



Section V

Partnerships and Opportunities

- **Fishing Related Education and Research Action Plan**
- **Interpretive Facilities Action Plan**
- **Ocean Literacy & Constituent Building Action Plan**

Fishing Related Education and Research Action Plan

Goal

Educate the public about fishing issues in the MBNMS and involve fishermen in research activities to add to the body of research available for resource management decisions.

Introduction

There is a need to increase the public’s understanding of fishes and invertebrates, their role in the ecosystem, the various fishing activities that occur in the MBNMS and how they are managed. This action plan provides strategies to expand the knowledge base of the public about fishery management in the MBNMS and increase public education about sustainable fisheries. There has traditionally been a lack of fishermen involvement in research activities related to fish and invertebrate populations in the MBNMS. This action plan addresses that issue by increasing their involvement and providing a mechanism to bring their knowledge and data into the pool of information used in resource management and decision making.

The commercial and recreational fishing industry constitutes a key component to the economic, historical, and cultural fabric of the region. More than 1,200 commercial fishing vessels operate in the region annually, along with substantial recreational fishing. More than 200 species of invertebrates and fishes were caught in the commercial and recreational fisheries in this region from 1981-2000, with more than 70 percent of the commercial fish landings composed of market squid, Pacific sardine, rockfishes, Dover sole, northern anchovy, Chinook salmon, mackerel, albacore, and sablefish.

Current involvement of the MBNMS in issues related to fishing includes conducting fisheries-related research, sponsoring educational events, commenting to other agencies on fishery and ecosystem management issues and the development of ecosystem protection plans related to fishing. The MBNMS has also continued its active role in the protection of the salmon and steelhead populations of the region through preservation of the watershed habitat and water quality that sustain these species during their migration and spawning activities. This includes watershed management and outreach activities with the agricultural community, cities and counties, education of the public about salmonid life cycles and habitat threats, and citizen monitoring of water quality in streams and rivers.

Strategy FER-1: Educate About Fisheries Management

Different organizations such as the California Department of Fish and Game (CDFG), National Marine Fisheries Service (NMFS), Pacific Fishery Management Council (PFMC), and National Marine Sanctuary Program (NMSP) have different responsibilities regarding fishing. Sometimes they overlap, while providing different protections. This can lead to confusion among the public regarding the role of the MBNMS in fisheries issues, regulations, and mandates. The role of the MBNMS is to protect sanctuary resources using an ecosystem approach while facilitating uses compatible with the primary goal of resource protection. This strategy will help to clarify the role of the MBNMS in fisheries issues by creating outreach materials for the public outlining the roles, responsibilities, regulations, and mandates of the MBNMS and the National Marine

Sanctuary Program, and how the MBNMS's role compares to fisheries management agencies and non-governmental organizations.

Activity 1.1: Develop Information Identifying MBNMS's Role in Fishery Issues

The MBNMS will develop necessary information identifying the NMSP's and MBNMS's roles and responsibilities related to fishing activities, fishing regulation, and the management of fisheries in the MBNMS. The MBNMS will produce outreach materials including written products and a web page to provide more information on the roles and responsibilities of the MBNMS in fishing issues. As the first step in embarking on this campaign, the target audience(s) needs to be identified (e.g., MBNMS visitors, non-visitors, local residents, families, or school children). The MBNMS may also conduct forums or other events to increase awareness of MBNMS responsibilities.

Strategy FER-2: Enhance Stakeholder and Public Communication

Historically, communication between fishermen and fishery managers has often been inconsistent and sometimes lacking, but certain individuals have maintained good working relationships for decades. The MBNMS and fishing community would like to improve the communication between these groups in an effort to educate the public about fishing issues, and partner in research activities to better understand fishery resources in the MBNMS and provide a better understanding of the relationship between fishing issues and resource protection. Beginning in 2001, the MBNMS began working collaboratively with the Alliance of Communities for Sustainable Fisheries (Alliance) to evaluate the potential benefits and drawbacks of using marine protected areas to facilitate ecosystem conservation and sustainable fisheries. The Alliance is a self-formed group consisting of representatives of fishermen from most gear types from the main harbors around the MBNMS, and harbor office representatives.

Activity 2.1: Continue to Meet with Fishermen, Incorporate them into Relevant Committees and the Sanctuary Advisory Council (SAC)

The MBNMS currently has a recreational fishing seat and commercial fishing seat on the SAC. Members of the Alliance and other commercial and recreational fishing representatives should continue to be included in fishing related workgroups (Marine Protected Area [MPA] workgroup) or events, and MBNMS staff should assist fishermen in gathering or presenting information as needed. The MPA workgroup, which includes fishermen, scientists, and environmental organizations, is attempting to develop solutions that can protect MBNMS resources while sustaining the region's critical fishing industry.

Activity 2.2: Conduct Outreach to Fishermen to Increase Awareness of MBNMS's Roles, Responsibilities and Goals in Ecosystem Protection.

MBNMS will increase efforts to communicate to fishermen the responsibilities and goals of the MBNMS in protecting the ecosystem. Essential components of the outreach regarding ecosystem protection include the mandates set forth in the National Marine Sanctuaries Act (NMSA), the goals and objectives of the MBNMS management plan, and processes of coordination between MBNMS and fishery management agencies.

Activity 2.3: Develop a Communication Plan Between Parties Interested in Education and Research Issues Related to Fishing in the MBNMS

The MBNMS will develop a plan to identify the channels, methods and messages necessary for communicating with fishermen, California Department of Fish and Game, National Marine Fisheries Service, Pacific Fishery Management Council, and others regarding actions taken by the MBNMS to protect the ecosystem that may affect fishing activities.

Activity 2.4: Investigate Partnership with the Fishermen’s Collaborative Research Programs (e.g., San Luis Obispo Marine Interests Group, Pacific Marine Conservation Council’s (PMCC) West Coast-Wide Program)

The MBNMS should investigate a partnership with collaborative research programs to identify an MBNMS specific research project that fulfills research needs and uses fishermen’s assets. The goal would be to identify research priorities, find funding, and improve communication and trust between fishermen, scientists, and fishery managers.

Activity 2.5: Develop a Series of Meetings Outlining Projects with Science Needs Using Fishermen’s Skills and Assets

The MBNMS will investigate existing cooperative research programs, inform the regional community about existing programs, and provide an opportunity for fishermen to help design fisheries related research projects. The MBNMS will work with PMCC, fishermen, scientists, and resource managers to identify projects that will involve fishermen in collection of information, add to the body of knowledge of fisheries, and aid decision makers’ fishing related actions. Particular attention needs to be given to coordinating research within the MBNMS with that which is being conducted elsewhere on stock that are found beyond the Sanctuary boundaries and managed on a regional or coastwide basis.

Activity 2.6: Facilitate Public Forums and Development of Educational Materials for the General Public and Interested Parties to Understand Local Fisheries, Fish Populations and Habitats, and the Role of the MBNMS in Protecting the Ecosystem

The MBNMS will include fishermen, scientists, environmental representatives, and managers as speakers at public forums to educate the public and each other on the historical and current status, health, and practices of fisheries, fish populations, and habitats. The role of ecosystem protection by the Sanctuary in these habitats and populations will be included. This should include basic educational materials for the public.

Strategy FER-3: Facilitate Sustainable Fisheries Definition and Promotion

Fisheries resource management agencies make management decisions with the best available data, which is often limited. The fishing community within the MBNMS would like to know what information is needed to manage fisheries effectively and in a sustainable manner, what information is actually available, what data are used and how data-limited status translates into fishery regulations, and what types of data are lacking. In addition, they would like to know the causes of related discrepancies. Some fishermen would like to participate in programs to collect data for fisheries management (e.g., observer and monitoring data). The public and fishing community would like more information to be disseminated on sustainable fisheries and practices. Information dissemination should include defining and identifying sustainable fisheries, identifying sustainable fishing techniques, and identifying the pros and cons of

aquaculture. Audiences should include the public, consumers, markets, suppliers, and fishermen. In addition, the facilitation of research on sustainable fisheries and how to minimize fishing impacts should be investigated.

Activity 3.1: Promote Biological and Socioeconomic Research on Sustainability

The MBNMS will work with partners to promote increased research on identifying and creating sustainable fisheries. The MBNMS will work with scientists, the fishing community, resource managers, and non-governmental organizations to develop collaborative research projects aimed at sustainable fisheries definition.

Activity 3.2: Work with Partners to Identify, Promote, and Certify Healthy Fisheries in the MBNMS

The MBNMS should work with NOAA Fisheries and other partners to explore and implement various outreach methods to existing and potential programs that promote healthy fisheries or healthy seafood choices. Various methods of outreach could include symposia, workshops, or “Fishing Day for Families.”

Activity 3.3: Increase Outreach and Awareness of How Sustainability is Assessed

MBNMS will conduct outreach efforts to fishermen and the public regarding sustainable fishing practices. After determining the target audiences, outreach should help the public understand how stock size is estimated and determined sustainable, the costs and economics of fishing and not fishing sustainably, as well as understanding the sustainability of an ecosystem. The MBNMS should consider supporting or participating in events at a “Sustainable Fishing Festival.”

Strategy FER-4: Involve Fishermen in Education and Outreach Programs

The fishing community possesses a wealth of historical fishery and at-sea knowledge that should be shared to create educational programs and products to better characterize the fishery resources, and historical and current user groups. Developing education programs and products on fishing issues should also involve other interested parties to achieve the educational goals and strategies outlined in this action plan. The MBNMS will provide the opportunity for the fishing community and other interested parties to review and comment on documents used for educating the public about fisheries. The MBNMS Advisory Council and Working Groups will also be instrumental in implementation of this strategy.

Activity 4.1: Evaluate Existing Outreach Efforts at a Sanctuary Education Panel (SEP) Meeting and Include Input from Fishermen and Other Interested Parties

The SEP currently meets to review program proposals, advise on educational priorities, and assist in implementation of programs to increase understanding and stewardship of the MBNMS. A SEP meeting should be dedicated to the evaluation of the progress of existing outreach efforts that address fishing, fish populations, and issues related to fish habitat. Input from fishermen and other interested parties should be solicited and considered.

Activity 4.2: Develop and Implement Interpretive Signage of Local Fishing Activities at Harbors

The MBNMS is currently planning interpretive signage at MBNMS harbors to describe maritime history and/or site-specific fishing activities (e.g., target species, vessel types, gear types). This activity should build upon the existing MBNMS effort.

Activity 4.3: Create Fishing Related Exhibits at MBNMS Visitor Center

The MBNMS is currently involved in developing a Visitor Center in Santa Cruz and creating other smaller interpretative exhibits. The Visitor Center and/or other exhibit space should include an exhibit highlighting fishing activities, information on fish populations, and current threats in the MBNMS. The fishing community will be invited to be involved in the planning and development of the exhibit(s).

Activity 4.4: Develop and Implement Education Program for K-12, “Mariners in the Classroom”

Educating the public often starts with children, who then teach their parents. “Mariners in the Classroom,” is an education program for grades K-12, featuring fishermen in the classroom. Fishermen, fisheries scientists, or academics visit classrooms and present topics such as fishing techniques, natural history, biology, fisheries science, social science, and economics. Fishermen are compensated for their travel and time spent in the classroom. In addition, these visits often occur off-season. The MBNMS is exploring the implementation of a similar local program.

Strategy FER-5: Collect and Distribute Fisheries and Habitat Related Data

The general public and fishing community would like more information about the health and trends of fishery populations, fish populations, and habitats in the MBNMS. Information collection and dissemination should address biodiversity, stock abundance, landings, habitats climatic and oceanographic cycles, and anthropogenic inputs. Collaborative research among fishermen, researchers, and other stakeholders is currently taking place on the east and west coasts of the United States. This type of collaborative effort is for those who wish to work together and better understand the fisheries and their role in marine ecosystems. Such a collaborative effort provides an opportunity for involved parties to add to the body of research available for fishery-related and marine ecosystem decision-making processes.

Activity 5.1: Coordinate with Fishery Management Agencies in Developing a Recurring Workshop Series with Interested Parties to Determine Existing Data, Efforts, Gaps, Overlap, and Develop a Coordinated Plan for Collection and Distribution of Marine Ecosystem and Fisheries Relevant Data

Note: Since the PFMC already sponsors a considerable amount of work in this area; there is a strong possibility that adding to the existing process would be redundant, or a waste of time and resources. Consequently, the first step should be for the MBNMS to participate in the existing process, and then determine the advisability or need for coordinating additional activities.

Activity 5.2: Consider Input from Fishermen and other Stakeholders in the Development, Synthesis, Collection, and Analyses of Data When Participating in Cooperative Fisheries Research

Activity 5.3: Include Fisheries Relevant Data in the Sanctuary Integrated Monitoring Network (SIMoN) Metadata Files and Website

Strategy FER-6: Collect and Distribute Socioeconomic, Cultural, and Historical Data

The commercial and recreational fishing industry constitutes a key component to the economic, historical, and cultural fabric of the region. There is a need to better understand fisheries as they relate to prehistory, maritime history, and present day socioeconomics, and to better educate the public about the fishing community. This activity will be conducted in close coordination with implementation of similar actions in the Maritime Heritage Action Plan.

Activity 6.1: Gather Oral Histories and Photographs of Fisheries and their Cultural Evolution (Past and Present) in the MBNMS

The MBNMS will work with the Monterey History & Art Association/Maritime Museum of Monterey to facilitate fishery related socioeconomic, cultural, and historical data collection and distribution of outreach materials. Implementation will also include a joint internship program between the Maritime Museum and MBNMS to assist in the collection and distribution.

Activity 6.2: Support and Develop Closer Involvement with the J.B. Phillips Historic Fisheries Symposium

The J.B. Phillips Historic Fisheries symposium hosted by the Monterey History & Art Association/Maritime Museum of Monterey brings together scientists, fishermen, historians, sociologists and fish market owners. Goals and objectives of the symposium and report are to (1) introduce the public to the history and science of the fisheries in Monterey Bay; (2) raise public awareness about the historic, economic, and political importance of the fisheries in Monterey Bay; and (3) give the public an opportunity to discuss these issues with scientists, policy makers, historians, and fishermen in a non-academic framework. Supporting and closely participating in the annual symposium may create a larger awareness of the local, historical fisheries.

Activity 6.3: Generate Cultural Profile and History of the Bottom Trawling Industry

Trawling is one of the oldest fisheries in the rich fishing culture of central California. However, the number of trawlers operating in the region has decreased over the years as increasingly restrictive laws and regulations and declining stocks have forced some out of business while discouraging others from entering the fishery. The MBNMS will create a cultural and historical report profiling trawling in recognition of the region's fishing tradition and to preserve the history of the fishery. This activity will support and be conducted in coordination with implementation of the Impacts of Bottom Trawling to Benthic Habitats Action Plan.

Strategy FER-7: Conduct Public Outreach on Links Between Healthy Ecosystems and Fish Populations

Decreasing trends in fish populations are not always solely attributed to fishing pressure. Many aspects contribute to ecosystem health, stock size, and a healthy fishery. There is a need to increase public awareness about various impacts to ecosystems including fishing, pollution, climate change, the role of estuaries as nursery grounds for some marine species, and watershed health.

Activity 7.1: Consider Development of a Symposium to Focus on Coastal Water Quality Issues and the Influence of Water Quality on Healthy Fisheries

Activity 7.2: Facilitate an Assessment of What Is Known about the Links Between Ecosystems and Fisheries

MBNMS will work with partners to facilitate a report or literature review on the link between fisheries and healthy ecosystems. The report should identify all threats to MBNMS resources and discuss ecosystem changes associated with regime shifts, impacts associated with agriculture and water quality and the health of wetlands and local river systems as it relates to salmonid and other fish populations.

Activity 7.3: Add Information Regarding Various Components of Ecosystem to Interpretive Signage on Wharfs

MBNMS will develop interpretive materials that identify the importance of a healthy ecosystem to healthy fisheries.

Activity 7.4: Conduct Outreach to Target Audiences

MBNMS will use the information collected from Activity 7.1 and 7.2 and incorporate the information into ecosystem health discussions targeted at schools, adults, ocean and beach user groups, and others with appropriate connections with the Water Quality Protection Program (WQPP).

Action Plan Partners: Fisheries management agencies (e.g., California Department of Fish and Game, National Marine Fisheries Service, Pacific Fishery Management Council), Fishing organizations (e.g., Alliance), individual fishermen, scientists, educators, Pacific Marine Conservation Council, Monterey History & Art Association/Maritime Museum of Monterey, academic institutions, Ocean Conservancy, Institute for Fisheries Resources, World Wildlife Fund (WWF's Community-Based Certification Program), Marine Stewardship Council, Monterey Bay Aquarium, Seafood Choice Alliance, California State Parks, Colleges/Universities with maritime concentrations, NGOs, UC Sea Grant

Table FER 1: Measuring Performance of the Fishing Related Education and Research Action Plan

Desired Outcome(s) For This Action Plan:	
Increase public awareness about fishing issues in the MBNMS and involve fishermen in research activities to add to the body of research available for fishery related decision-making processes.	
Performance Measures	Explanation
By 2010, increase Fishermen in Classroom program to provide outreach to 300 students each year.	Performance can be measured by tracking the number of students included in the Fisherman in Classroom program each year.

Table FER 2: Estimated Timelines for the Fishing Related Education and Research Action Plan

Fishing Related Education and Research Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy FER-1: Educate About Fisheries Management	●.....●.....●.....▶				
Strategy FER-2: Enhance Stakeholder and Public Communication	●.....●.....●.....▶				
Strategy FER-3: Facilitate Sustainable Fisheries Definition and Promotion		●.....●			
Strategy FER-4: Involve Fishermen in Education and Outreach Programs	●.....▶				
Strategy FER-5: Collect and Distribute Fisheries and Habitat Related Data	●.....●.....▶				
Strategy FER-6: Collect and Distribute Socioeconomic, Cultural, and Historical Data	●.....●.....▶				
Strategy FER-7: Conduct Public Outreach on Links Between Healthy Ecosystems and Fish Populations	●.....●.....●.....▶				
Legend					
Year Beginning/Ending	: ●.....●	Major Level of Implementation: _____			
Ongoing Strategy	: ●.....▶	Minor Level of Implementation:			

Table FER 3: Estimated Costs for the Fishing Related Education and Research Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy FER-1: Educate About Fisheries Management	\$54.5	\$0	\$0	\$0	\$0
Strategy FER-2: Enhance Stakeholder and Public Communication	\$78.5	\$42.5	\$42.5	\$42.5	\$42.5
Strategy FER-3: Facilitate Sustainable Fisheries Definition and Promotion	\$20	\$20	\$29	\$25	\$20
Strategy FER-4: Involve Fishermen in Education and Outreach Programs	\$22	\$44	\$14	\$10	\$6
Strategy FER-5: Collect and Distribute Fisheries and Habitat Related Data	\$40	\$135	\$135	\$135	\$103
Strategy FER-6: Collect and Distribute Socioeconomic, Cultural, and Historical Data	\$8	\$8	\$112	\$12	\$12
Strategy FER-7: Conduct Public Outreach on Links Between Healthy Ecosystems and Fish Populations	\$0	\$0	\$101	\$26	\$9
Total Estimated Annual Cost	\$223	\$249.5	\$433.5	\$250.5	\$192.5

* Cost estimates are for both “programmatic” and “base” (salaries and overhead) expenses.

Interpretive Facilities Action Plan

Goal

Guide development of the MBNMS centers and signage while exploring new opportunities for reaching constituents.

Introduction

An important issue facing the MBNMS is the lack of awareness of resource issues and threats to our local oceans. Facilities for education, research, and outreach provide a critical vehicle for interaction and developing a sense of stewardship with the constituent base of the MBNMS. The MBNMS must strive to increase interpretation of ocean resources through interpretive centers and other means.



Figure IF-1: Interpretive signage at Point Pinos tidepools.

Currently, only one small visitor center exists within MBNMS boundaries specifically interpreting the MBNMS, the National Marine Sanctuary Program (NMSP), or the natural and cultural resources found therein. However, limited information and small exhibits are located in several State Parks and private visitor centers, including the Monterey Bay Aquarium (MBA). There is a three-sided interpretive kiosk (with audio) installed on the Municipal Wharf in Santa Cruz, interpreting the MBNMS, kelp forests and wildlife. The MBNMS currently has fifty-one general interpretive signs along the MBNMS shoreline located at strategic State Beaches, Parks and a variety of municipalities, extending from Pillar Point Harbor in Half Moon Bay, San Mateo County, south to Cambria, San Luis Obispo County. More recently, the MBNMS has focused on resource issue signage. Due to increased visitation and harvesting, there are a series of signs specific to tide pool resources and etiquette in Pacific Grove, the central region of the MBNMS, designed to reduce the threat of human impacts at locations where there is high public visitation. The MBNMS has also partnered with Friends of the Elephant Seal (FES) in the southern region to develop and install extensive interpretive signage at a highly visited turnout.

In conjunction with the resource protection plans related to water quality, harbor issue signs at Monterey and Moss Landing harbor boat launches that discuss discharge, pollution, and prevention have been installed along with oily bilge and sewage pump station signs. Regulatory signs for motorized personal watercraft (MPWCs) are posted at all four harbors. As of June 2003, two Internet Weather Kiosk interactive turnkey units were installed at the Monterey and Pillar Point Harbors at the harbormasters' offices. These have glass touch screens that are connected to the Internet to access up to date weather, sea state, surface temperature, and a variety of other links. These were piloted and updated with input from harbor users during the summer and fall of 2003.

Strategy IF-1: Construct and Operate Visitor Center

An interpretive center was identified in the original 1992 MBNMS Management Plan. The need is ever greater now to help raise public awareness of ocean issues, promote environmental stewardship, foster community support, and give the Sanctuary a more tangible presence. Visitor Centers can provide opportunities for more in-depth interpretation and exploration of MBNMS resources than coastal signage or publications. The 2001 Market Analysis and Interpretive Strategy for the NOAA National Marine Sanctuary System includes Visitor Centers as an interpretive medium that can effectively deliver clear messages to a diverse audience. The 2000 National Marine Sanctuary System Education Plan includes a goal of developing a network of interpretive facilities to heighten visitors' experiences and convey Sanctuary messages.

The MBNMS has an extensive coastline and could benefit from having a string of marine-themed, interpretive Visitor Centers to reach visitors equally in the northern, central, and southern portions of the coastline. Realistically, it will not be financially feasible to outfit and operate more than one large Visitor Center. The long-term vision, supported by numerous public scoping comments, is therefore to open one large Center and up to three smaller, regional interpretive facilities. One location exists at the William Randolph Hearst Memorial Park/State Beach in San Simeon – the Coastal Discovery Center. A second location at Pigeon Point Lighthouse in San Mateo County has been identified as a potential site for a small “storefront” exhibit center.

In the City of Santa Cruz, the MBNMS envisions an interactive Visitor Center highlighting the MBNMS's extraordinary natural and cultural resources, the National Marine Sanctuary System and other NOAA programs, and the vital role citizens play as ocean stewards. Anticipated audiences include local residents, tourists, and school groups on field trips. Exhibits will be interactive and multimedia, and will include the possibility of real-time ocean images, virtual sanctuary experiences, aquaria and a wet touch tank. Many exhibits will be bilingual in English and Spanish. A secondary function of the facility is to be an orientation or “Welcome” Center to provide visitor information on the variety of nearby opportunities to experience the MBNMS or learn about the ocean.

MBNMS envisions a facility in the range of 10,000-12,000 square feet. The Visitor Center should blend well with the surrounding environment and utilize the best “green” technologies. Ideally, the Visitor Center will include exhibit and welcome space, a multimedia teaching lab/classroom, a public meeting room, a small bookstore, and ample support space including staff offices, storage areas, and restrooms. All public areas of the facility must meet ADA standards.

Activity 1.1: Develop Interpretation and Exhibit Plan for the Visitor Center

For the Santa Cruz Visitor Center site, the MBNMS will develop a comprehensive interpretation plan elaborating on the Center's intended mission, goals, audiences, interpretive themes and messages. The focus of the Center will be interpretation of the MBNMS, the NMSP, and all of the West Coast Sanctuaries. The Center will be designed to be a stand-alone educational experience, but will also include information referring visitors to complementary Sanctuary-related experiences, facilities, and marine education opportunities. As part of this activity, the MBNMS will:

- A. Explore how other NOAA education facilities have provided for community involvement, and will consider establishing an advisory group for community participation in the Visitor Center planning process. Activities 1.2 and 1.3 should occur concurrently so they are well coordinated, synergistic, and ensure the best possible match between the facilities and the interpretation.
- B. Develop the interpretive themes and messages, to include messages representative of the MBNMS and the NMSP.
- C. Identify potential visitor and school/youth group programming for the Center.
- D. Work with a contracted exhibit designer to develop specific exhibits for communicating the themes and messages, to include hands-on activities and multimedia displays.
- E. Identify the regional interpretive opportunities and experiences to which visitors can be referred for further learning.

Activity 1.2: Develop Visitor Center Facilities and Operations Plan

For the Santa Cruz Visitor Center site, the MBNMS will develop a comprehensive facilities plan, elaborating on the Center’s environmental, architectural, and financial requirements. The Center should blend well with the surrounding environment and utilize the best “green” technologies. Activities 1.1 and 1.2 should occur concurrently so they are well coordinated, synergistic, and ensure the best possible match between the facilities and the interpretation.

- A. Review the preliminary geologic assessment provided by the initial feasibility study and conduct further site-specific geotechnical studies, as necessary.
- B. Review sample architectural plans and work with a contracted architect to finalize external (if appropriate) and internal building designs and blueprints.
- C. Develop a maintenance plan and schedule.
- D. Refine rough estimates of capital cost and operating cost provided in the initial feasibility study.
- E. Work with NMSP headquarters staff to initiate the necessary procedures and process for building construction, if needed.
- F. Work with contracted experts to assess the need for and complete the appropriate environmental analyses, e.g., the National Environmental Policy Act (NEPA) or California Environmental Quality Act (CEQA) requirements.
- G. Apply for and obtain the necessary permits.

Activity 1.3: Develop Visitor Center Business Plan and Implement Fundraising Strategies

While some federal construction funds may become available from NMSP appropriations, it is anticipated federal funds will not cover all of the Santa Cruz Visitor Center’s capital costs. Significant fundraising from the public and private sectors will be needed to raise construction funds. A fundraising plan will be developed and implemented most likely with the assistance of the Monterey Bay Sanctuary Foundation (MBSF) and potentially the National Marine Sanctuary Foundation.

- A. Develop a successful business plan including the following elements: a market analysis, an operations plan, a staffing/management plan, a marketing plan, and a financial plan.
- B. Identify local community members who can provide fundraising guidance, and consider establishing a capital campaign committee to assist with efforts.
- C. Identify potential funding sources in both the private and public sectors.
- D. Identify a range of sponsorship opportunities that potential funders can support.
- E. Utilize the interpretation plan and the facilities plan to demonstrate and promote the feasibility of the chosen site as a successful and effective Sanctuary Exploration Center.
- F. Implement fundraising campaign.

Activity 1.4: Develop Visitor Center Education Plan

For the Santa Cruz Visitor Center site, the MBNMS will develop a comprehensive education plan, including programming for K-12 students, K-12 teachers and the public. This programming will be developed in alignment with multicultural pedagogy and may draw from existing MERITO education materials. The level of programming offered will be balanced by the financial realities of the Center.

- A. Utilize the SEP as an advisory board for the development, implementation and assessment of education programs for the MBNMS Visitor Center.
- B. Recruit, train, retain and motivate a dependable volunteer team, knowledgeable of the MBNMS program and resources, to support the Center’s education programs and to offset staffing costs.
- C. Develop an understanding of existing educational programs around Monterey Bay. Create MBNMS education programs for the Center to meet the needs of the community and the goals of the MBNMS while striving to complement existing programs.
- D. Develop standards-based K-12 programs reinforcing California state science standards, the National Science Education Standards, NOAA Science and the mission of the MBNMS.
- E. Develop professional development programs that empower K-12 teachers to integrate standards and resource-based marine science content and curriculum materials into their classrooms.
- F. Develop a suite of public programs designed to engage visitors of all audiences in resource-based issues.
- G. Ensure educational programs offered at the Visitor Center incorporate strategies, designs and materials to reach Hispanic audiences by utilizing the staff and strengths of the MERITO program.
- H. Develop assessment instruments for programs and evaluate program effectiveness. Redesign programs based on evaluation results, as needed.

Activity 1.5: Construct and Outfit Visitor Center

With advice from facilities experts at NMSP headquarters, follow all NOAA construction guidelines and procedures. All interpretive installations will be done in conjunction with NMSP contractors, MBNMS staff, NMSP staff, and partners.

Strategy IF-2: Develop Smaller Regional Interpretive Facilities

Activity 2.1: Complete Exhibits at San Simeon and Pigeon Point Facilities

Opportunities for in-depth Sanctuary interpretation to geographically diverse audiences will be expanded by the development of several small regional interpretive facilities, or “storefront” Visitor Centers. Two locations were identified at Pigeon Point Lighthouse, Santa Cruz District, California State Parks in San Mateo County, and in the San Luis Obispo Coast District, California State Parks in San Luis Obispo County. These smaller interpretive venues focus primarily on the unique resources (natural and cultural) of the regions in which they reside.

The Coastal Discovery Center at San Simeon Bay opened in July 2006. Its theme is “Connecting Land and Sea,” a theme that supports both sponsoring agencies, California State Parks and MBNMS. The facility is located in William R. Hearst State Park in San Simeon, the southern gateway to Big Sur. Trained docents staff the facility, which includes a live rainbow trout tank, video voyages to Davidson Seamount and a local shipwreck, and a talking tidepool sculpture. Public outreach and education programs are in development. The permanent exhibition at Pigeon Point Lighthouse in San Mateo County explores the rich cultural and maritime history of the lighthouse and its role in society over time. The exhibit opened in November 2007.

Activity 2.2: Develop Monterey Peninsula Regional Interpretive Facility

A smaller regional interpretive facility will be developed on the Monterey Peninsula after completion of the main Visitor Center in Santa Cruz. The MBNMS anticipates this will also highlight other NOAA Line offices located here – the National Marine Fisheries Service and the National Weather Service. This facility will complement other facilities around the Monterey Bay as well as other interpretive facilities operated by the MBNMS. The Monterey Peninsula facility will be closely integrated with the Sanctuary Scenic Trail, which extends from Davenport to Pacific Grove.

Strategy IF-3: Increase Sanctuary-Wide Interpretive Signage

With over 275 miles of coastline, and almost as many access points, the MBNMS has a wealth of opportunities to reach visitors visiting its shores. A comprehensive interpretive signage program, implemented with partners having land-based jurisdiction over the coastline, will provide one piece of the overall Interpretive Facilities Plan. These potential partners include California State Parks, US Forest Service, local counties, cities, and other land trust entities.

In its first ten years, MBNMS focused on general signage with the basic MBNMS message. Now the MBNMS needs to focus on individual, custom messages to maximize resource protection and personal enjoyment of the MBNMS, highlighting the features of each location. The messages on these signs will increase general awareness of the unique nature of the MBNMS and its resources, interpret the ecosystems, human links, management initiatives of the MBNMS, and encourage stewardship of the MBNMS. Specific messages for signage may be identified through other action plans such as the Marine Mammal, Seabird, and Turtle Disturbance; Motorized Personal Water Craft; Tidepools; and other resource protection related plans. In addition to interpretive signs, this strategy includes interpretive kiosks and weather station kiosks.

The MBNMS is also fortunate to be surrounded by jurisdictions and agencies interested in enhancing public education about the MBNMS and the inspiring natural and cultural resources it protects. Since 1992, several regional plans have been developed for scenic coastal trails envisioned not only as recreation and transportation corridors but also as interpretive pathways highlighting the MBNMS. These trails have been planned to feature interpretive signs and displays that foster appreciation and stewardship of the marine Sanctuary and its shoreline communities. The regional government entities or community groups leading the planning efforts approached the MBNMS to solicit staff involvement early in the trail planning processes.

Activity 3.1: Develop and Maintain a Signage Inventory

A comprehensive inventory of the existing network of signs that interpret various aspects of the marine environment along the coastline of the MBNMS is needed to determine the baseline for additional signage. This inventory will include MBNMS signage as well as signage efforts of other agencies and organizations based along the central California coast.

- A. Identify existing MBNMS signage, locations, type/materials used, and messages
- B. Identify existing marine interpretive signage established by other agencies/organizations, locations, type/materials, messages and responsible entities (potential partners)
- C. Create a matrix/map of current messages, locations, and partners

Activity 3.2: Develop an Implementation Plan for Signage

It is likely there will be some gaps in the placement of signs and/or interpretive messages along the coastline. Once new interpretive opportunities are identified, an implementation plan must be designed to determine the “when, where, who, how, and funding” for new signs. Since funding may be the main limiting factor, a tiered schedule for short-, medium-, and long-term projects will be incorporated, along with a periodic reassessment to determine if specific needs still exist. This must also include an assessment of the applicable environmental regulations, such as NEPA, CEQA, and other federal/state/local requirements. Finally, it must include a plan to maintain and upgrade signage to ensure that damage and weathering are addressed in a timely manner and that messages do not become obsolete.

- A. Work with partners to identify additional signage needs, including locations and messages identified in other action plans
- B. Assess the need for bilingual signage at specific locations based on user/visitor populations
- C. Prioritize the need for signage at each location using a multi-year horizon (short-, medium-, and long-term projects)
- D. Identify costs and create a project-specific budget based on the multi-year plan
- E. Assess environmental impacts based on the multi-year plan
- F. Develop a schedule for reassessing priorities, maintaining, and upgrading signs
- G. Work with partners on the installation of signs

Activity 3.3: Support MBNMS-Related Interpretive Trail Projects

The MBNMS recognizes the valuable contribution to public education and awareness that an integrated system of “sanctuary scenic trails” along the coastline could bring. Since these coastal trails provide additional interpretive opportunities, it is our policy to provide support to other agencies and organizations involved in coastal trail development when there is a formal commitment to Sanctuary-related interpretation along the trail. MBNMS support may be provided to these partners through staff time and/or financial contributions for trail planning or implementation, resources allowing. Interpretive trail projects currently underway or on the horizon include:

A. *Santa Cruz County Sanctuary Scenic Trail*

Since 1998 MBNMS staff have assisted with planning for this thirteen-mile urban trail originally envisioned by local governments in Santa Cruz, with heavy involvement in development of interpretive messages and content. MBNMS funded the production of eight interpretive displays, and will continue to provide staff time for thematic guidance and content development as the trail interpretation is fully implemented.

B. *Monterey Bay Sanctuary Scenic Trail*

MBNMS staff have participated in planning for this trail (which will include the Santa Cruz County Sanctuary Scenic Trail) since the project’s inception in 2001. Currently MBNMS is coordinating development of the trail’s interpretive plan. This long-term effort will ultimately result in a forty-five-mile continuous coastal trail between Santa Cruz and Monterey.

C. *Half Moon Bay Coastal Trail*

MBNMS is currently exploring partnerships to provide interpretive signage along this partially completed nine-mile trail.

D. *Moonstone State Beach Trail*

MBNMS and State Parks are currently developing a signage plan for a new one-mile walkway at Moonstone State Beach in Cambria.

Strategy IF-4: Increase Virtual Experiences

In addition to the millions of people who visit the MBNMS each year, many more would like to but cannot travel to the central California coast. The technology to educate and reach these potential visitors exists in the form of “virtual experiences.” These programs and products can be made available via the Internet, at Visitor Centers located far from the MBNMS, and as marketable products at museums and aquaria throughout the world. They can be made available in multiple languages and to those with auditory, visual or physical impairments. By combining live and pre-produced materials, a variety of informal learning environments can be created. These “virtual interpretive facilities” invite millions of people who may never come to Monterey to visit the MBNMS.

The NMSP considers telepresence to be an important outreach component for all National Marine Sanctuaries. MBNMS became a leader in telepresence technology in 2002 when images from a video camera installed in Monterey Bay were observed by visitors to the Immersion Theater in Mystic, Connecticut. The camera, attached to a tether, can be controlled by an

operator 3,000 miles away. Now, visitors to the Mystic Aquarium regularly observe bat stars on the Monterey Bay seafloor, watch sea lions on the breakwater, and observe a cormorant nesting site. Plans for the future include adding camera sites at Florida Keys, Channel Islands, and Thunder Bay National Marine Sanctuaries, so visitors to a single location have the opportunity to visit several marine Sanctuaries. The MBNMS will coordinate with other sanctuaries to provide a comprehensive message of conservation throughout the NMSP program, using educational themes consistent with the NMSP educational goals.

Three primary mechanisms have been identified to visit the MBNMS from a distance: (1) the MBNMS and SIMoN websites, (2) telepresence technology, and (3) videotapes and CD ROM's containing the best images and footage of MBNMS habitats and wildlife. Each of these methods is discussed in the following activities.

Activity 4.1: Expand Virtual Interpretive Opportunities on MBNMS Website

A variety of options already exist for off-site users to appreciate the MBNMS. The MBNMS's award-winning website offers myriad learning opportunities and resources. The website can be expanded further to add more virtual experiences including:

- A. Links to the numerous "Web cams" already in use throughout the MBNMS, including weather cams, critter cams, and surf cams.
- B. Links to partner programs and sites, including sensitive species programs and safe wildlife viewing guidelines.
- C. Development of a Web tour of certain highlighted areas in the MBNMS. Building on SIMoN interactive maps, visitors using the Web might be able to see and hear about the diversity of habitats and wildlife within MBNMS waters. The tour may include hard-to-reach areas such as the deep sea and open ocean. Informational and conservation messages would be included.

Activity 4.2: Expand Interpretive Opportunities Using Telepresence Technology

The term "telepresence" refers to the use of interactive technology, including live video cameras, operation of remote camera systems, robots, and underwater vehicles. Currently, images are transmitted using satellite and microwave technology coupled with Internet2 to distant locations. They provide opportunities for verbal, video or robotic interaction between the camera site and the visitor site. Visitors to telepresence sites may be able to ask questions of researchers, operate an underwater camera along a tether, explore a shipwreck, and observe marine organisms in their natural environment. Telepresence allows "real-time" interaction with our Sanctuaries by school groups, researchers, and the public, allowing them to watch researchers conduct their research and hear live accounts about their experiences. The telepresence idea has been piloted here in the Monterey Bay to the Mystic Aquarium and Institute for Exploration in Mystic Connecticut.

- A. Continue MBNMS' participation in NOAA's developing telepresence program.
- B. Explore the expansion of existing partnership with Mystic's program and the Institute For Exploration by adding a "diver cam" equipped with a speaker so that an underwater diver in Monterey can describe current conditions to visitors at the Mystic Aquarium in Connecticut.

- C. Add telepresence capabilities to additional interpretive facilities, including the MBNMS Exploration Center and storefront exhibits as available.
- D. Participate in research and education programs similar to those offered by the JASON Foundation for Education (JASON) as they arise.
- E. Install additional topside video cameras at selected sites providing unique viewing opportunities in the MBNMS. Future potential camera locations include the Monterey Canyon, a mid-ocean site, a kelp forest, an elephant seal pupping beach, and a seabird rookery.

Activity 4.3: Expand Interpretive Opportunities Using Virtual Education Products

Consumers are interested in purchasing or receiving products to view or enjoy from the comfort of their home or vehicle. MBNMS has produced videos now available to education programs and teachers. Other possible products include:

- A. CD-ROM, an interactive CD about Davidson Seamount.
- B. CD Audio tour of MBNMS from southern to northern boundary (and the reverse) along Highway 1. As visitors drive along the Highway, they will stop at designated locations and listen to natural history information about the area.
- C. Video of MBNMS ecosystems and habitats (20-30 minutes).
- D. Podcast technologies.

Action Plan Partners: California State Parks, San Mateo Coast Natural History Association, Friends of Hearst Castle, Monterey Bay Sanctuary Foundation, City of Santa Cruz, Monterey Bay Aquarium, Santa Cruz Museum of Natural History, US Forest Service, Bureau of Land Management’s California Coastal National Monument, Gulf of the Farallones National Marine Sanctuary (in San Mateo County), San Luis Obispo, Monterey, Santa Cruz, and San Mateo Counties, numerous cities, and other land trust entities, National Marine Sanctuary Foundation, private parties, The NMSP Telepresence Initiative, Institute for Exploration,

Table IF 1: Measuring Performance of the Interpretive Facilities Action Plan

Desired Outcome(s) For This Action Plan:	
Provide a critical vehicle for interaction and developing a sense of stewardship with the constituent base by developing facilities for education, research and outreach.	
Performance Measures	Explanation
Construct and operate one major interpretive facility by 2010 and two minor interpretive facilities by 2008.	The MBNMS will evaluate implementation of this action plan by measuring the progress in the construction, staffing, and operation of a major interpretive center, the MBNMS Interpretive Center, in Santa Cruz as well two minor interpretive facilities in San Simeon and Monterey. The long-term goal of increasing the knowledge about the MBNMS and development of the sense of stewardship will be evaluated separately.

Table IF 2: Estimated Timelines for the Interpretive Facilities Action Plan

Interpretive Facilities Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy IF-1: Construct and Operate Visitor Center	●————●		●▶	
Strategy IF-2: Develop Smaller Regional Interpretive Facilities	●————●			●▶
Strategy IF-3: Increase Sanctuary-Wide Interpretive Signage	●————●		●▶	
Strategy IF-4: Increase Virtual Experiences		●————●	●▶	
Legend					
Year Beginning/Ending	: ●————●	Major Level of Implementation: _____			
Ongoing Strategy	: ●————▶	Minor Level of Implementation:			

Table IF 3: Estimated Costs for the Interpretive Facilities Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy IF-1: Construct and Operate Visitor Center	\$220	\$4,172	\$2,300	\$520	\$1,470
Strategy IF-2: Develop Smaller Regional Interpretive Facilities	\$60	\$0	\$80	\$880	\$80
Strategy IF-3: Increase Sanctuary-Wide Interpretive Signage	\$0	\$24	\$524	\$508	\$508
Strategy IF-4: Increase Virtual Experiences	\$8	\$29	\$25	\$25	\$25
Total Estimated Annual Cost	\$288	\$4,225	\$2,929	\$1,933	\$2,083

* Cost estimates are for both “programmatic” and “base” (salaries and overhead) expenses.

Ocean Literacy and Constituent Building Action Plan

Goal

Increase protection of sanctuary resources by building a greater understanding, in our highly diverse coastal communities, of the ocean’s influence on people, and their influence on the ocean.

Introduction

This action plan addresses the need to cultivate an informed, involved constituency who cares about restoring, protecting and conserving our precious ocean resources. The Sanctuary will implement an integrated outreach program to pull together specific outreach and education activities outlined in other sections of this management plan and coordinate their execution, further developing the Sanctuary’s relationships with its constituencies.

The NMSA, NMSP, NOS and NOAA all identify the need to build a more informed and involved ocean literate public. The U.S. Commission on Ocean Policy’s Final Report - *An Ocean Blueprint for the 21st Century*, also stresses the need to strengthen the nation’s ocean awareness and to improve ocean-related education efforts as “critical to building an ocean stewardship ethic, strengthening the nation’s science literacy, and creating a new generation of ocean leaders.” The report concluded an interested, engaged public is an essential prerequisite “to successfully address complex ocean- and coastal-related issues, balance the use and conservation of marine resources, and realize future benefits from the ocean.”

Ocean Literacy

A national survey by the Ocean Project (1999) indicates the American public has a superficial awareness of the importance of the ocean to their daily lives, let alone its importance to all life on the planet. The *Ocean Blueprint* goes on to state, “The ocean is a source of food and medicine, controls global climate, provides energy, supplies jobs, supports economies, and reveals information about the planet not gained from any other source. While most people do not recognize the number of benefits the ocean provides, or its potential for further discovery, many do feel a positive connection with it, sensing perhaps the vitality of the sea is directly related to human survival.”

In an effort to correct this lack of awareness, the Office of National Marine Sanctuaries has partnered with the National Geographic Society, the Centers for Ocean Sciences Education Excellence (COSEE) and the College of Exploration to identify the critical elements of ocean literacy in the context of science. Ocean literacy is defined as “an understanding of the ocean’s influence on you – and your influence on the ocean.” An ocean-literate person:

- *understands* the essential principles and fundamental concepts of ocean science (listed below),
- can communicate about the oceans in a meaningful way,
- is able to make informed and responsible decisions regarding the oceans and its resources.

Seven Essential Principles of Ocean Literacy

1. The Earth has one big ocean with many features.
2. The ocean and life in the ocean shape the features of the earth.
3. The ocean is a major influence on weather and climate.
4. The ocean makes the Earth habitable.
5. The ocean supports a great diversity of life and ecosystems.
6. The ocean and humans are inextricably linked.
7. The ocean is largely unexplored.

Each of these seven essential principles has a series of fundamental concepts – clarifying basic concepts within each principle. For a complete listing of the essential principles and fundamental concepts, please see <http://www.coexploration.org/oceanliteracy>.

Ocean Stewardship

Ocean stewardship is the end point to the path that starts with ocean literacy. Without a passionate and ocean literate constituency, the goal of true ocean stewardship is meaningless. The *Ocean Blueprint* stresses, “The public should be armed not only with the knowledge and skills needed to make informed choices, but also with a sense of excitement. Individuals need to understand the importance of the ocean to their lives and realize how their individual actions affect the marine environment. Public understanding of human impacts on the marine environment will engender recognition of the benefits to be derived from well-managed ocean resources. Because of the connection among the oceans, the atmosphere, and the land, inland communities need to be as informed and involved as seaside communities.”

Repeatedly, through scoping, public comments echoed these statements. These comments very clearly fell into 5 categories: Increase efforts to inform the community about the issues affecting the sanctuary and how they can get involved; Develop a plan to better use volunteers; Create partnerships with community businesses, tourism boards and chambers of commerce; Increase K-12 public education efforts and; Address multicultural programming. Sanctuary constituents know there are issues facing the Sanctuary, they want to know more, and they want to get involved.

Outreach to the diverse constituents of the MBNMS should be coordinated closely with issues and activities identified in the individual action plans detailed throughout this plan. A vigorous, public outreach and education effort bridging community concerns and needs with measures applied to protect the resources of the Sanctuary will galvanize broader support for ocean conservation and the Sanctuary’s work. Such support will increase the Sanctuary’s ability to effectively protect central California’s marine resources.

Strategy OLCB-1: Develop and Implement Constituent Outreach Programs to increase Ocean Literacy.

Research has shown a healthy marine environment is essential for high quality of life and ecosystem health on land (consider the effects of beach closures). However, recent surveys indicate that many people consider the marine environment a second-tier environmental concern, overshadowed problems of air and water pollution and toxic waste disposal. In addition, while most Americans realize the marine environment can be degraded as a result of human activities, they are less clear about the role individuals play in contributing to this damage. Nearly half the public mistakenly agrees with the statement, “What I do in my lifetime doesn’t impact ocean health much at all,” as referenced in *An Ocean Blueprint for the 21st Century*.

Public information needs are as varied as our population is diverse. Some individuals benefit from detailed information on how specific issues directly affect their jobs or business. Others may need information presented in a language or media tailored to their culture and community. Others may seek advice on how to alter their own activities to support responsible ocean stewardship. This information is as critical for those who live in the heartland as for those who live near the shore. Informal education requires outreach programs, in partnership with local communities, to make contact with individuals where they live and work, regarding issues affecting how they live and work, in a style that speaks to them.

The Blueprint goes on to state, “Information supplied to the public must be timely and accurate. It should also be supported by a system that allows for follow-up and the acquisition of additional information or guidance. The roles of, and relationships among, scientists, educators, and journalists in translating research results for the public are especially critical. Innovative partnerships with media outlets and industries that interact with the public offer opportunities to raise visibility of ocean issues and increase public awareness. Informal education facilities and the academic community must work closely with the media to transform the latest scientific discoveries into publicly accessible displays, materials, and programs.”

Activity 1.1: Offer general ocean awareness programs and sanctuary information

Offerings will include presentations to general audiences including service clubs, Chambers of Commerce, non-profit organizations, partner groups/agencies. Staff will develop print materials, including brochures, newsletters, posters, annual and special reports, fact sheets and other materials with ocean literacy related messaging. Respond to requests from individuals and organizations. Hosting or participation in public events like the *Currents* Symposium, Earth Day, Whale Fest, Coastal Cleanup Day, and other similar events are essential for exposing the public to ocean and sanctuary messages. Staff will develop and deliver public outreach programs at MBNMS visitor centers to enhance their ocean knowledge. In addition, MBNMS will utilize the “Telepresence” technologies identified in the Interpretive Facilities Action Plan to increase public interest in the ocean and the nation’s sanctuaries.

Activity 1.2: Partner with local and national partners to develop coordinated ocean literacy messages

Outreach and Communications staff will participate in the newly developed Ocean Communicator's Group to insure consistent Sanctuary messages throughout the MBNMS, the State of California and the NMSP. Incorporating ocean literacy messages into the NMSP Ocean Etiquette Program, and creating consistent messages with NMSP, National Marine Fisheries Service, and Watchable Wildlife, Inc will be key to a successful targeted effort. The Sanctuary staff will work through the Sanctuary Education Panel, an Advisory Council working group, to create a conduit of information locally with other marine education programs. Working collaboratively on specific ocean literacy elements will create a much larger impact.

Activity 1.3: Increase public awareness of the Sanctuary and ocean literacy issues through media exposure and marketing

The MBNMS will utilize contacts within the Ocean Communicator's Group to deliver consistent sanctuary messages to media outlets. Staff will work cooperatively with local media outlets by providing appropriate ocean literacy messages and materials (PSA's, radio, newspapers, weekly publications, and non-English media outlets), and explore travel and leisure magazine article opportunities.

Strategy OLCB-2: Develop and Implement a Comprehensive Volunteer Program

Sanctuary staff alone cannot meet the goals set out in the Ocean Literacy and Constituency Building and other action plans without the assistance of trained and educated volunteers. Scoping comments not only confirmed the need for the Sanctuary to create a volunteer program but also reflected the desire of many individuals to volunteer for the Sanctuary. A well thought out volunteer plan is required to move this strategy forward. In addition to a plan, a program requires well defined volunteer roles, appropriate training, an organized system of maintaining contacts, tracking training and education programs, and a recognition component.

Activity 2.1: Assessment of volunteer needs within the Sanctuary's programming

Elements of this plan will include identifying the variety of volunteers required to support a broad spectrum of Sanctuary needs (administrative, outreach & education, research & monitoring, resource protection) and requirements related to recruitment, training, tracking and retention of volunteers. An internal volunteer needs assessment will be conducted to determine how to best integrate the existing volunteer programming.

Activity 2.2: Identify funds and hire a Volunteer Coordinator

The Sanctuary will assess the current staff composition to determine how it can best create a full time Volunteer Coordinator position.

Activity 2.3: Evaluate volunteer recruitment, retention and effectiveness of roles

Sanctuary staff will conduct informal assessments on a regular basis to identify and track the needs of the volunteer program. It is essential for volunteers to participate in the assessment of their positions in terms of value and purpose.

Strategy OLCB-3: Create Partnerships with Local Businesses

Partnerships form the backbone of many MBNMS programs. Partnerships encourage creative solutions to difficult issues while fostering a sense of ownership of programs from a wide-ranging audience. Without partnerships, the goals of the Sanctuary could not be accomplished easily or seamlessly. Many members of the public are truly concerned and interested in being part of the Sanctuary’s mission of ocean literacy and education, as was mentioned from the scoping comments. With the correct materials and training the influence of the sanctuary can spread far and wide through partnerships with business leaders, technicians, and staff members.

Activity 3.1: Implement partnership opportunities with the restaurant and lodging industries.

MBNMS will offer staff training and outreach materials to members of the lodging and restaurant industries to identify ocean literacy, sustainability and other Sanctuary concepts appropriate to their businesses. Trained business owners and staff can then use Sanctuary materials to convey these messages to their clientele.

Activity 3.2: Explore partnership opportunities with “on-the-water” businesses.

MBNMS will work with appropriate SAC members to identify potential staff training and outreach materials to develop for recreational providers of “on the water experiences” to help identify ocean literacy, sustainability and other Sanctuary concepts appropriate to their businesses. Trained business owners and staff can then use Sanctuary materials to convey these messages to their clientele.

Activity 3.3: Explore additional partnership opportunities with businesses participating in the Water Quality Protection Program or identified in MBNMS Action Plans.

MBNMS will work with professional trade businesses to accomplish the goals of the WQPP, Beach Closure Program and other action plans. Through training and materials dissemination, trades workers will become outreach educators for the Sanctuary to specialized target audiences who can influence water quality within the sanctuary. Other programs may utilize other professionals to assist in the education of specific audiences on their influence upon the MBNMS.

Strategy OLCB-4: Develop and Implement K-12 Education Programs to increase Ocean Literacy.

Among all disciplines, ocean and aquatic sciences are underrepresented in K-12 education. Concepts and topics about our ocean and hardly appear in K-12 curriculum materials, text books, assessments or standards. Educational standards are the strategic point of leverage for bringing about significant systemic change in the content of science education.

This strategy focuses on programs, designed to provide greater depth of information and attention to schools and non-formal education programs. Working cooperatively with the ONMS Education Team, MBNMS can develop messages consistent with both ocean literacy and MBNMS Action Plans. Regionally, MBNMS will work with other west coast sanctuaries to develop programs to educate people throughout CA/WA on ocean literacy concepts. The model for this already exists with the LiMPETS program. General classroom education programs will also be provided through the Visitor Centers in Santa Cruz and San Simeon.

Activity 4.1: Develop educational programs and supporting materials for school groups including those visiting MBNMS visitor centers.

The MBNMS will develop and implement K-12 education programs geared to increase ocean literacy and ocean stewardship among students. Programs will be based upon MBNMS resources and issues, relevant to what is being taught in K-12 classrooms, and relevant to existing and emerging California state standards. Programming content will be meaningful in ways aiding schools in addressing California standards. Ultimately, increased knowledge of ocean issues, and in particular the MBNMS, will allow students to be more active ocean stewards and to better understand the issues related to ocean management.

Activity 4.2: Provide teacher professional development programs utilizing sanctuary educational materials and promoting ocean literacy.

As the purveyors of education, teachers play an integral role in ocean literacy among students. The MBNMS will provide teachers with meaningful professional development experiences incorporating oceans, MBNMS issues, and instructional pedagogy. These experiences will be instrumental in ensuring long-term benefits to students, to the other community members they serve as teachers, and ultimately to the oceans.

Activity 4.3: Develop and make available Sanctuary educational tools for use in schools.

Teachers continue to lack resources to provide quality science and environmental education. In response, and based upon input from teachers, the MBNMS will develop a suite of educational tools for use in schools designed to increase ocean literacy, understanding of the MBNMS, and understanding of resource-use issues within the MBNMS. Tools should also support programming outlined in strategies 4.1 and 4.2 and thus should be developed for both student and teacher audiences.

Activity 4.4: Develop ocean stewardship programming for K-12 students in conjunction with education partners.

The MBNMS, in conjunction with education partners, will develop programming for K-12 students designed to put ocean literacy into action through stewardship. The MBNMS and its partners will provide opportunities for students to conduct research tied to conservation, to participate in conservation related activities and programs, and to participate in meaningful outdoor experiences in which conservation and stewardship are a key element. MBNMS will explore the development of “Ocean Weeks,” using these partners, for schools adjacent to the Sanctuary.

Strategy OLCB-5: Implement the MBNMS Multicultural Education for Resources Threatening Oceans (MERITO) Program

In 2001, the Monterey Bay National Marine Sanctuary (MBNMS) developed a multicultural education program named Multicultural Education for Resource Issues Threatening Oceans (MERITO), in response to the changing demographics in Central California. Latinos represent the fastest growing population in this region. Developing relationships with this large citizen group is a priority for the MBNMS. Although this action plan will focus on programs for Latino citizens, future plans will include efforts to reach additional culturally diverse groups.

The MERITO program was developed in collaboration and partnership with agencies and organizations serving Latinos in an effort to provide expanded bilingual outreach and education about marine and coastal environments and their conservation to youth, teachers, adults, migrant families and community leaders. From October of 2000 to January 2001, MBNMS staff collected information, using a needs assessment tool, through thirty individual meetings with regional community leaders representing different community groups, school districts, universities, non-profit organizations, city, state and federal agencies, and the farm industry. Personal interviews resulted in a list of critical needs to address in order for the MBNMS to provide effective education for the Latino community. Based on needs identified through an assessment process, this strategy will seek to develop and deliver bilingual outreach programs and materials that will effectively inform Latino citizens about threats to marine and coastal environments. In addition, this strategy will strive to effectively engage Latino constituents in marine and coastal issues addressed in this management plan through programs and materials geared for diverse audiences. The needs, which represent the first phase of this effort include providing increased opportunities for classroom and field outreach experiences, bilingual outreach materials, college internships, teacher and youth leader professional development and training opportunities.

Activity 5.1: Community-Based Bilingual Outreach Program (After-school program, adult ed, field experiences)

MBNMS's MERITO Program will collaborate with K-12 schools, adult schools and community groups to build upon and foster new community-based outreach for Latino youth, adults, migrant families, and community leaders. Outreach programs will include the implementation of the existing Watershed Academy After-school program, adult education presentations, and MERITO's community field experiences.

- A. Continue to provide classroom support, training and curriculum at the middle school level to increase marine and watershed education awareness and knowledge of water quality issues in Hispanic-serving schools through the Sanctuary's MERITO "Watershed Academy" program. Please visit MERITO website for more information on the "Watershed Academy."
- B. Continue to deliver a train-the-trainer workshop to prepare teachers and youth leaders to implement the MERITO Watershed Academy at their site.
- C. Involve agricultural, automotive and hospitality industry representatives and community leaders in the "Watershed Academy" programs and youth leader trainings.
- D. Continue to provide a field-tested "lesson plan" to adult and community groups with the goal of developing an awareness and interest in visiting coastal sites and increasing their knowledge of specific MBNMS protection issues. Each "lesson plan" will be presented by a bilingual education specialist and include a Power Point presentation focused on particular priority issues related to MBNMS resource management such as coastal water quality issues, beach closures, wildlife disturbance, fishing, marine protected areas, and more. The presentation will also include an interactive watershed model demonstration and a written evaluation.
- E. Develop, pilot and implement a series of community leader briefings related to MBNMS priority issues. Each issue-based topic will become a campaign to inform community

leaders about specific issues that affect their community such as water quality, beach closures and marine protected areas, and provide a forum for increasing Latino participation in marine protection.

- F. Develop a comprehensive schedule of marine and watershed conservation seminars, presentations and public meetings for Latino community members to participate in.
- G. MBNMS will continue to provide a variety of field experiences for Latino families, adults, youth and community leaders, incorporating fun and learning in the context of important “take-home” conservation messages related to priority resource issues. This field experience program includes a three-part field series offering Latino community members the opportunity to participate in the MERITO “Tidepool Day,” “Kayak Day,” and “Slough Hike.” This three-part series is offered in spring and again in fall for a total of six field experiences per year. MERITO staff will recruit for field experiences from adult education programs, community events and community leader briefings.
- H. Continue to collaborate with the Water Quality Protection Program (WQPP) Agricultural and Rural Lands Plan to provide Spanish bilingual agricultural technical trainings addressing best practices.
- I. Expand programs to additional Hispanic-serving schools and communities, if deemed effective.

Activity 5.2: Site-Based Bilingual Outreach Program (Demographic surveys, develop bilingual materials w/partners, support partner events)

Encouraging visitation by Hispanic and other culturally diverse groups is a huge challenge for many natural resource sites, centers, and parks across the nation. Many of these coastal sites fall under the jurisdiction of other governmental agencies, such as Elkhorn Slough National Estuarine Research Reserve (ESNERR) and California Department of Parks and Recreation (DPR) and assist in conveying the MBNMS message through these partnerships. By collaborating with these agencies, MBNMS will increase the understanding of currently existing barriers for audiences in coastal use areas and be more effective in reaching the Latino public. Increased visitation to such coastal sites will provide an opportunity for the Latino community to better understand the relationship of land to sea. Encouraging visitation to coastal partner sites that provide an introduction or information on the importance of the MBNMS will help bring awareness about the existence of a national marine sanctuary and provide a forum to expand our message to new audiences.

- A. Collect and compile existing and ongoing demographic data from coastal visitation sites, identify gaps in the data, and make recommendations on how to improve the survey data and methods.
- B. Develop a formalized plan outlining the necessary survey tools and methods required to better understand how the Latino public utilizes coastal sites.
- C. Assist partner sites in collecting demographic survey data in order to measure increased Latino visitation both related and unrelated to MERITO site-based outreach efforts.
- D. Continue to support partner field experiences that involve Latinos in environmental activities including bilingual, in-nature programs such as (kayaking, tidepooling, whale watching) and walks (dune walks, birding hikes).

- E. Increase marine and watershed education activities at identified Latino community events by providing an exhibit booth. MERITO staff will identify events and continued participation will be determined annually based on evaluation.
- F. Partner with agencies to identify the need to develop bilingual outreach materials including, but not limited to, lesson plans for adults and schools, a series of adult education worksheets, coloring books on storm drain pollution, books with stories of interest, newsletter articles, media products such as radio and TV Public Service Announcements (PSAs) and other interpretive brochures and materials. Currently, a limited number of Spanish-language products are available within the NMSP. Bilingual materials will be distributed through the appropriate community-based programs.

Activity 5.3: Teacher Training and Internship Program

This activity addresses the need for increased professional development opportunities for Hispanic-serving teachers focused on marine science, and increased paid-internship opportunities for Hispanic undergraduate and graduate level students.

- A. Our partners at California State University, Monterey Bay (CSUMB) identified the need to provide effective professional development focused on marine science to in-service teachers. In addition, they state that the large influx of new teachers flooding Central California schools need effective tools to teach science to diverse students. Based on that data, the MBNMS will also continue to support partner institutions with professional development workshops.
- B. CSUMB has also identified the need to provide marine-focused internships to undergraduate and graduate level students and, in the past, has received funding from NOAA’s Environmental Entrepreneurship Program/Minority Serving Institution (NOAA MSI) grant to support this goal. The MERITO Bilingual Outreach Internship was implemented through this partnership for 2003 and 2004. MBNMS will continue to work with CSUMB to recruit, train and mentor Latino interns to assist MBNMS staff with implementing MERITO, collecting survey data, and a variety of other tasks listed on the MBNMS website.

This activity anticipates partnering with additional institutions as both the MERITO program and its internship opportunities grow. Potential partners could include Monterey Institute of International Studies and community colleges such as Hartnell and Monterey Peninsula College.

Activity 5.4: Comprehensive Communications Plan

Media is an effective outreach tool that will continue to be involved in all MERITO programs and projects. MBNMS will work with the NMSP West Coast Communication Team to effectively engage Spanish and other media groups, including print, radio, TV, and internet in delivering bilingual messages related to marine and coastal watershed protection.

- A. Develop and implement targeted media products related to key MBNMS issues for Latino adults, migrant families, industry representatives and community leaders. Identify target audiences within the Latino community and develop targeted media products addressing specific resource issue outreach as part of the larger MBNMS communications plan. Such audiences may include automotive shops, restaurants, car

washes and more.

Activity 5.5: Integration of Multicultural Elements To Existing MBNMS Programs And Materials

MBNMS will build multicultural elements into existing programs and materials for education, resource protection, and research based on needs identified in the 2005 MBNMS Management Plan. Potential elements include Spanish-language signage, management plan materials, interpretive center information and new outreach materials. Costs for translation service, reprinting and production for existing outreach materials exist. Lastly, MERITO staff may need to provide bilingual services for outreach programs outside of education.

- A. Over the next ten years, the MBNMS will transition into having Hispanic serving programs integrated into general education programs with the long-term goal of providing multicultural education and outreach in all of its programming strategies. In addition, MERITO will serve as a guide in shifting the education and outreach approach in the MBNMS and other Sanctuaries to better serve our entire communities using multicultural planning and pedagogy in program development and implementation.

Activity 5.6: Intra-Sanctuary Expansion of MERITO (CINMS expansion, regional website, expansion to other sanctuaries)

NOAA's NMSP supports using the MBNMS's Multicultural Education Program as a model multicultural marine conservation outreach and education program for other national marine Sanctuaries across the nation. This activity will focus on providing support to those Sanctuaries interested in developing a multicultural education initiative.

- A. The MBNMS and CINMS will manage a contractor to conduct a thorough needs assessment of the gaps in marine and ocean education reaching multicultural audiences for the Channel Islands region. This contractor will work with the MBNMS and CINMS education coordinators to develop a plan for expanded program implementation.
- B. The MBNMS, CINMS and the NMSP will recruit a contractor to develop a regional MERITO website to include current MBNMS and CINMS Web pages and act as a template for other sanctuaries as they develop their multicultural programs.
- C. Over the next ten years, MERITO programming will be built into education programs throughout the California, west coast and other national marine sanctuaries as identified through regional needs.

Activity 5.7: Evaluation of MERITO Programs

In order to evaluate success in meeting the needs identified by the Latino community, MERITO developed a comprehensive evaluation plan for all MERITO programs. Through a partnership with NOAA's Coastal Services Center, MERITO now has in place a full evaluation plan allowing the MBNMS to track progress of short-, mid- and long-term outcomes for eight target audiences within the Latino community. Using a logic model as the main tool to develop the evaluation plan involved developing outcomes also reflecting those outcomes identified in other MBNMS priority issues. The evaluation process will include correlating the measurable goals identified for each activity and comparing their related short-term (one year) and long-term (five

year) outcomes, in order to measure the success/failure rate. MBNMS will continue to evaluate the MERITO program on an annual basis, making revisions as needed to improve tracking for outreach methods and strategies. Specific tools developed to evaluate program success include:

- A. Individual community interviews to guide direction of MERITO programs done on an ongoing basis.
- B. Pre and post-tests for students involved in the MERITO “Watershed Academy” as front end and formative assessment of knowledge gained through the program.
- C. Pre and post community field experience interviews conducted over the phone to determine the impact of field experiences and retention of first time and repeat participants.
- D. Adult presentation assessments conducted post presentation as a representative baseline for the community and comparison with the field experience evaluations.
- E. Teacher training assessments given during the MERITO Watershed Academy Workshop and throughout the year.
- F. Demographic surveys at partner sites to demonstrate the success/failure of the MERITO effort to promote partner sites through community-based programming.

For more information on critical needs, MERITO programs developed to meet those needs, or the MERITO evaluation plan visit <http://montereybay.noaa.gov/educate/merito/welcome.html> or request a MERITO program report.

Action Plan Partners: California Department of Parks and Recreation Monterey District; City of Salinas; City of Watsonville; Elkhorn Slough National Estuarine Research Reserve; Channel Islands National Marine Sanctuary; Monterey Bay Sanctuary Foundation; California State University, Monterey Bay – Recruitment in Science Education; California State University, Monterey Bay – Return of the Natives; City of Salinas; City of Watsonville; Monterey Bay Kayaks; Salinas Adult Education; Watsonville Adult Education; Agricultural Land-Based training Association; Municipal MPDS Permittees; Resource Conservation District of Monterey County; University of California Cooperative Extension; Boys & Girls Club of Monterey County; Monterey County Office of Education – Migrant Education; Monterey Peninsula Unified School District - Under the Big Top; Pájaro Valley Unified School District; Salvation Army; Monterey Bay – Earth System, Science & Policy Institute; Monterey Bay – Recruitment in Science Education; Monterey Bay – Service Learning Institute; Newspaper partners: The Californian and El Sol; The Register-Pajaronian; Radio partners: KLOK – Entravision Communications, KSES – Tres Colores/La Estrella; KHDC- Radio Bilingue; and Radio Campesina Television partners: KSMS – TV 67 Univision; Channel Islands National Marine Sanctuary; Gulf of the Farallones National Marine Sanctuary; Cordell Bank National Marine Sanctuary; National Marine Sanctuary Program; other Sanctuaries as identified

Table OLCB 1: Measuring Performance Ocean Literacy and Constituent Building Action Plan

Desired Outcome(s) For This Action Plan:	
Increase our diverse communities' understanding of ocean relationships and threats within the MBNMS and affect change in individual behavior.	
Performance Measures	Explanation
Increase MBNMS Outreach programming efforts to reach 15,000 individuals in 2005 to 50,000 individuals in 2012.	MBNMS staff will track the number of individuals that the program has reached on an annual basis. Additional tracking of performance will be conducted and reported through program funding and feedback mechanisms and may also be included in overall management plan tracking.
Increase participation of culturally diverse individuals in MBNMS events from 15,000 in 2005 to 30,000 in 2012	MBNMS will track the number of culturally diverse individuals participating in MBNMS events.

Table OLCB 2: Estimated Timelines For The Ocean Literacy and Constituent Building Action Plan

Ocean Literacy and Constituent Building Action Plan	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy OLCB-1: Develop and Implement Constituent Outreach Programs to increase Ocean Literacy	●—————▶				
Strategy OLCB-2: Develop and Implement a Comprehensive Volunteer Program	●.....●—————▶				
Strategy OLCB-3: Create Partnerships with Local Businesses	●—————▶				
Strategy OLCB-4: Develop and Implement K-12 Education Programs to Increase Ocean Literacy	●—————▶				
Strategy OLCB-5: Implement the MBNMS Multicultural Education for Resource Issues Threatening Oceans (MERITO) Program	●—————▶				
Legend					
Year Beginning/Ending	: ●—————●	Major Level of Implementation: —————			
Ongoing Strategy	: ●————▶	Minor Level of Implementation:			

Table OLCB 3: Estimated Costs For The Ocean Literacy and Constituent Building Action Plan

Strategy	Estimated Annual Cost (in thousands)*				
	YR 1	YR 2	YR 3	YR 4	YR 5
Strategy OLCB-1: Develop and Implement Constituent Outreach Programs to increase Ocean Literacy	\$219.6	\$219.6	\$209	\$209	\$209
Strategy OLCB-2: Develop and Implement a Comprehensive Volunteer Program	\$75	\$151	\$151	\$151	\$151
Strategy OLCB-3: Create Partnerships with Local Businesses	\$0	\$150	\$175	\$175	\$150
Strategy OLCB-4: Develop and Implement K-12 Education Programs to Increase Ocean Literacy	\$0	\$0	\$231.8	\$231.8	\$231.8
Strategy OLCB-5: Implement the MBNMS Multicultural Education for Resource Issues Threatening Oceans (MERITO) Program	\$376	\$367.5	\$384	\$370.5	\$391
Total Estimated Annual Cost	<i>\$670.60</i>	<i>\$888.10</i>	<i>\$1,150.80</i>	<i>\$2,937.3</i>	<i>\$1,132.80</i>

* Cost estimates are for both “programmatic” and “base” (salaries and overhead) expenses.