, dock, and boat ramp.

History and Location

The Delaware NERR received its designation in June 1993. The Reserve, the newest in the system, is located along the shores of the Delaware Bay with the main St. Jones River component located 6 miles southeast from the Capitol complex of Dover and a satellite complex located 24 miles north along the Blackbird Creek.

Uses and Programs

Education services are being developed to facilitate the information exchange between estuarine researchers and the coastal users and decision makers. Activities are being scheduled that will further develop children through adults' awareness of human uses, misuses, conservation, and protection of estuarine resources. Research concentrates on the resources of the Reserve for establishing a baseline for long-term monitoring and inventory of plant and animal species, as well as cultural and historical resources within the Reserve, including the monitoring of water resources and contributing watershed of the Reserve. Research studies will be developed to determine resource response to induced activities in the controlled environment of the Reserve.

Site Accomplishments and Goals

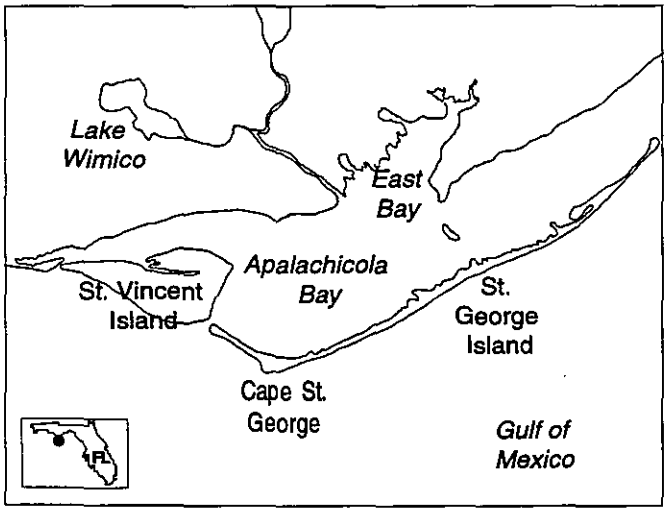
The most significant accomplishment of the Reserve has been the acquisition of 910 acres of formerly privately owned lands and wetlands for protection as the key lands for long-term research and education. The next important goal is to introduce the general public to the Reserve and its purposes and to provide programs that will instill an environmental/cultural ethic for future beneficial human interactions with estuarine resources.

For more information, please contact:

Lee Emmons, Reserve Manager
Delaware National Estuarine Research Reserve
Delaware Department of Natural Resources and Environmental Control
P.O. Box 1401
Dover, Delaware 19903

Phone Number: (302) 739-6444
Fax Number: (302) 739-6242

FLORIDA
Apalachicola National Estuarine Research Reserve



Size: 193,758 acres Province: Louisianian

Significant Resources

The Apalachicola National Estuarine Research Reserve is composed of a mosaic of habitats, including forested flood plains, salt and freshwater marsh, barrier islands, and open water. These natural communities support a variety of species. Over 1,100 species of vascular plants include 36 that are endangered or threatened. The bay is considered one of the most important avian habitats in the southeastern United States; 315 species, of which 25 are endangered or threatened, are found here. Freshwater, estuarine, and marine species (180) form the fish population. Fifty-seven species of mammals make their home here. The highest species diversity of amphibians and reptiles in North America north of Mexico has been listed from the Apalachicola Bay basin.

Staff and Facilities

The Reserve has eleven permanent staff members and a volunteer program, all based in Apalachicola. The facilities of the Reserve include an interpretive center (2,300 square feet), classrooms, research lab, and library. Three to five miles of trails provide public access to the resources of the Reserve.

History and Location

Apalachicola NERR received its designation in 1979. The Reserve, currently the largest in the NERR system, is located in the Panhandle region of Florida, approximately 55 miles southeast of Panama City.

Uses and Programs

Educational efforts include on-site and outreach education programs, classroom curricula, natural history field trips, and interpretive displays for the general public. Research concentrates on the resources of the Reserve in such efforts as long-term monitoring of chemical, physical, and biological parameters important to estuarine productivity, protection and monitoring of sea turtle and migratory bird populations, and marsh restoration. On-site assistance is provided for regional research projects. The Reserve encourages recreational boaters and fishermen to utilize the bountiful natural resources found within the Reserve, but to utilize them in a manner which will preserve the pristine nature of the resources.

Site Accomplishments and Goals

Reserve research staff have been involved in projects that covering a vast array of subjects including fresh water needs, geology, botany, endangered species, shoreline stabilization, point and non-point pollution, oyster populations, and habitat restoration. The education section has opened a live exhibit estuarine simulation with tremendous involvement from local school systems. In addition, approximately five hundred walk-in tourists enjoy the exhibit each month. The Reserve plans to build new laboratory and office facilities while converting existing facilities into an environmental education facility.

For more information, please contact:

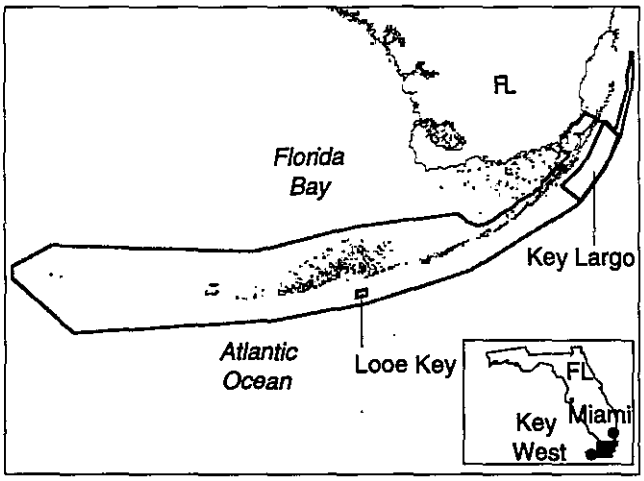
Woody Miley, Reserve Manager
Apalachicola National Estuarine
Research Reserve
261 7th Street
Apalachicola, Florida 32320

Phone Number: (904) 653-8063
Fax Number: (904) 653-2297

FLORIDA

Florida Keys National Marine Sanctuary

including Key Largo and Looe Key National Marine Sanctuaries



Size: 2,800 nmi²; Florida state and federal waters

Significant Resources

The Florida Keys NMS, the largest marine Sanctuary on the East Coast, contains North America's most extensive living coral reef, one of the largest bank reef systems in the world. Interdependent and interconnected habitats including patch and bank reefs, seagrass meadows, soft and hard bottom, and coastal mangroves, support a rich diversity of marine life. Octocorals and stony corals are the predominant invertebrate, and the fish population is abundant and diverse, including tropical and temperate species. Three species of sea turtles (green, hawksbill, and loggerhead) are found throughout the Keys, and use various habitats for nesting, feeding, and shelter. A variety of coastal and marine birds use the Florida Keys, including several species that are found nowhere else in the country. The endangered West Indian manatee is found throughout the Keys.

Human Use and Values

The Florida Keys are subject to an intense level of human use due to their proximity to the Miami metropolitan area and their popularity as a vacation spot. Tourism, recreational uses ranging from fishing to diving to boating, commercial fishing and shellfishing, military activities, research, and treasure salvaging compete for natural resources that are reduced in both quantity and quality as the population increases. The Keys have an unusually large concentration of shipwrecks that represent 500 years of European presence in the Americas.

Site Designation and Regulations

Inspired by a series of ship groundings in 1989 coupled with the growing threats of coral diseases and increased water quality problems, the Florida Keys NMS was designated by the Florida Keys National Marine Sanctuary and Protection Act in November 1990. Key Largo, designated as a NMS in December 1975, and Looe Key, designated as a NMS in January 1981, are now incorporated within the Florida Keys NMS. Regulations still in place for Looe Key and Key Largo portions of the Florida Keys NMS prohibit removing or damaging natural or historical resources or marine life; discharging substances; and using wire fish traps, trawls, explosives, spear guns, or dangerous weapons. Sanctuary wide regulations will be defined in the Comprehensive Management Plan, the first draft of which will be released in 1994.

Staff and Facilities

The Sanctuary Superintendent and an administrative staff of six are located in Marathon, Florida, a central location for the populated portion of the Keys. In addition, two regional offices are located in Key Largo, Upper Keys Region, and in Looe Key, Lower Keys Region. The staff based in Key Largo includes a Manager, Assistant Manager, Regional Biologist, Education Coordinator, and eleven other staff members. The staff based in Looe Key includes a Manager, Assistant Manager, Education Coordinator, and eight other staff members. Through a cooperative agreement with the state, surveillance and enforcement are provided by Florida Department of Environmental Protection Sanctuary Enforcement Officers who are located at the two Regional offices.

For more information, please contact:

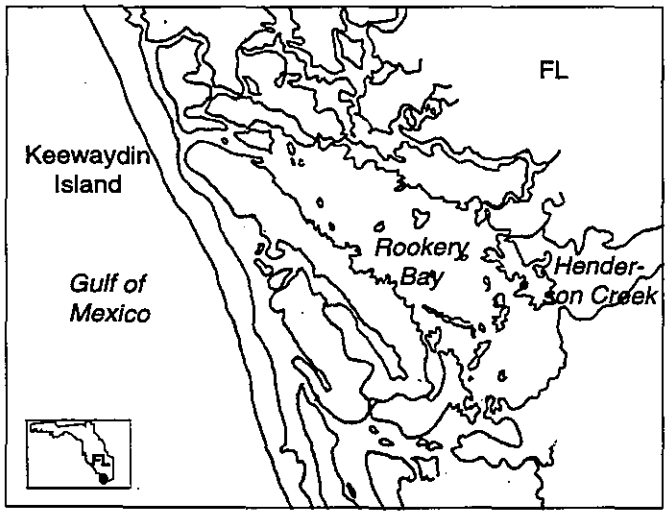
Billy Causey, Sanctuary Superintendent
Florida Keys National Marine Sanctuary
P.O. Box 500368
5550 Overseas Highway - Main House
Marathon, FL 33050

Phone Number: (305) 743-2437
Fax Number: (305) 743-2357

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

FLORIDA
Rookery Bay National Estuarine Research Reserve



Size: 12,500 acres Province: West Indian

Significant Resources

Pristine mangrove forests of black, red, and white species, coastal scrub, pine flatwoods, hardwood hammocks, barrier beaches, open water, and seagrass and oyster beds form the ecosystem of the Rookery Bay NERR. Over 150 species of birds including the bald eagle and roseate spoonbill are found here. A rookery supporting 500 wading bird nests is located within the Reserve. Over 120 species of fish including snook, sea trout, tarpon, and mullet inhabit the water. The endangered West Indian manatee is a common resident; other protected species include Florida panther, bald eagle, piping plover, scrub jay, gopher tortoise, indigo snake, scrub rosemary, bromeliads, and orchids.

Staff and Facilities

Seventeen full-time staff are based at the Reserve. The staff are responsible for administration of the programs and operation of the marine research lab, classroom, and fleet of eight boats (including three 26' custom-designed vessels used in the education program). The Reserve has a geographic information system (GIS) and remote sensing system. The Briggs Nature Center, operated by The Conservancy, Inc., employs two full-time naturalists and up to four interns, and serves as the interpretive center for the Reserve. The National Audubon Society employs a part-time warden/biologist who monitors wading and shore bird populations.

History and Location

The Rookery Bay NERR is located in Southwest Florida, five miles south of Naples. The Reserve received designation status in 1978.

Uses and Programs

Primary research efforts of the Reserve focus on water quality monitoring, mangrove restoration, and habitat mapping. Visiting investigator and internship programs are in place. Long-term monitoring dates back to 1955. Education programs include field studies, boat trips, outreach efforts, and workshops for teachers and environmental professionals. The Department of Natural Resources and The Conservancy, Inc. have a cooperative education agreement. The Conservancy, Inc. operates an interpretive center with displays that leads to a boardwalk. A non-profit group, The Friends of Rookery Bay, Inc., supports the Reserve's education, research, and resource management programs through volunteer efforts and fund raising.

Site Accomplishments and Goals

The Reserve has established a successful education program reaching over 1,400 people a year with on-site and outreach programs. The research program, established in 1991, has grown to a staff of six with funding in excess of $500,000. The Reserve has been approved as a regional site for injured marine mammal response and recovery. Rookery Bay NERR has received funding from other agencies such as the Environmental Protection Agency, U.S. Fish and Wildlife Service, and National Science Foundation. Future goals include establishment of facilities for overnight accommodations and increased office, classroom, and lab space.

For more information, please contact:

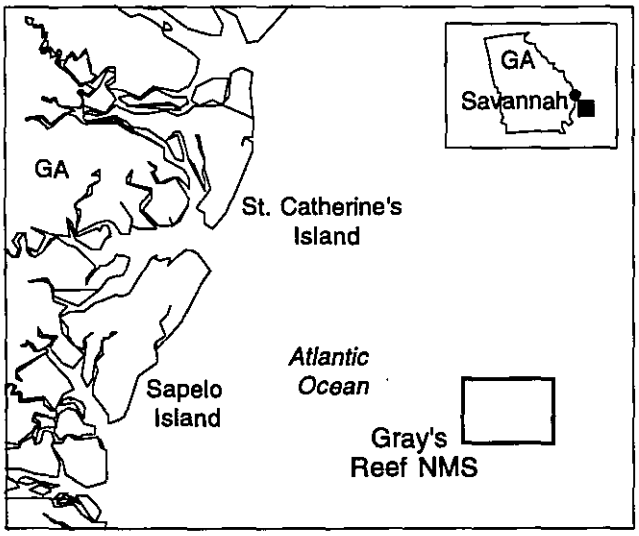
Gary Lytton, Reserve Manager
Rookery Bay National Estuarine
Research Reserve
10 Shell Island Road
Naples, Florida 33942

Phone Number: (813) 775-8845
Fax Number: (813) 775-7606

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

GEORGIA
Gray's Reef National Marine Sanctuary



Size: 17 nmi²; federal waters off Georgia

Significant Resources

Gray's Reef is a submerged hard bottom (limestone) area that, as compared to surrounding areas, contains extensive but discontinuous relief of moderate (6 to 10 feet) height with sandy, flat-bottomed troughs between. The series of rock ledges and sand expanses has produced a complex habitat of caves, burrows, troughs, and overhangs that provide a solid base for the abundant sessile invertebrates to attach and grow. This rocky platform with its carpet of attached organisms is known locally as a "live bottom habitat". This topography supports an unusual assemblage of temperate and tropical marine flora and fauna. Algae and invertebrates grow on the exposed rock surfaces; dominant invertebrates include sponges, barnacles, sea fans, hard coral, starfish, crabs, lobsters, snails, and shrimp. The reef attracts numerous species of benthic and pelagic fish, including black sea bass, snapper, grouper and mackerel. Since Gray's Reef lies in a transition area between temperate and tropical waters, reef fish population composition changes with seasonally. Loggerhead sea turtles, a threatened species, use Gray's Reef year-round for foraging and resting and the reef is part of the only known winter calving ground for the highly endangered northern right whale. Fossil bivalves and gastropods, and mastodon bones located in these waters indicate that the reef was once a shallow coastal environment and an exposed landform as recently as 10,000 years BP. As a terrestrial environment there may exist at Gray's Reef extant prehistoric cultural resources.

Human Use and Values

Gray's Reef is one of the most popular recreational fishing and sport diving destinations along the Georgia coast. Sportfishing occurs year-round but at different levels of intensity. Commercial fishing is restricted, as are military, mineral extraction, and ocean dumping activities. Little commercial shipping occurs near Gray's Reef. While the site has received only moderate scientific attention, it has supported research and monitoring programs of nearby researchers. A resource characterization is in progress.

Site Designation and Regulations

Gray's Reef was made an Active Candidate in 1979. Final designation as a National Marine Sanctuary came in January 1981. The Sanctuary was named in recognition of Milton B. Gray, who studied the area in the 1960's as a biological collector and curator at the University of Georgia Marine Institute on Sapelo Island. Regulations prohibit alteration of the seabed; use of wire fish traps, bottom trawls, and explosives; damage to or removal of bottom formations and other natural or cultural resources; and discharge of substances or materials.

Staff and Facilities

A Manager, Assistant Manager, and Education Coordinator are responsible for the daily operation of the Sanctuary. The headquarters and interpretive center are located at the University of Georgia's Marine Extension Service Aquarium on Skidaway Island near Savannah, GA. A variety of live exhibits and a touch tank depicting the Sanctuary environment are on display at the Aquarium. Gray's Reef has a long-established cooperative agreement with the University of Georgia Marine Extension Service on Skidaway that has helped produce educational posters, workbooks, and field guides that support the Sanctuary's education program.

For more information, please contact:

Reed Bohne, Sanctuary Manager
Gray's Reef National Marine Sanctuary
30 Ocean Science Circle
Savannah, GA 31411

Phone Number: (912) 598-2345
Fax Number: (912) 598-2367

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
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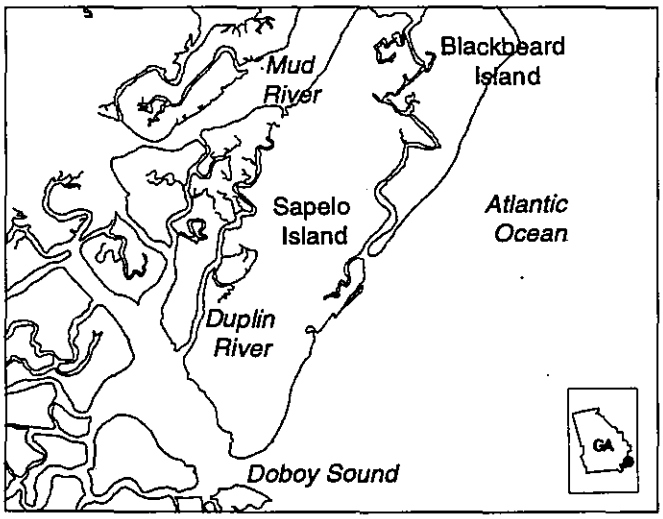
Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

GEORGIA
Sapelo Island National Estuarine Research Reserve



Size: 6,111 acres Province: Carolinian

Significant Resources

Sapelo Island is the fourth largest barrier island on Georgia's coast and is one of the most pristine. The Reserve boundaries enclose marsh, hardwood hammock, dune systems, and beaches. The 4,000-acre Duplin River estuary serves as home to a wide variety of marine life. The habitats provide nursery areas for shrimp and juvenile forms of menhaden, sea trout, blue crab, and sea bass. Bald eagles and loggerhead sea turtles are also found in the Reserve. A number of cultural and historic sites are contained in the Reserve boundaries.

Staff and Facilities

The Reserve office is located in a restored oyster tabby sugar mill built in 1809. Within the Reserve boundaries the University of Georgia operates the forty-year old Marine Institute, which pioneered research in the marsh and estuary, and provided the example for the National Estuarine Research Reserve System. The Marine Institute has offices, labs, a dormitory, library, conference center, and computer facilities. Two research vessels are also provided by the Marine Institute. A public passenger ferry provides access to the islands. Five permanent staff members oversee the daily operations of the Reserve.

History and Location

Sapelo Island NERR is located 7.5 miles northeast of Darien, Georgia. The Reserve was officially designated in 1976. The Reserve abuts natural areas owned and managed by Georgia Department of Natural Resources.

Uses and Programs

Guided tours and school field trips are given two to three times a week all year round; in 1993, over 6,000 people were taken on a four-hour boat and land tour of the Reserve's marshes, forests, and beaches. The Reserve has also become part of the Kids Network. Research is conducted with various other agencies. The University of Georgia Marine Institute, located at the lab, is a partner in the development of a remote sensing and weather monitoring system. Georgia Environmental Protection Division and Coastal Resources Division both do routine testing of physical and chemical water quality parameters.

Site Accomplishments and Goals

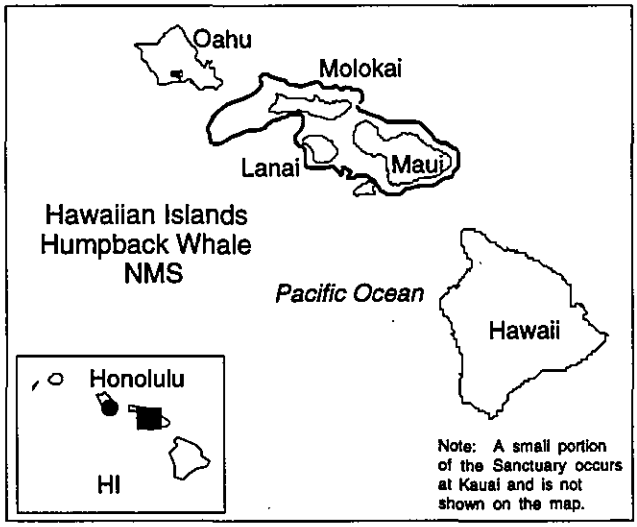
Two new ecological brochures and a Reserve newsletter were published in 1994. Preparations are being made for a new 3,000 sq. ft. visitors center. A new interpretive nature trail is currently being built. Ten new interpretive and directional signs for the Reserve and Gray's Reef NMS have been designed and constructed; additional signs are necessary to interpret the various habitats of the region. A new state passenger ferry has been purchased and a 206-acre lighthouse tract has been obtained. The Reserve and surrounding island are being placed on a geographic information system (GIS) using NOAA research funding.

For more information, please contact:

Buddy Sullivan, Reserve Manager
Sapelo Island National Estuarine
Research Reserve
Georgia Department of Natural Resources
P.O. Box 15
Sapelo Island, Georgia 31327

Phone Number: (912) 485-2251
Fax Number: (912) 485-2141

HAWAII
Hawaiian Islands Humpback Whale National Marine Sanctuary



Size: 500 nmi²; Hawaii state and federal waters

Significant Resources

The Hawaiian Islands Humpback Whale National Marine Sanctuary, as designated, contains the waters to the 100 fathom isobath around the islands of Moloka`i, Lana`i, Maui and adjacent to the Kilauea National Wildlife Refuge on the island of Kaua`i. The waters within the Sanctuary boundary have been identified as the principal breeding, calving and nursing area for the endangered North Pacific Humpback Whale. The shallow, warm, sheltered waters, especially those waters on the leeward side of the islands, provide humpbacks an ideal wintering habitat. Other marine mammals found in these waters include, the highly endangered Hawaiian monk seal, sperm and pilot whales and a variety of dolphins. Three species of sea turtles frequent the waters though most nest elsewhere. Several significant nesting areas for seabirds are found on offshore rocks and isolated cliff areas. Some extensive coral reef communities and ecosystems occur within the Sanctuary.

Human Use and Values

Marine based recreation and tourism also plays a critical role in the Hawaiian economy. Surfing, swimming, diving, research, whale watching, commercial and recreational fishing and vessel traffic, and military activities are major uses of the Sanctuary. Native Hawaiians also use the Sanctuary for traditional, cultural, subsistence and religious purposes.

Site Designation and Regulations

The Hawaiian Islands Humpback Whale National Marine Sanctuary was created when Congress passed The Oceans Act of 1992. The purposes of the Sanctuary are: (1) to protect humpback whales and their habitat; (2) to educate and interpret for the public the relationship of humpback whales to the Hawaiian Islands marine environment; (3) to manage selected uses of the sanctuary; and (4) to provide for the identification of marine resources and ecosystems of national significance for possible inclusion in the Sanctuary. The Act also provides for the inclusion of the waters around Kaho`olawe Island in the Sanctuary on January 1, 1996, unless the Secretary of Commerce finds the area not suitable following an examination and assessment of the resources and uses of the area.

Staff and Facilities

An on-site program specialist is based in Honolulu, and an additional person is scheduled to be hired this Spring to focus on outreach efforts in Maui County. A contractor will also be hired to assist the understaffed Honolulu office.

The development of the Sanctuary is a joint effort between the public, NOAA's Sanctuaries and Reserves Division (SRD) and the State of Hawai`i. The Office of State Planning (OSP) is the lead state agency and has established a Sanctuary Working Group which is designed to offer advice and recommendations to both OSP and SRD in the preparation Environmental Impact Statement and Management Plan (EIS/MP) and implementing regulations, and in the identification of marine resources and ecosystems of national significance for possible inclusion in the Sanctuary. Public participation is essential to the success of the Sanctuary.

For more information, please contact:

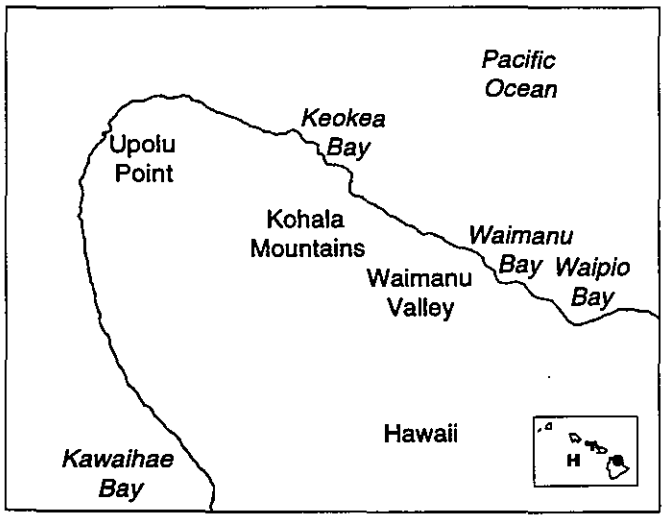
Janice Sessing, On-Site Liaison
Hawaiian Island Humpback Whale
National Marine Sanctuary
300 Ala Moana Blvd., Room 5350
P.O. Box 50186
Honolulu, HI 96850

Phone Number: (808) 541-3184
Fax Number: (808) 541-3450

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

HAWAII
Waimanu Valley National Estuarine Research Reserve



Size: 3,400 acres Province: Insular

Significant Resources

Waimanu Valley NERR contains resources that have been least affected by anthropogenic influences of all of the Reserves. Other than diversions by ancient Hawaiians for agricultural purposes, the water resources of the valley are among the few in the state that have not been diverted and developed for human use. Native and non-native plant species can both be found in the valley. Native fauna in the valley includes the endangered Hawaiian hoary bat (the only land mammal native to the Hawaiian Islands), five fish species, black-crowned night heron, Newell's shearwater, and golden plover. Numerous sites of cultural importance have been identified in the valley.

Staff and Facilities

The Reserve is overseen on a part-time basis by two employees with the help of a pooled labor crew. Facilities are limited to back country campsites with composting toilets and an interpretive display at the start of the seven-mile trail to the Reserve.

History and Location

Located on the windward coast of Hawaii, Waimanu Valley has been uninhabited since the tsunmai of 1946. The Reserve was designated in 1976.

Uses and Programs

The remote location of Waimanu Valley NERR has limited the programs available at the site. Research projects have included stream studies, hydrologic monitoring, wildlife monitoring, and archaeological surveys.

Site Accomplishments and Goals

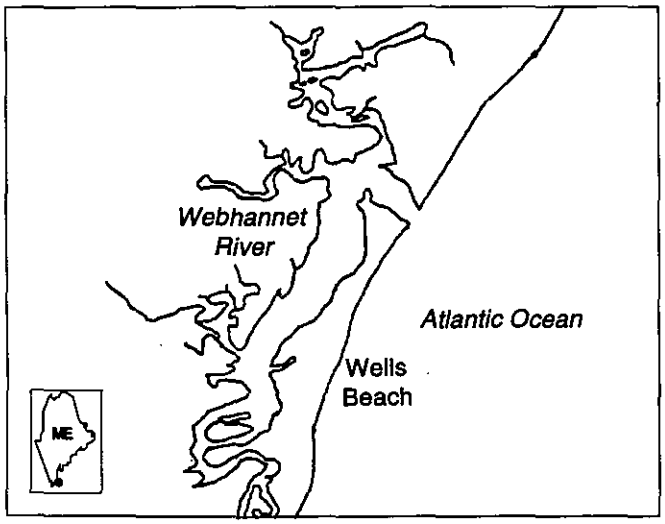
Waimanu Valley NERR is attempting to clarify its role within the NERR System before developing facilities or programs further.

For more information, please contact:

Peter Schuyler, Reserve Manager
Waimanu Valley National Estuarine
Research Reserve
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street
Honolulu, Hawaii 96813

Phone Number: (808) 587-0054
Fax Number: (808) 548-0160

MAINE
Wells National Estuarine Research Reserve



Size: 1,600 acres Province: Acadian

Significant Resources

Wells NERR, Maine is part of the Webhannet and Little Rivers estuarine system. The Reserve contains an extensive array of natural communities including upland fields and forest, swamp and dune forest, salt marsh, beach, and tidal river. While the Reserve does not support large finfish populations, it does provide important breeding areas for invertebrates such as the soft-shell clam. The Wells NERR also supports populations of whitetail deer, piping plovers, snowy egrets, and bald eagles. A historic salt water farm is also contained within the Reserve.

Staff and Facilities

The Greek Revival-style mansion of the Laudholm Farm site provides 2,260 square feet of office, interpretive, and research space. The building is undergoing major renovation. Seven miles of trails provide access to the Reserve environment. A professional and support staff of ten are aided by an active volunteer staff of more than 250, who serve as docents and receptionists, and provide maintenance.

History and Location

Designated in 1986, Wells NERR is located along the southern coast of Maine, in the York County town of Wells, midway between Portland, Maine and Portsmouth, New Hampshire. Land portions of the Reserve are owned by the federal government (including parts of the Rachel Carson National Wildlife Refuge), the state of Maine, and the town of Wells.

Uses and Programs

Education programs include those geared toward children (estuarine ecology curriculum for K-8, "Junior Researcher" summer program) and adults (workshop series, guided subject tours). Monitoring and inventory of Reserve resources are ongoing. Research projects focus on marsh habitats as sources of food and the influence of sea level rise on formation of marshes and beaches. Techniques for control of exotic plants and animals are also developed.

Site Accomplishments and Goals

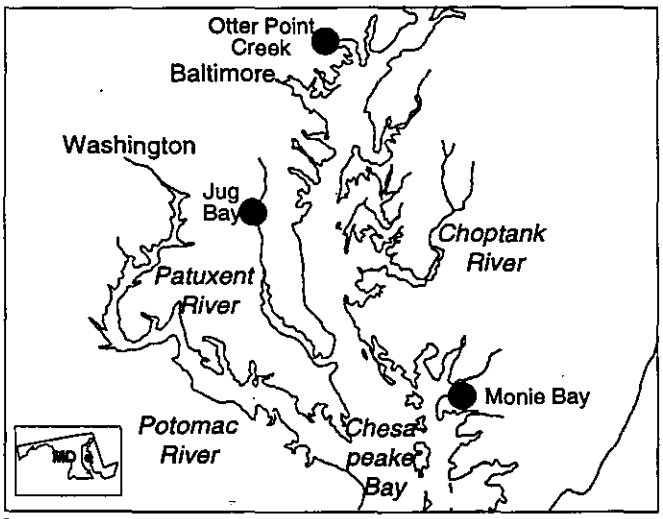
Wells NERR's programs have grown at a rapid pace. The education program offers a variety of on-site and off-site programs to elementary students and teachers, including an estuary based K-6 curriculum, a summer ecology day camp, and a summer science teachers academy. The research program supports numerous ongoing research projects focused on sea level rise, estuarine water quality, fishery habitat requirements, and salt marsh restoration. Expansion of auditorium, classroom, office, and laboratory space are currently being discussed to address growing program needs.

For more information, please contact:

Jim List, Reserve Manager
Wells National Estuarine Research Reserve
RR#2, Box 806
Wells, Maine 04090

Phone Number: (207) 646-1555
Fax Number: (207) 646-2930

Chesapeake Bay (MD) National Estuarine Research Reserve



Size: 4,820 acres Province: Virginian

Significant Resources

The Chesapeake Bay NERR in Maryland is formed by three distinctly different components (Monie Bay, Jug Bay, and Otter Point Creek). Monie Bay contains salt marsh, forested and shrub wetlands, coastal grasslands, forested uplands, and open water. Jug Bay contains upland forest and fields, forested and shrub wetlands, and freshwater marsh. Otter Point Creek encompasses forested uplands and wetlands, freshwater marsh, and open water. Six prehistoric archaeological sites are located at the Monie Bay Component, while Otter Point Creek contains one and Jug Bay has five in or near its boundaries. The Reserve is a haven for resident and migratory birds, including the endangered peregrine falcon and bald eagle.

Staff and Facilities

A Reserve staff of three full-time employees coordinates the Chesapeake NERR-Maryland among the state, county, and local participants. The Monie Bay Component, located in the lower Bay, is ideal for researchers to work undisturbed; it has no trails or facilities. The Otter Point Component, the northern main Bay site, has developed and developing trail networks. There are no facilities, although a Reserve visitors center is under development. A western shore tributary site, the Jug Bay Component has a visitors center, boardwalk and earthen trails, observation decks and towers, and outdoor interpretive signs.

History and Location

Chesapeake Bay NERR-MD is a multi-component Reserve. The three components which comprise the Reserve represent three different estuarine ecosystems found in the Bay: salt marsh, tidal freshwater riverine, and tidal freshwater Chesapeake Bay mainstem. The Monie Bay Component was designated in 1985. Both the Jug Bay and Otter Creek Components were designated into the Reserve in 1990.

Uses and Programs

General outreach and education activities occur at all three components, including "Estuary Talks" and the development of an education curriculum. Research is also conducted at all three components, with such activities as waterfowl censusing, water quality monitoring, and development of site profiles. Some of the components are limited use whereas other components do allow recreational and commercial fishing, boating, and some hunting.

Site Accomplishments and Goals

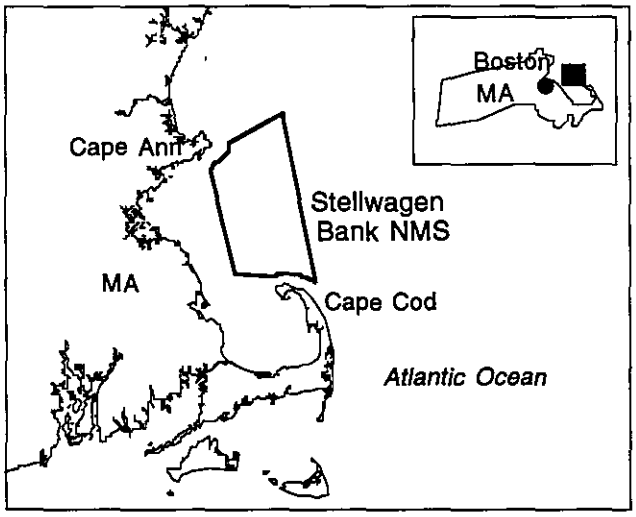
An annex to the visitors center at the Jug Bay Component was completed and formally dedicated in October 1993. Plans for a visitors center at the Otter Point Creek Component are being finalized and it is anticipated that construction will begin by late 1994. This center will be the focal point for the Reserve with programming that features all three components. Education staff at the Reserve are finalizing an estuarine curriculum guide for teachers. Upon completion of the guide, workshops will be planned to help train teachers.

For more information, please contact:

Mary Ellen Dore, Reserve Manager
Chesapeake Bay National Estuarine Research Reserve in Maryland
Department of Natural Resources
Tawes State Office Building, B-3
580 Taylor Avenue
Annapolis, Maryland 21401

Phone Number: (410) 974-3382
Fax Number: (410) 974-2833

MASSACHUSETTS
Stellwagen Bank National Marine Sanctuary



Size: 638 nmi²; federal waters off Massachusetts

Significant Resources

The Sanctuary surrounds the entire Stellwagen Bank, a glacially deposited topographic feature lying in depths of around 65 feet in the shallowest areas with other areas in the upper plateau in the 100 foot range. The seaward side of the Bank drops off rapidly to over 600 feet. Stellwagen Bank is the most prominent submarine feature in Massachusetts Bay, stretching for nearly 20 miles between northern Cape Cod and Cape Ann, Massachusetts.

Two distinct peak productivity periods produce a complex system of midwater and benthic habitats. These communities support benthic and pelagic species by providing cover and anchoring locations for invertebrates; they also provide feeding and nursery grounds for more than a dozen cetacean species including the endangered humpback, northern right, sei, and fin whales. The area supports foraging activity by diverse seabird species, dominated by loons, fulmars, shearwaters, storm petrels, cormorants, phalaropes, alcids, gulls, jaegers, and terns. Fish and invertebrate populations subject to seasonal and migration shifts include both demersal and pelagic species, such as bluefin tuna, herring, cod, flounders, lobster, and scallops. Leatherback and Atlantic ridley sea turtles (endangered species) use the area for feeding. Historic data strongly suggest the presence of several shipwreck sites within the Sanctuary, including the recently discovered and historically significant wreck of the steamship Portland which sunk in 1898.

Human Use and Values

Commercial fishing is the most economically important activity on the bank, though whale-watching has grown steadily since 1976 due to the regional access and concentration of cetacean species. Current commercial whalewatch activities involve more than one million visitors to the Bank annually. Recreational activities, tourism, research, and commercial shipping are other important human uses. Seven historic shipwrecks have been identified within or adjacent to the boundaries; a complete inventory of historical resources has not been conducted. A heavily-used vessel traffic separation lane transports more than 2700 commercial vessels in and out of Boston annually.

Site Designation and Regulations

Stellwagen Bank was designated as a Sanctuary in November 1992 during reauthorization of the Marine Protection, Research, and Sanctuaries Act of 1972. It appeared on the Site Evaluation List in August 1983, and was made an Active Candidate in 1989. Final Sanctuary regulations specifically prohibit the disposal of dredged or other materials and mining for sand and gravel within the Sanctuary.

Staff and Facilities

Stellwagen Bank National Marine Sanctuary is currently staffed by a Sanctuary Manager and Education Coordinator. Additional staffing plans include hiring a Research Coordinator, Administrative Assistant, and one or more Enforcement Officers. The Sanctuary office is located in Plymouth, Massachusetts. The identification of one or more Sanctuary satellite offices in Provincetown, Gloucester, or Hull, Massachusetts is also under consideration

For more information, please contact:

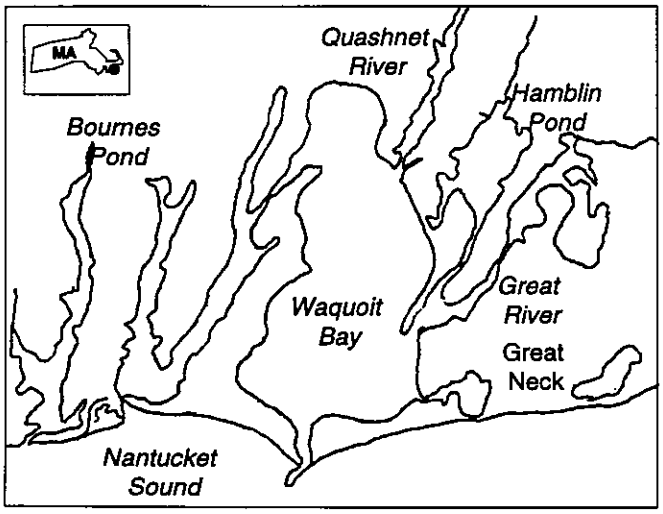
Brad Barr, Sanctuary Manager
Stellwagen Bank National Marine Sanctuary
14 Union Street
Plymouth, MA 02360

Phone Number: (508) 747-1691
Fax Number: (508) 747-1949

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

MASSACHUSETTS
Waquoit Bay National Estuarine Research Reserve



Size: 2,250 acres Province: Virginian

Significant Resources

Waquoit Bay NERR contains salt ponds, salt marsh, forest, barrier beaches and dune systems, and open water. The wide array of physical environments and chemical conditions support diverse and abundant floral and faunal species. Rare and endangered species include the piping plover and the plant Sandplain Gerardia. The Reserve contains areas of intense, moderate, and low human impact, and includes South Cape Beach State Park, a recreation area. Waquoit Bay contains some areas of historic and cultural interest, including several historic structures and was used as an encampment by Native Americans.

Staff and Facilities

The former Swift Estate, site of Reserve Headquarters and Visitors Center, is currently undergoing major renovation. Research labs, classrooms, library, dormitory, five miles of trails, boardwalks, and outdoor signage are other amenities of the Reserve. Six employees and several interns are assisted by a volunteer force of about 100 people.

History and Location

Waquoit Bay NERR is located on the south shore of Cape Cod, Massachusetts, straddling Falmouth and Mashpee. The Reserve was designated in 1988.

Uses and Programs

Education programs include evening programs such as "Evenings on the Bluff," a summer series of environmental entertainments, as well as interpretive walks, watershed awareness training, open houses, and a science camp. Much of the outreach effort is aimed at coastal managers and address non-point source pollution issues. Reserve research programs include the effects of docks and piers, barrier beach dynamics, water quality monitoring and endangered species studies. NSF, EPA, and NOAA fund the Land Margin Ecosystem Research (LMER) Project which examines the coupling of watersheds to receiving waters, specifically as anthropogenic inputs of nitrogen affecting the Bay.

Site Accomplishments and Goals

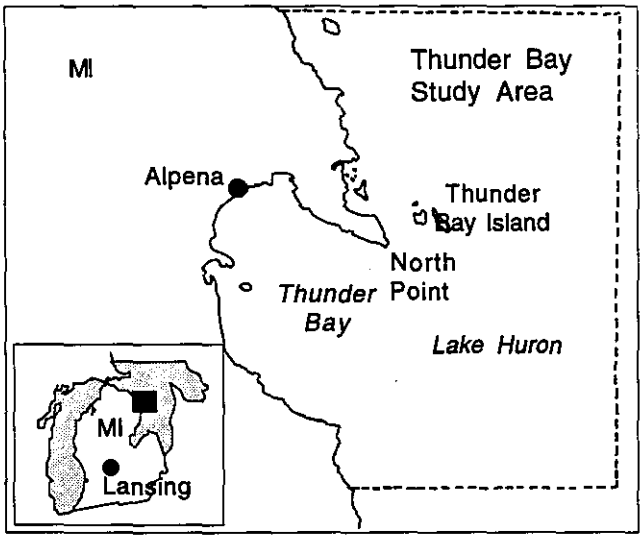
Waquoit Bay NERR sponsored a conference called "Nitrogen Removal On-Site Wastewater Treatment Systems: Technologies and Regulatory Strategies" in February 1992. Because of this conference, and the ensuing published proceedings, workshops, and meetings, Waquoit Bay has been designated as one of eight sites in the National On-site Demonstration Project. In addition, Waquoit is working with local, regional, state, and federal officials to establish a National Wildlife Refuge adjacent to the Reserve as part of the ongoing effort to reduce nitrogen loading to the Bay.

For more information, please contact:

Christine Gault, Reserve Manager
Waquoit Bay National Estuarine Research Reserve
Department of Environmental Management
P.O. Box 3092
Waquoit, Massachusetts 02536

Phone Number: (508) 457-0495
Fax Number: (617) 727-5537

MICHIGAN
Thunder Bay National Marine Sanctuary (proposed)



Michigan state waters

Significant Resources

Thunder Bay's combination of natural and historical resources grant this site unique national significance. The highly sculptured bottom forms a complex system of geologic features. Misery Bay Sinkhole, North Point Reef, and the Thunder Bay Island Rock Wall are three of the more outstanding bottom features. These areas within the study boundaries host abundant and diverse plant and animal species including several threatened or endangered species such as the bald eagle, common tern, Caspian tern, American bittern, black-crowned night heron, pitcher's thistle, dwarf lake iris, bulrush sedge and Houghton's goldenrod. Within the Sanctuary study area, Scarecrow's Island and Thunder Bay Island form part of the Michigan Islands National Wildlife Refuge (U.S. Fish and Wildlife Service), home to many species of colonial nesting birds and waterfowl. Cormorants, common terns, herring gulls, ring-billed gulls, and great blue herons are found on the shores of Thunder Bay, relying on its sheltered areas for nesting and migration. Fisheries resources include black bass, brown trout, steelhead, northern pike, yellow perch, Chinook salmon, and rainbow trout. Aquatic plants anchor in the graveled bottom, supporting the complex interaction of Thunder Bay's ecosystem. Over one hundred shipwrecks have been identified in Thunder Bay, including wooden-hulled schooners, steamers, barges, tugboats, and freighters. This concentration of shipwrecks has led the state to declare Thunder Bay a Michigan Bottomland Preserve.

Human Use and Values

The site's proximity to the Michigan Islands National Wildlife Refuge and the variety of avian and aquatic life has made the site an important recreational resource for many visitors to the region. Michigan Department of Natural Resources seasonally stocks Thunder Bay with a variety of fish, including brown trout and steelhead.

Status of Site Designation

Thunder Bay was included on the Site Evaluation List (SEL) in 1983 and remained until 1991 when it was made an Active Candidate. An on-site liaison is working with a variety of local, State, Native American, and Federal agencies to prepare a Draft Environmental Impact Statement and Management Plan (DEIS/MP). A Thunder Bay Resource Inventory has been prepared by Michigan Sea Grant to contribute to the implementation of this portion of the designation process. Members of the Thunder Bay Core Group are reviewing and will use portions of this document in development of the DEIS/MP. Boundary and regulatory alternatives are also being developed for inclusion in the DEIS/MP. Thunder Bay is the first active candidate for National Marine Sanctuary designation located in the Great Lakes, and is the only freshwater site within the National Marine Sanctuary Program.

Staff and Facilities

An On-Site Liaison is working full-time with the State of Michigan during the designation process. Additionally, the State will hire a legal intern to assist in the analysis of State regulations applicable to Sanctuary management. A Facilities Plan for the future Thunder Bay National Marine Sanctuary is also being developed.

For more information, please contact:

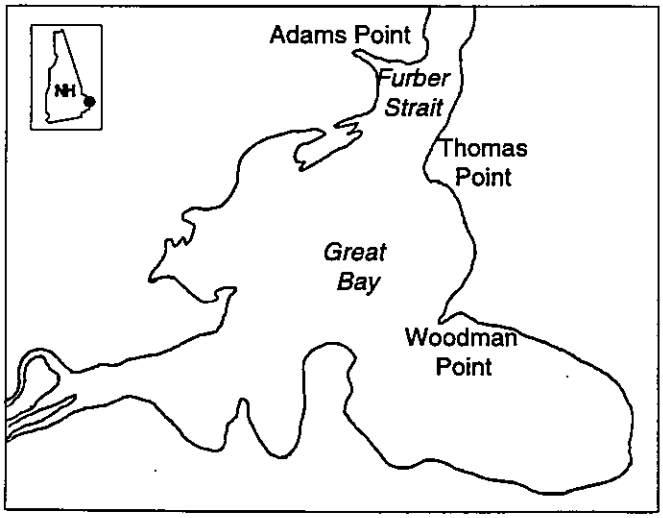
Michele Richhart, On-Site Liaison
Thunder Bay
National Marine Sanctuary (proposed)
Department of Parks and Recreation
Natural Resource Building, Room 141
Michigan State University
East Lansing, MI 48823

Phone Number: (517) 336-3142
Fax Number: (517) 336-3597

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

NEW HAMPSHIRE
Great Bay National Estuarine Research Reserve



Size: 5,280 acres Province: Acadian

Significant Resources

Salt marsh, tidal creeks, woodlands, open fields, mud flats, rocky intertidal area, eelgrass beds, and open waters form the ecosystem of Great Bay NERR, New Hampshire. The Reserve has eighteen rare or endangered plant species and five rare or endangered fauna (bald eagle, common tern, common loon, eastern hognose snake, and four-toed salamander). Great Bay is a favorite winter perch for the bald eagle. Flora include many species at their northernmost limit.

Staff and Facilities

The Reserve headquarters are located in Durham, adjacent to the University of New Hampshire. The UNH Jackson Estuarine Lab is located on the Reserve itself. The 5,000 square foot Sandy Point Discovery Center houses indoor and outdoor exhibits. Two miles of trails, including boardwalks and observation decks, provide access to Great Bay NERR; the waters of the Reserve are accessible through six boat launching sites. The staff includes a full-time manager and part-time education coordinator.

History and Location

Great Bay NERR is adjacent to the Great Bay National Wildlife Refuge, which is located on the east side of the Bay and includes Thomas Point and Woodman Point. The Reserve received its designation in 1989. There are a variety of land owners within the Reserve, including the state, the federal government, and private citizens.

Uses and Programs

Education programs for the Reserve include programs for elementary and secondary students and teachers as well as indoor and outdoor exhibits at the Discovery Center. Research projects underway include water quality and waterfowl monitoring, eelgrass restoration, and non-point pollution sources. Ongoing baseline data acquisition in land use, water quality, and non-point source pollution and oil-spill contingency planning are other research efforts. Volunteers are involved in many of the research efforts.

Site Accomplishments and Goals

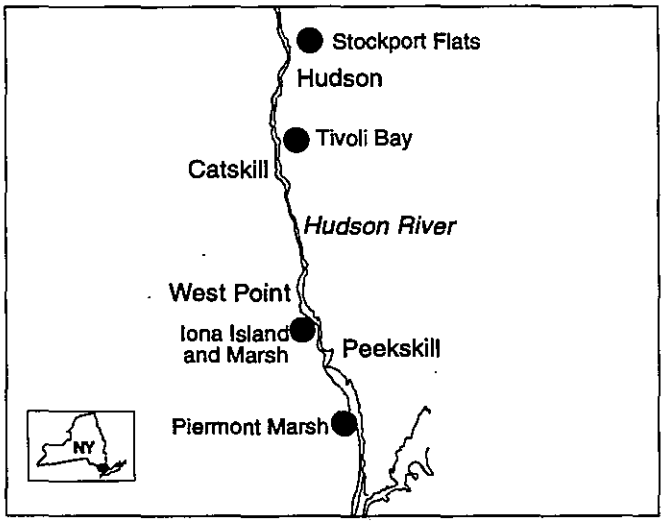
The Reserve has completed the second phase of the NERR Three Phase Monitoring Program with the publication of its site characterization, *An Estuarine Profile*. The Reserve's first Technical Report is a study on wintering eagles in the bay.

For more information, please contact:

Peter Wellenberger, Reserve Manager
Great Bay National Estuarine Research Reserve
New Hampshire Department of Fish and Game
225 Main Street
Durham, New Hampshire 03824

Phone Number: (603) 868-1095
Fax Number: (603) 271-1438

NEW YORK
Hudson River National Estuarine Research Reserve



Size: 4,838 acres Province: Virginian

Significant Resources

The Hudson River NERR is composed of four units representing the salinity regime of the Hudson: Piermont Marsh, Iona Island, Tivoli Bay, and Stockport Flats. The natural communities represented in the components include brackish and freshwater tidal marshes, forested uplands, mud flats, and islands. The osprey and bald eagle are only two of many species found in the Reserve. A variety of historical structures occur within the Reserve boundaries, including an ice house on the National Register of Historic Places, located in the Stockport Flats component.

Staff and Facilities

The headquarters of Hudson River NERR are located at the Bard College Field Station, which houses labs, a library, herbarium, overnight quarters, boats, and field gear. A former U.S. Marine barracks on Iona Island has been proposed to be developed as an interpretive center. Over five miles of trails are available to the public. Three full-time and three part-time staff members oversee daily operations.

History and Location

Located in Columbia, Dutchess, and Rockland Counties, New York, the Hudson River NERR was officially designated in 1982.

Uses and Programs

Education facilities include an education resource library, interpretive field programs and classes, workshops for teachers, and traveling exhibits. A variety of research efforts are underway, focusing on non-point pollution studies, community characterizations, studies of ecosystem processes, and investigations of exchanges between wetlands and the Hudson River. The Reserve co-sponsors the Polgar Fellowship Program which has allowed eight graduate and undergraduate students to conduct independent Hudson River research each summer since 1985.

Site Accomplishments and Goals

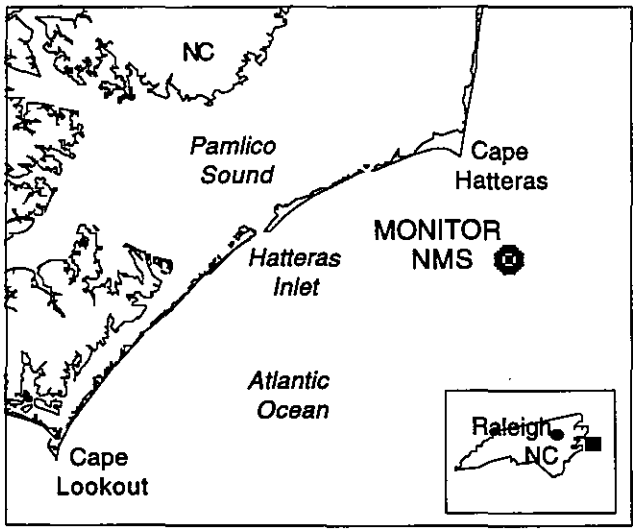
The Reserve has coordinated coastal education, research, and management activities with the Hudson River Estuary Management Program, the New York/ New Jersey Harbor Estuary Program, the New York State Coastal Management Program, and the New York State Greenway. A stream monitoring program linked to a Geographic Information System (GIS) has been used to predict non-point pollution sources. Hudson River resource centers have been created and professional development workshops for teachers in Hudson River ecology have been held.

For more information, please contact:

Elizabeth Blair, Reserve Manager
Hudson River National Estuarine Research Reserve
C/O Bard College Field Station
Annandale-On-Hudson, New York 12504

Phone Number: (914) 758-5193
Fax Number: (914) 758-8273

NORTH CAROLINA
Monitor National Marine Sanctuary



Size: A circle 1 nmi in diameter; federal waters

Significant Resources

The *Monitor* was the prototype for a class of U.S. Civil War ironclad turreted warships that significantly altered both naval technology and marine architecture in the nineteenth century. Designed by the Swedish engineer John Ericsson, the vessel contained all of the emerging innovations that revolutionized warfare at sea; it was constructed in a mere 110 days. The *Monitor* fought the Confederate ironclad CSS Virginia at Hampton Roads, Virginia in one of the most celebrated naval battles in American history. Sunk during a gale in December 1862, less than a year after her commissioning, the wreck lies upside down and has suffered considerable deterioration and structural damage. In addition to natural deterioration caused by the elements, the wreck also appears to have been damaged by vessel anchoring and possible depth charges dropped during World War II.

The ocean bottom in the vicinity of the *Monitor* is composed of sand, shell hash, and clay. The wreck lies near the northernmost limit of tropical fish, and supports a combination of temperate and tropical species, dominated by red barbier in one survey. Twenty-five species of fish have been observed, as well as a wide variety of encrusting organisms such as corals, sponges, sea squirts, sea anemones, hydroids, barnacles, mussels, and oysters. The wreck appears to function as a productive artificial reef, although cold-water intrusions by the Labrador Current may limit productivity.

Use and Visitation

For over a century, the *Monitor* lay undiscovered in 230 feet of water 16 miles off Cape Hatteras, North Carolina. In August of 1973, scientists aboard Duke University's research vessel *Eastward* located the *Monitor* using sidescan sonar. Since its designation as a Sanctuary, numerous expeditions have visited the *Monitor* gathering scientific data. The anchor, the lantern, and other artifacts have been recovered. Access is generally limited to scientific research conducted under a permit issued by NOAA; however, special-use permits will be issued during 1994 for non-research visits to this historic vessel.

Site Designation and Regulations

The *Monitor* was placed on the National Register of Historic Places in October 1974 as a resource of national significance. The *Monitor* became the first National Marine Sanctuary, designated in January 1975. Regulations prohibit anchoring, stopping, and drifting within the Sanctuary; conducting salvage or recovery operations; using diving, dredging, or wrecking devices; conducting underwater detonation; drilling in the seabed; laying cable; and trawling.

Staff and Facilities

The current staff of the *Monitor* NMS includes a Manager and Education Coordinator, based in Tidewater Virginia. Surveillance of the site is provided by the U.S. Coast Guard. The Mariners Museum in Newport News, Virginia, through a long term cooperative agreement with NOAA, maintains the *Monitor* Collection of artifacts and documents and assists in developing education programs, including permanent and traveling exhibits related to the Sanctuary. Plans are being developed to have additional *Monitor* artifacts and exhibits displayed at other museums and visitor centers.

For more information, please contact:

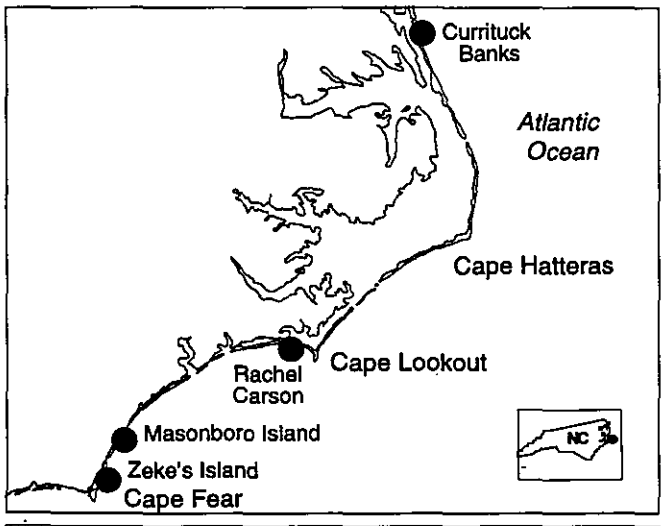
John Broadwater, Sanctuary Manager
Monitor National Marine Sanctuary
Building 1519
Fort Eustis, VA 23604-5544

Phone Number: (804) 878-2973
Fax Number: (804) 878-4619

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

NORTH CAROLINA
North Carolina National Estuarine Research Reserve



Size: 10,000 acres Province: Virginian/Carolinian

Significant Resources

North Carolina NERR is formed by four components scattered along the Outer Banks. Together, these components contain ocean beaches, dunes, shrub thickets, salt and brackish marshes, tidal flats and creeks, eelgrass beds, and open water. All four components are dedicated State Nature Preserves. Thousands of waterbirds use the protected habitats. Threatened loggerhead sea turtles nest in the Reserve; other threatened and endangered species that occasionally use the components are peregrine falcons, piping plovers, and green sea turtles. Hard clams, blue crabs, and flounder are among the notable aquatic organisms. The Zeke's Island component vicinity has Civil War shipwrecks; the Currituck Banks component contains shell middens and pottery fragments.

Staff and Facilities

Public trails are available at each component. Volunteers assist the staff of three permanent employees. The administrative office of the Reserve is housed within the University of North Carolina at Wilmington (UNCW) at the Center for Marine Science Research. The research office is situated on UNCW property across the intracoastal waterway from Masonboro Island. The Reserve educational office is located at the Harborside Annex of the North Carolina Maritime Museum in Beaufort.

History and Location

North Carolina NERR is formed by four components that represent different barrier island estuaries: Zeke's Island, Rachel Carson, Currituck Banks, and Masonboro Island. Separate components of the Reserve were officially designated in 1985 and 1991. The non-profit Society for Masonboro Island is assisting the State to acquire the remaining privately-owned tracts on this undeveloped barrier island component.

Uses and Programs

NOAA-funded research has been conducted at all four components, the majority at Rachel Carson and Masonboro Island. Phased monitoring has begun at the Zeke's Island and Masonboro Island components. A field guide and educational curricula are available. A research bibliography is being developed for all four components. Educational outreach is performed by the Reserve education specialist. Field trips are offered by the education specialist and through the North Carolina Aquariums and North Carolina Maritime Museum.

Site Accomplishments and Goals

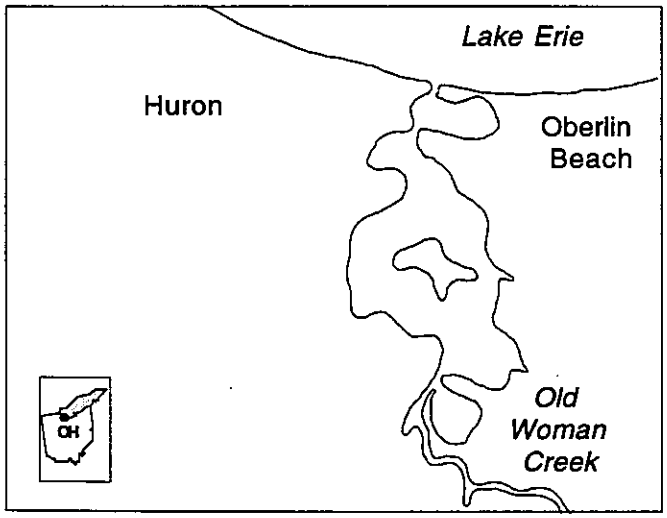
The Reserve Research/Educational Facility was built during 1992-93 using NOAA development funds and construction assistance from UNCW and Cape Fear Community College. The 1,000 square foot structure includes two offices, a laboratory, classroom, and computer room. Proximity to Masonboro Island makes this building an ideal location for research, monitoring, and education activities.

For more information, please contact:

Dr. John Taggart, Reserve Manager
North Carolina National Estuarine Research Reserve
Center for Marine Science Research
University of North Carolina at Wilmington
7205 Wrightsville Avenue
Wilmington, North Carolina 28403

Phone Number: (910) 256-3721
Fax Number: (910) 256-8856

OHIO
Old Woman Creek National Estuarine Research Reserve



Size: 571 acres Province: Great Lakes

Significant Resources

Located on a drowned stream mouth draining into Lake Erie, the Old Woman Creek NERR contains numerous habitat types, including barrier beach, embayment marshes, swamp forests and upland hardwood forests, mud flats, and open water. Nearly three hundred species of birds and more than forty species of fish have been identified within the Reserve boundaries. Several species that are threatened, endangered, or of special concern are found on the Reserve, including the American bald eagle, sharp-shinned hawk, spotted turtle, eastern fox snake, and the Blanding's turtle. Old Woman Creek has a rich history of occupation by Native Americans over the past several thousand years.

Staff and Facilities

The Reserve's administrative offices are located in the 6,100 square foot Ohio Center for Coastal Wetlands Studies, which overlooks the estuary. The Center provides laboratory space, classrooms, a visitors center, and wildlife observation area. The Reserve also has on-site dormitory facilities for researchers and program participants. The Reserve is staffed by four full-time and three temporary employees, and a volunteer force of 25-30 who assist with operations, public programs, and maintenance tasks.

History and Location

Old Woman Creek NERR, located two miles east of Huron, Ohio, is the smallest Reserve in the system and currently the only one in the Great Lakes. The site was officially designated in 1980.

Uses and Programs

The visitors center and natural history exhibits serve as a focal point for the public to learn about coastal wetlands. Estuarine ecology classes are frequently presented, as well as teacher and leader training workshops and seminars for natural resource professionals. Research efforts are directed towards developing a better understanding of freshwater estuarine ecosystems. The Reserve's long-term monitoring program is providing information on chemical, physical, and biological parameters important to estuarine productivity, and has recently been expanded to examine the effectiveness of farming best management practices (BMPs) during storm event runoff.

Site Accomplishments and Goals

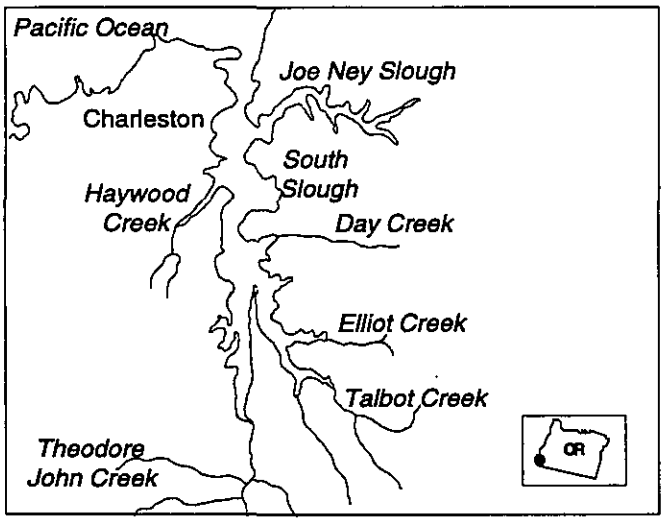
Reserve staff have just completed the first phase of providing Program-wide training for NERRS education coordinators. This project, in cooperation with NASA, the Hudson River NERR, and Cornell University, developed educational materials and activities that incorporate remote sensing techniques. The Reserve was recently highlighted in the Journal of Great Lakes Research, which featured a series of technical papers on coastal wetlands, resulting from a regional research conference held at the Reserve. Reserve staff are currently planning a non-point source pollution outreach program that will encourage stewardship of water resources within the watershed. The Reserve plans to expand its boundaries by adding two more estuarine components.

For more information, please contact:

Eugene Wright, Reserve Manager
Old Woman Creek National Estuarine
Research Reserve
2514 Cleveland Road East
Huron, OH 44839

Phone Number: (419) 433-4601
Fax Number: (419) 433-2851

OREGON
South Slough National Estuarine Research Reserve



Size: 4,500 acres Province: Columbian

Significant Resources

The South Slough is one of seven tidal inlets which collectively form the Coos Estuary. South Slough NERR is responsible for stewardship of approximately 25 per cent of the drainage areas of the South Slough Inlet. The Reserve contains upland forest, freshwater and salt marsh, mud flats, eelgrass beds, and open water. A large variety of invertebrates, including clam and shrimp, thirty species of fish, including salmon and trout, and one hundred species of birds, including nesting bald eagles, can be found adjacent to the Reserve. Two sites of archaeological significance have been identified.

Staff and Facilities

The 4,000 square foot Reserve headquarters has a photo gallery and auditorium, and houses the staff of six permanent and one to seven temporary employees. Volunteers assist in the operation of the Reserve. Five miles of trails include information kiosks and a two-level observation deck. There is intern housing and a small field laboratory available.

History and Location

The South Slough, located five miles southwest of Coos Bay, Oregon, is one of seven tidal inlets which collectively form the Coos Estuary. The South Slough NERR, designated in 1974, was the first in the NERR System.

Uses and Programs

Flora and fauna inventories, habitat restoration, and provision of tools and information for estuarine resource managers are some of the research projects undertaken at South Slough NERR. The Reserve collects and maintains summary data on the physical environmental features of the area. Educational efforts have produced formal programs for grades 4-12, and off-site outreach efforts include waterfront signs for local communities. Other educational programs include canoe trips, guided trail walks, and special workshops. The Reserve contains about one hundred acres of commercial oyster culture.

Site Accomplishments and Goals

Acquisition of resources defined in the initial management plan for the Reserve has been completed. Future plans for the Reserve involve large scale habitat restoration and a re-evaluation of the Reserve boundaries.

For more information, please contact:

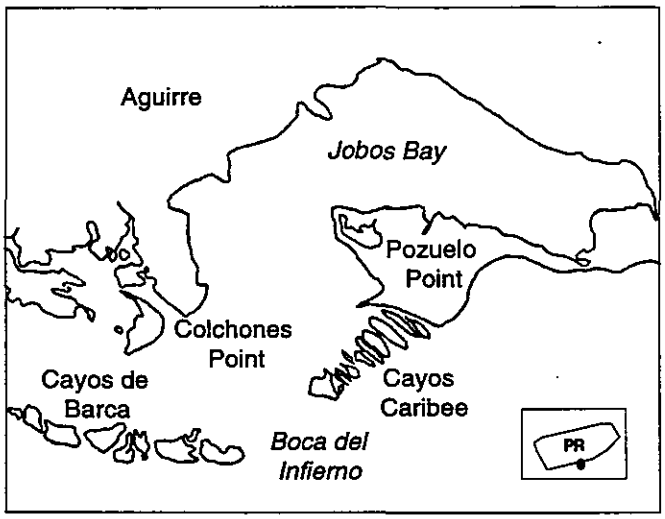
Mike Graybill, Reserve Manager
South Slough National Estuarine
Research Reserve
P.O. Box 5417
Charleston, Oregon 97420

Phone Number: (503) 888-5558
Fax Number: (503) 888-5559

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

PUERTO RICO
Jobos Bay National Estuarine Research Reserve



Size: 2,800 acres Province: West Indian

Significant Resources

Jobos Bay NERR, located on the south central coast of Puerto Rico, contains a variety of habitats: subtropical dry forest, fringing and basin mangroves, mud salt flats, chain of seventeen islets, seagrass beds, coral reefs, and open waters. Mangroves are composed of red, black, and white species; coral reefs include fire, finger, elkhorn, and brain coral. The seagrass beds vary in density, both before and behind the reef front. A population of endangered West Indian manatees (approximately 300) found at the site is believed to be the second largest assemblage of this marine mammal in Puerto Rico. The endangered hawksbill sea turtle can also be found in the Reserve.

Staff and Facilities

Five full-time and four part-time employees oversee the daily operations of the site. Twenty volunteers support the Reserve's programs. Administrative offices, four miles of trails, and a boardwalk are among the facilities available at the site. A historic structure located onsite has been restored and made into the site's interpretive center.

History and Location

Jobos Bay NERR, designated in 1981, is located on the south central coast of Puerto Rico.

Uses and Programs

Curriculum materials, field trips, canoe trips, interpretive and traveling exhibits, and outreach activities are all among the education resources of Jobos Bay NERR. Research focuses on providing technical assistance to scientists working on-site and to students working on local and regional science projects. Monitoring of plants and animals of the Reserve is ongoing.

Site Accomplishments and Goals

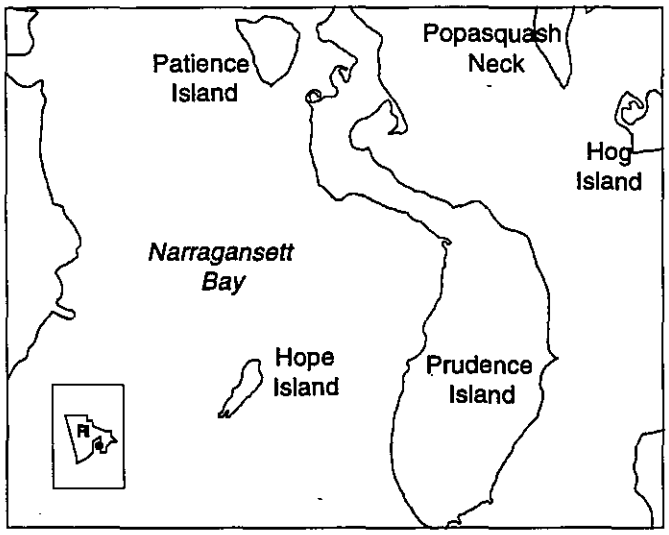
Environmental education and scientific research advice has been offered to nearly 48,000 students and citizens since the designation of the Reserve. The visitors center is scheduled for completion early 1994.

For more information, please contact:

Ramon Martinez, Reserve Manager
Jobos Bay National Estuarine Research Reserve
P.O. Box 1170
Guayama, Puerto Rico 00785

Phone Number: (809) 864-0105
Fax Number: (809) 721-5495

RHODE ISLAND
Narragansett Bay National Estuarine Research Reserve



Size: 4,950 acres Province: Virginian

Significant Resources

Narragansett Bay NERR consists of upland fields and forests, freshwater and salt marshes, tidal flats, eelgrass meadows, and open waters among the matrix of habitats. Deer, raccoon, fox, and rabbit are among the land mammals found in the Reserve; bird species include great blue heron, green-backed heron, little blue heron, great egret, snowy egret, black-crowned night heron, and glossy ibis. Soft-shell clams, quahogs, lobster, striped bass, and flounder are found in the Reserve waters. Hope Island is the site of a major wading bird rookery. Harbor seals occasionally use exposed offshore rocks as haulout and rest areas. Prudence Island contains the historic North End farm site and prehistoric Indian shell middens. Patience Island contains the foundations of an 18th century oysterman's house.

Staff and Facilities

Anchorages are available on Prudence Island; additional access is provided by public ferry service to Prudence Island. There is no interpretive center but the Reserve offers four miles of trails with wayside exhibits. The Reserve has three full-time and seven part-time staff members.

History and Location

Narragansett Bay NERR received its designation in 1980. The site is located ten miles south of Providence, Rhode Island, and comprises land on Prudence, Patience, and Hope Islands, in addition to the surrounding waters. Land ownership is held mainly by the state, with one parcel owned by the Prudence Conservancy.

Uses and Programs

The Reserve has both on-site and off-site education programs, and works with the Narragansett Bay Project to increase awareness of the bay's resources. Research is focused on the salt marshes and aquatic habitats and is conducted by regional researchers. The Reserve is also home to a wading bird protection program on Hope Island that has included monitoring of nesting habitat for nearly twenty years. Long-term atmospheric and water quality monitoring programs are in place. Reserve grounds support both commercial and recreational shellfishing.

Site Accomplishments and Goals

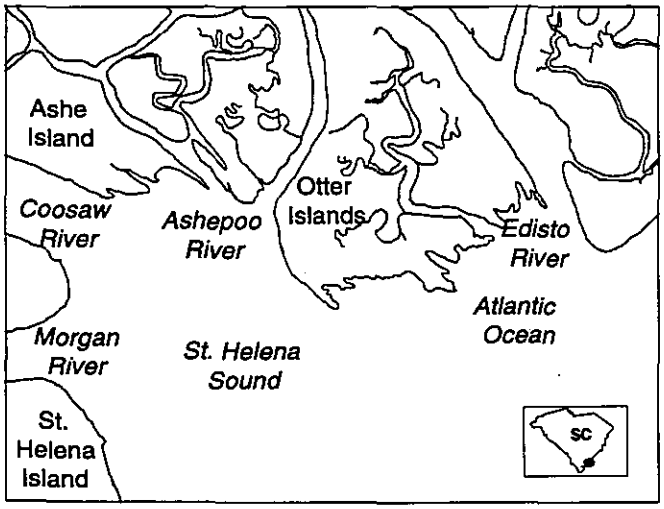
The Reserve has recently undertaken a boundary expansion which doubled its upland acreage. In addition, the Rhode Island Department of Environmental Management has been reorganized to create the Division of Fish, Wildlife, and Estuarine Resources which provides operation oversight of the Reserve. The Narragansett Bay NERR will soon be constructing laboratory facilities, educational facilities, and administrative offices. Cooperative projects are being planned with the Narragansett Bay Project (part of the National Estuaries Program), Rhode Island Sea Grant, and the Coastal Institute at the University of Rhode Island.

For more information, please contact:

Allan Beck, Reserve Manager
Narragansett Bay National Estuarine
Research Reserve
Department of Environmental Management
Box 151
Prudence Island, Rhode Island 02872

Phone Number: (401) 683-5061 (on-site)
(401) 277-2771 (Providence)
Fax Number: (401) 277-6802

SOUTH CAROLINA
ACE Basin National Estuarine Research Reserve



Size: 136,599 acres Province: Carolinian

Significant Resources

The ACE Basin NERR contains islands (Ashe, Beet, Boulder, Big, and Warren Islands), salt and brackish marsh, dune systems, tidal flats, maritime and upland forest, and open water. More than 500 species of birds, mammals, reptiles, amphibians, and plants occur here. The American alligator, loggerhead sea turtle, shortnose sturgeon, bald eagle, and wood stork are all endangered or threatened species found in the Reserve. About 40% of South Carolina's nesting bald eagles are found in the ACE Basin. The Atlantic bottlenose dolphin is a common marine mammal; occasionally, West Indian manatees and several species of whales are found in nearshore waters. The site requires a comprehensive, scholarly investigation of cultural resources; the Reserve does contain a number of historic structures, some of which are on the National Historic Register.

Staff and Facilities

Although the ACE Basin NERR does not have an interpretive center at present, plans are in the making for a modern facility in the near future. The Reserve does have a trail system and temporary headquarters for staging educational activities at Bear Island. A staff of six permanent employees are supplemented by a temporary worker and a small volunteer force.

History and Location

The ACE Basin NERR, composed of the drainage basin for the Ashepoo, Combahee, and Edisto river systems, is located 45 miles south of Charleston, South Carolina. It received designation status in 1992.

Uses and Programs

Educational programs include tours and interpretive messages, coastal adventure cruises aboard the Reserve's research vessel, teacher workshops and curriculum development, and special outreach efforts during career day and environmental week events. Research focuses on sustainable resource management and coastal management-oriented studies. Environmental monitoring, site characterization, and assessment of habitat conditions are ongoing projects within the Reserve.

Site Accomplishments and Goals

The ACE Basin NERR is part of an unprecedented conservation initiative involving federal, state, local, and private environmental interests working together to preserve some of the most diverse and fragile habitat in coastal America. Approximately one-third of the 350,000 acres identified within the basin has been protected. Future plans include establishment of a facility to serve not only as a focal point for operations and management, but also as an interpretive/education center for visitors and school groups.

For more information, please contact:

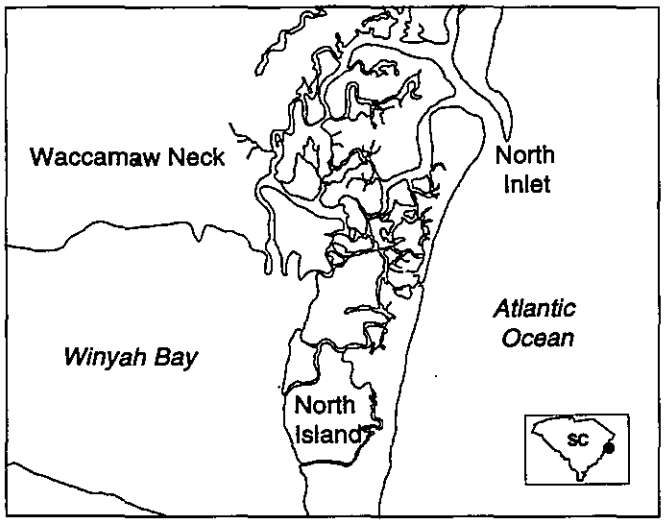
Michael McKenzie, Reserve Manager
ACE Basin National Estuarine Research Reserve
South Carolina Wildlife and Marine Resources Dept.
P.O. Box 12559
Charleston, South Carolina 29412

Phone Number: (803) 762-5062
Fax Number: (803) 762-5001

SOUTH CAROLINA

March, 1994

North Inlet-Winyah Bay National Estuarine Research Reserve



Size: 9,080 acres Province: Carolinian

Significant Resources

Two estuarine systems are represented within the Reserve boundaries. North Inlet Estuary has been minimally disturbed by human activity, and Winyah Bay Estuary has been substantially altered by activities within the Bay and surrounding watershed. Outstanding water and resource quality in North Inlet Estuary have provided the basis for a widely recognized research program focused on understanding ecological processes in a relatively undisturbed estuary. The Reserve consists of high salinity marshes, tidal creeks, lagoons, old rice fields (formerly impounded brackish marshes), intertidal oyster reefs, mud flats, and sand bars. One of the largest wading bird nesting sites in the southeast, Pumpkinseed Island, is located in the Reserve. Significant cultural and historic resources are also associated with the area.

Staff and Facilities

The Reserve is presently operated by a staff of seven employees including two senior scientists and two full-time research specialists who work closely with an Education Coordinator. Headquarters are located at the Baruch Marine Field Laboratory, a modern research complex operated by the University of South Carolina. Laboratories, classrooms, library, computer facilities, education displays, an interpretive boardwalk, and seawater system are used by the staff. An interpretive center, housing and conference facilities are also available.

History and Location

The North Inlet-Winyah Bay NERR was designated in 1992. A formal designation ceremony was held in 1993 in conjunction with the dedication of the new Baruch Marine Field Laboratory. The Reserve is east of Highway 17 near Georgetown, SC, which is located about 30 miles south of Myrtle Beach and 50 miles north of Charleston.

Uses and Programs

Programs administered by the Reserve provide opportunities to learn about the resources. Evening lectures, forums, and seminars directed toward adult audiences complement family-oriented courses which often include field trips within the Reserve. Teacher training workshops and ecology classes for elementary school children are also sponsored. The research program includes a long-term monitoring component which tracks physical, chemical, and biological information necessary to determine seasonal and annual changes in ecosystem structure, function, and health. Currently, the staff is formulating a site characterization and integrating Reserve monitoring and research programs with University-based and visiting investigators.

Site Accomplishments and Goals

Although the Reserve is comparatively new to the NERR System, significant progress has been made on several fronts. Educational programs, materials, and displays have been seen by thousands of visitors. The research staff has implemented a monitoring program which assesses long and short-term variability in key ecosystem variables. Computer-based data management allows easy access to data and trend analyses. Efforts to increase interactions with the Coastal Zone Management Program are already underway.

For more information, please contact:

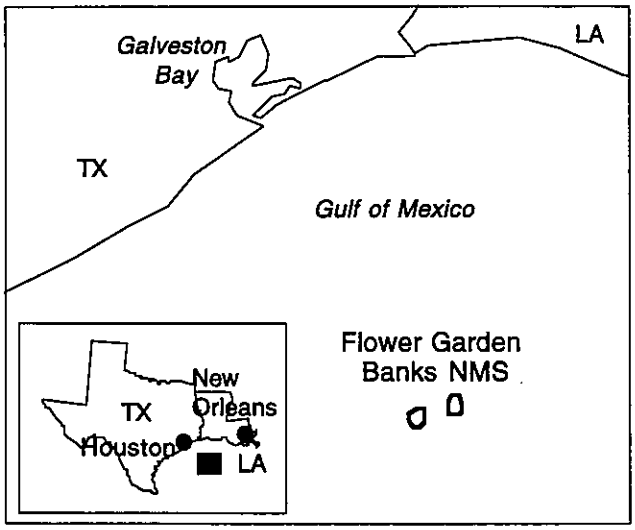
Dr. Dennis Allen, Reserve Manager
North Inlet-Winyah Bay National Estuarine Research Reserve
Baruch Marine Field Lab
P.O. Box 1630
Georgetown, South Carolina 29440

Phone Number: (803) 546-3623
Fax Number: (803) 546-1632

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East-West Highway, SSMC4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

TEXAS
Flower Garden Banks National Marine Sanctuary



Size: 42 nmi²; federal waters off Texas/Louisiana

Significant Resources

One hundred miles off the coast of Texas and Louisiana, a pair of underwater gardens emerge from the depths of the Gulf of Mexico like an oasis in a desert. This oasis is the Flower Garden Banks, two separate submerged salt dome features supporting the northernmost coral reefs on the continental shelf of North America. By a sheer twist of nature, the reefs sit at the ultimate edge of existence 50 feet from the surface. Any further north the environmental conditions would not be suitable for coral reef development. One has to travel over 600 miles southeast to the Florida Keys and over 400 miles south to Mexico's Gulf of Campeche to find the nearest coral reef.

Together, the East and West Flower Garden Banks encompass about 350 acres of tropical coral reef with approximately 21 species of coral. Among the nearly 250 other invertebrate species are mollusks, brittle stars, sea urchins, and lobsters. The fish population includes 175 resident tropical species as well as resident and migratory pelagic species. The threatened loggerhead sea turtle frequents the banks. Manta rays, whale sharks, and spotted dolphins are also common visitors to Flower Garden Banks. The East Flower Garden Bank is the location of the only known oceanic brine seep in the continental shelf waters of the Gulf of Mexico. The brine seep is anoxic and is populated by bacteria capable of using hydrogen sulfide in chemosynthetic primary production and providing a food source for surrounding bank communities.

Human Use and Values

The principal activities in the vicinity of the Sanctuary are oil and gas extraction, commercial fishing, recreational pursuits, ship traffic, and research. Accessibility for recreation and research is limited to vessels having adequate range and overnight facilities. Anchoring from large vessels has resulted in extensive coral damage. There has been a history of scientific interest since 1930. There are probably no significant historical or cultural resources, given the distance from shore.

Site Designation and Regulations

In 1979, the site was made an Active Candidate for Sanctuary designation, partly due to escalating oil and gas development and vessel anchoring. With industry threats mostly ameliorated by restrictions from BLM, it was withdrawn in 1982. In 1984, the site was again raised to Active Candidacy after severe anchor damage caused by an industry vessel was documented. Final designation came in January 1991. Regulations prohibit anchoring; oil and gas exploration and development; processing, injuring or taking corals and other marine organisms; use of fishing gears except hook and line gear; discharging or depositing any substances or materials; altering the seabed; building or abandoning structures, using explosives or releasing electrical charges. A major accomplishment at the site has been the installation and maintenance of mooring buoys.

Staff and Facilities

A Manager based at Texas A&M University in Bryan is responsible for the day to day operation of the Sanctuary. Cooperative state, federal, industry, and non-profit partnerships have established for fundraising, education, research, and monitoring.

For more information, please contact:

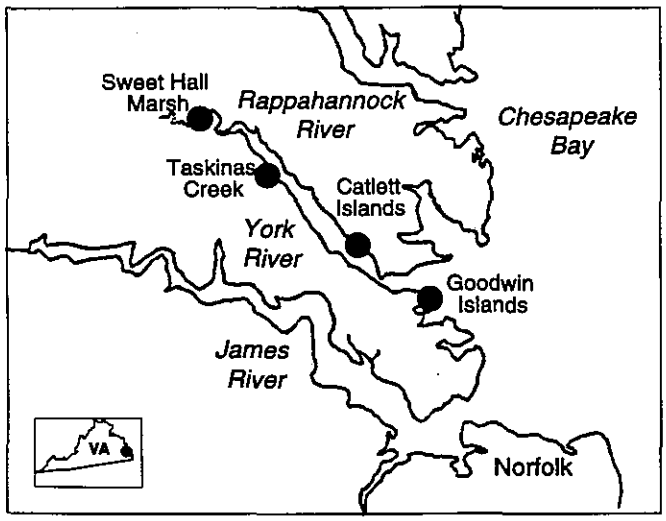
Dr. Steve Gittings, Sanctuary Manager
Flower Garden Banks National Marine Sanctuary
1716 Briarcrest Dr., Suite 702
Bryan, TX 77802

Phone Number: (409) 847-9296
Fax Number: (409) 845-7525

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

Chesapeake Bay (VA) National Estuarine Research Reserve



Size: 4,435 acres Province: Virginian

Significant Resources

The Reserve is composed of four sites in the York River basin in Virginia. The Goodwin Islands Component contains forested uplands, Spartina alterniflora dominated wetlands, tidal flats, oyster bottom, submerged aquatic vegetation, and open water; the Catlett Islands Component contains saltmarsh, forested wetlands, forested hammocks, and open water; the Taskinas Creek Component encompasses fresh and brackish water wetlands, upland forest, tidal flats, and open water; the Sweet Hall Marsh Component is characterized by freshwater marsh, forested and shrub wetlands, upland forests, and open water. The components span a salinity gradient of 18-22 ppt. Taskinas Creek and the Catlett Islands Components are rich in prehistoric and early colonial archaeological sites. The other components have not had surveys conducted.

Staff and Facilities

The Reserve headquarters are located in the Brown House at the Virginia Institute of Marine Science (VIMS), College of William and Mary. The staff consists of five full-time employees, two graduate research assistants, and several volunteers. The Reserve also has access to some of the facilities of York River State Park, including a 7,000 square foot visitors center, auditorium, wet lab, and amphitheater. Fourteen miles of trails are available to the public.

History and Location

The Chesapeake Bay NERR-Virginia was designated in 1991. The Reserve is located in the York River, one of the major tributaries to Chesapeake Bay. The Reserve is convenient to the Yorktown-Williamsburg portions of the historic Yorktown, Williamsburg, Jamestown triangle.

Uses and Programs

A wide variety of research occurs in all four components of the Reserve. Major efforts include marsh plant community patterns, avian ecology, submerged aquatic vegetation ecology, patterns of estuarine debris accumulations, and long-term trends in ground and surface water quality. Educational efforts focus on disseminating Reserve-generated research and monitoring data for classroom use and related curriculum development by Virginia teachers. The major vehicle for disseminating this information is educational computer networks accessible to Virginia educators.

Site Accomplishments and Goals

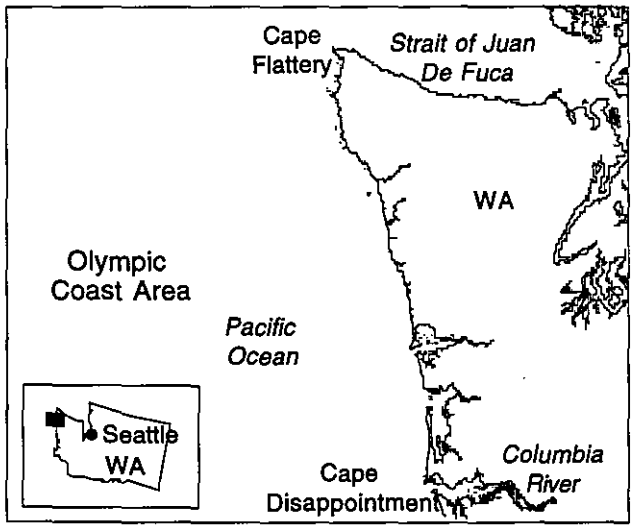
Effective partnerships have been established with several organizations to carry out research and educational programs. Organizations such as the Coast Guard, EarthWatch, Consortium for Interactive Instruction, and the Virginia Living Museum have all participated on Reserve programs, in addition to site volunteers. Projects initiated include monitoring, dissemination of educational materials, and debris accumulation studies. The Reserve staff has completed site evaluation for expansion into the Rappahannock, Potomac, and Plankatank rivers. Planning is underway for an educational center at a York River site that will be the prototype of similar centers to be added as the Reserve expands into other major tributaries.

For more information, please contact:

Dr. Maurice Lynch, Reserve Manager
Chesapeake Bay National Estuarine Research Reserve in Virginia
Virginia Institute of Marine Science
Rouge 1308, P.O. Box 1346
Gloucester Point Virginia 23062

Phone Number: (804) 642-7135
Fax Number: (804) 642-7120

WASHINGTON
Olympic Coast National Marine Sanctuary (proposed)



Washington state and federal waters

Significant Resources

The proposed Olympic Coast NMS encompasses a variety of habitats, including high energy rocky coasts, tide pools, sand beaches, marshes, kelp beds, sea stacks, and open water over a broad, shallow continental shelf extending seaward from the Strait of Juan de Fuca. Coastal upwelling from submarine canyons adjacent to the broad shelf and several estuarine systems are the cause for the nutrient-rich waters and high productivity of the site. The seabird colonies of Washington's outer coast are among the largest in the continental U.S. The spectrum of natural and diverse communities provide important habitat for waterfowl using the Pacific Flyway. The region also contains one of the largest populations of bald eagles in the continental U.S. The proposed Sanctuary supports a wide variety of fish and invertebrates including 5 species of salmon, steelhead and sea-run cutthroat trout, halibut, pink shrimp, and Dungeness crab among others. Endangered or threatened species that make use of the site include the bald eagle, peregrine falcon, brown pelican, short-tailed albatross, Stellar sea lion, sea otter, and humpback whale. 29 species of marine mammals are reported to breed, rest within, or migrate through the Olympic Coast region. The northern part of the coast is an important habitat for a reintroduced population of sea otters. Significant historical and cultural resources within and immediately adjacent to the Sanctuary include: Indian village sites, ancient canoe runs, petroglyphs, Indian artifacts, and numerous shipwrecks.

Human Use and Values

The site is valuable for commercial and recreational uses. The relatively pristine Olympic Coast is an important aesthetic resource and its recreational value is enhanced by the presence of the Olympic National Park, the offshore wildlife refuges (which are designated as a World Biosphere Reserve), and wilderness areas. The cultural flavor of the site is enhanced by the presence of four federally recognized Native American tribes. Commercial shipping consisting of tankers and barges transit the area while approaching and departing Puget Sound. Commercial and recreational fisheries target such species as shellfish, salmon, groundfish, and halibut. The site has been used for field research by the University of Washington for the last twenty-five years.

Status of Site Designation

The site appeared on the Site Evaluation List (SEL) in 1983 as Western Washington Outer Coast. It remained on the SEL until 1988 when it was made an Active Candidate by the reauthorization of the Marine Protection, Research, and Sanctuary Act of 1972. Renamed as Olympic Coast, the Draft Environmental Impact Statement and Management Plan was released in July 1991. The Final Environmental Impact Statement and Management Plan was released in December 1993. Designation is planned for June of 1994.

Staff and Facilities

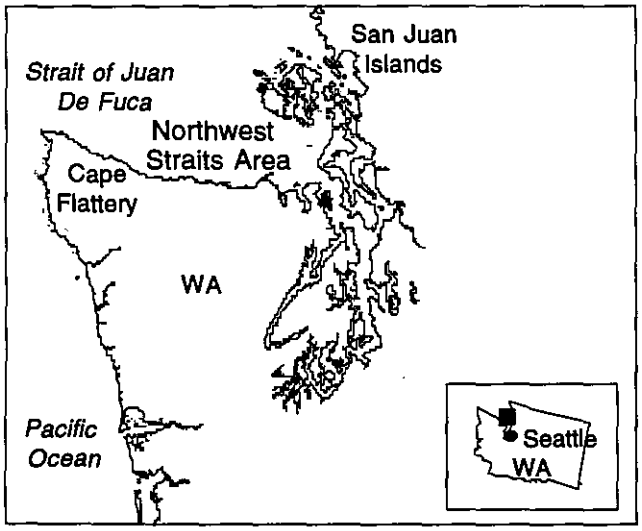
The site is staffed by a Sanctuary Manger and an Executive Officer. An Education Coordinator and a Secretary are planned to be hired soon. The main office will be in Port Angeles, WA, and a satellite office will be in Forks, WA. In the interim, the staff is working out of the SRD office in Seattle. A research and enforcement vessel is under construction.

For more information, please contact:

Todd Jacobs, Sanctuary Manager
Olympic Coast National Marine Sanctuary
7600 Sand Point Way, NE
Bin C 15700
Seattle, WA 98115

Phone Number: (206) 526-4295
Fax Number: (206) 526-4294

WASHINGTON
Northwest Straits National Marine Sanctuary (proposed)



Washington state waters

Significant Resources

Northwest Straits is located north of Puget Sound, and encompasses the Strait of Juan de Fuca and the waters surrounding the San Juan Islands. The twelve-foot tidal range has produced a variety of habitats including rocky shores, sand and mud flats, and marshes. The rich diversity of algae and invertebrates form the basis of the food web that supports fish, birds, and marine mammals. Predominant fish species include salmon, halibut, pollock, anchovy, rockfish, lingcod, cabezon, and sculpin. Predominant bird species are auklets, gulls, terns, and oystercatchers. Over 200 bald eagles, the single largest concentration in the continental United States, winter in the area. Marine mammals using Northwest Straits for at least part of the year include minke, gray, killer, and pilot whales; harbor and Dall porpoises; harbor and elephant seals; and Stellar sea lions. Fossil Bay and Protection Island are rich in fossilized clams, snails, and ammonites.

Human Use and Values

The site has multiple uses, including a high level of recreational activity, through boating, fishing, clamming, duck hunting, kayaking, diving, and nature observation. Extensive commercial fishing and marine transportation activities also take place. Intense research activity has occurred since 1904; the University of Washington maintains a marine biology lab at Friday Harbor on San Juan Island.

Status of Site Designation

This site appeared on the Site Evaluation List (SEL) in 1983 as Washington State Nearshore. It was made an Active Candidate under the name of Northern Puget Sound by the 1988 reauthorization of the Marine Protection, Research, and Sanctuary Act of 1972. Since this site lies entirely within state waters, a Discussion Paper presenting the rationale for a federal Sanctuary, a description of some of the threats to the marine resources, and suggestions for ways in which the Sanctuary could address those threats were drafted for public review. NOAA will work in conjunction with the State to prepare a Draft Environmental Impact Statement and Management Plan. Governor Lowry asked NOAA, in a recent letter, to pursue a Sanctuary but without any new regulations. All existing sanctuaries have some basic regulations that give NOAA an ability to manage and protect the resources under it's jurisdiction.

Staff and Facilities

An on-site liaison and a program specialist are working with the State of Washington and other interested parties to pursue a Sanctuary in Northwest Straits. A regional Sanctuary and Reserves Division office has been established at the NOAA facilities in Seattle.

For more information, please contact:

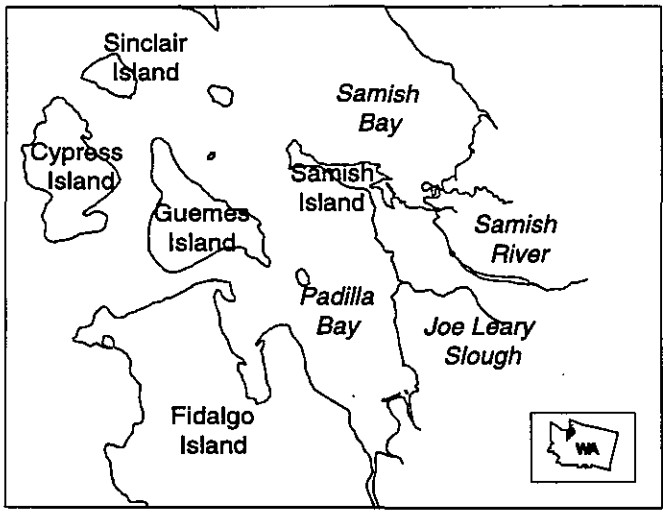
Linda Maxson, On-site Liaison
Northwest Straits
National Marine Sanctuary (proposed)
NOAA/SRD (Seattle)
7600 Sand Point Way, NE; Bin C 15700
Seattle, WA 98115

Phone Number: (206) 526-4293
Fax Number: (206) 526-4294

Sanctuaries and Reserves Division
Office of Ocean and Coastal Resource Management
National Ocean Service
National Oceanic and Atmospheric Administration

Sanctuaries and Reserves Division
1305 East West Highway, SSMC 4-12
Silver Spring, Maryland 20910
Phone: (301) 713-3125 Fax: (301) 713-0404

WASHINGTON
Padilla Bay National Estuarine Research Reserve



Size: 10,700 acres Province: Columbian

Significant Resources

The Padilla Bay NERR is characterized by large expanses of intertidal mud flats covered by eelgrass (the largest contiguous seagrass meadow in the Pacific Northwest). Small amounts of salt marsh, bare mud flats, and subtidal habitat are included. Invertebrate species include clams, crabs, and shrimp. About 57 species of fish use the waters, including salmon, smelt, herring, and flounder. The eelgrass beds provide a nursery area for young salmon and crab. Approximately 239 species of birds occur in the area; it is particularly notable for large flocks of dabbling ducks. Black brant use the area for feeding during the spring and fall migrations. Bald eagles nest in the Reserve and harbor seals utilize the shallow tide flats for haulout and pupping. Several archaeological sites have been identified, but none occur directly on the bay.

Staff and Facilities

A 7,000 square foot interpretive center houses exhibits, salt water aquaria, theater, lab, and classroom. Support facilities include overnight lodging, conference room, laboratory, and maintenance areas. Three miles of pedestrian trails, two points of beach access, two observation decks, and a boat launch are available. All spaces are handicap-accessible. Ten full-time and two part-time staff carry out operations and programs, and are assisted by interns and volunteers.

History and Location

The Padilla Bay NERR is located between Burlington and Anacortes in Northern Puget Sound, Washington. The Reserve was officially designated in 1980.

Uses and Programs

Research projects have been directed to the major resources and habitats, and have included characterization projects as well as specific studies. Monitoring efforts have focused on establishing baseline information for water quality parameters. Education programs are provided for all age levels. Three curricula are implemented for grades K-12 and college courses are scheduled throughout the year. Public workshops and lectures are offered on weekends. Exhibits in the Interpretive Center provide passive educational opportunities.

Site Accomplishments and Goals

Since site designation in 1980, the Reserve has provided on-site estuarine education programs for over 60,000 students and teachers. Research projects are identifying the issues and problems associated with non-point source pollution and assisting with recommendations for control. Habitats in the Reserve are potentially threatened by an invading cordgrass species and monitoring and growth studies are being implemented.

For more information, please contact:

Terry Stevens, Reserve Manager
Padilla Bay National Estuarine Research Reserve
1043 Bayview-Edison Road
Mt. Vernon, Washington 98273

Phone Number: (206) 428-1558
Fax Number: (206) 428-1491