
CORDELL BANK
NATIONAL MARINE SANCTUARY



FINAL MANAGEMENT PLAN

PREPARED AS PART OF THE
JOINT MANAGEMENT PLAN REVIEW (JMPR)

VOLUME I OF IV

OCTOBER 2008

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE
NATIONAL MARINE SANCTUARY PROGRAM





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FINAL MANAGEMENT PLAN

October 2008



The Cordell Bank National Marine Sanctuary (CBNMS) Final Management Plan (FMP) represents the outcome of a three-year community-based process. The issue areas and programs addressed in this document were built with guidance from the general public, sanctuary staff, agency representatives, experts in the field and the sanctuary advisory council. We would like to give special thanks to the members of the sanctuary advisory council who collectively dedicated over 2,100 hours of volunteer time to this effort. Josh Churchman, Chuck Wise, Dan Cohen, Carol Keiper, Tom Lambert, Lance Morgan, Todd Steiner, Bill McMillon, Doreen Moser-Gurrola, Duffy Ross, Richard Powers Joe Smith and Michael Mery – your contribution of time and input into the completion of this management plan cannot be overstated.

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For readers who would like to learn more about the management plan, CBNMS policies and community-based management processes, we encourage you to visit our website at www.cordellbank.noaa.gov. Readers who do not have Internet access may call the Sanctuary office at (415) 663-0314 to request relevant documents or further information.

The National Oceanic and Atmospheric Administration's (NOAA) National Marine Sanctuary Program (NMSP) seeks to increase public awareness of America's ocean and Great Lakes treasures by conducting scientific research, monitoring, exploration and educational programs. Today, the program manages thirteen national marine sanctuaries and one marine national monument that together encompass more than 150,000 square miles of America's ocean and Great Lakes natural and cultural resources.

The NOAA Ocean Service manages the sanctuary program and is dedicated to exploring, understanding, conserving and restoring the nation's coasts and oceans and works to balance environmental protection with economic prosperity in its mission promoting safe navigation, supporting coastal communities, sustaining coastal habitats and mitigating coastal hazards.

NOAA, an agency of the U.S. Commerce Department, is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and providing environmental stewardship of our nation's coastal and marine resources.

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JOINT MANAGEMENT PLAN REVIEW STUDY AREA



CORDELL BANK NATIONAL MARINE SANCTUARY MAP

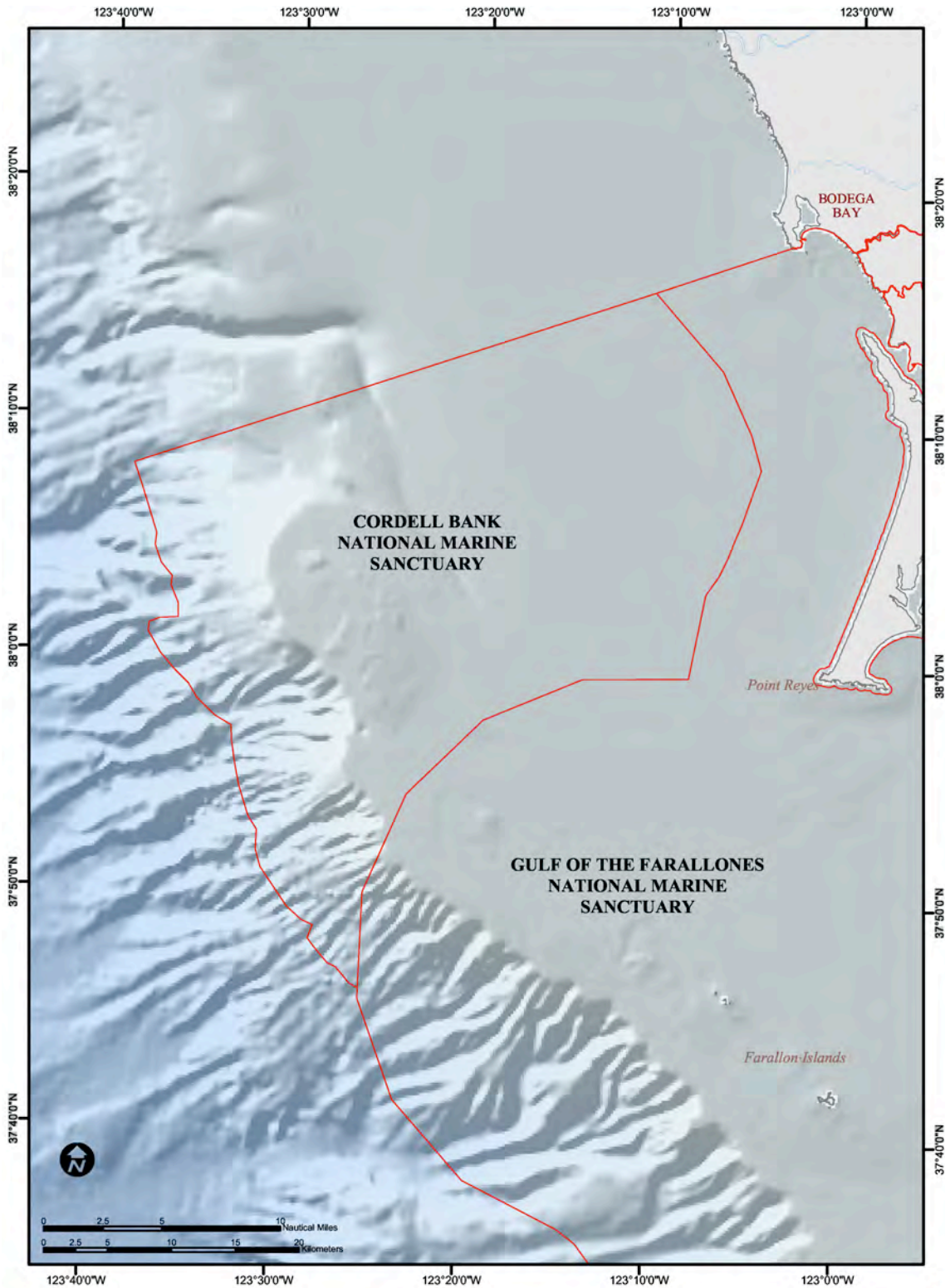


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EXECUTIVE SUMMARY

Current Status

This document is the Final Management Plan (FMP) for Cordell Bank National Marine Sanctuary (CBNMS), resulting from a management plan review of the sanctuary, the first since the implementation of its final regulations in 1989. The National Oceanic and Atmospheric Administration (NOAA) has prepared the plan in cooperation with sanctuary staff, the public, state and federal agencies, stakeholders, and the Cordell Bank Sanctuary Advisory Council.

CBNMS Designation

CBNMS has been vested with the authority, in accordance with the National Marine Sanctuaries Act (NMSA) to provide comprehensive and coordinated conservation and management of the marine resources on the continental shelf, from 6 to 30 nautical miles due west of Point Reyes, California, and 43 nautical miles northwest of the Golden Gate Bridge. This is an area of special significance due to its unique geological and oceanic features that create conditions supportive of an extraordinarily diverse and abundant marine life, and thus was designated a National Marine Sanctuary in 1989. The main feature of the sanctuary is an offshore granite bank 4.5 miles wide by 9.5 miles long. The rocky bank emerges from the soft sediments of the continental shelf, with the upper pinnacles reaching within 115 feet of the ocean's surface, and shelf depths at the base of the Bank in roughly 300 to 400 feet of water.

Management Plan Review

The 1992 amendments to the NMSA required that each of the national marine sanctuaries engage in a management plan review process every five years to reevaluate site-specific goals and objectives, management techniques, and strategies. The National Marine Sanctuary Program (NMSP) reviewed the management plans of Cordell Bank, Gulf of the Farallones, and Monterey Bay national marine sanctuaries jointly. These sanctuaries are located adjacent to one another, are managed by the same program, and share many of the same resources and issues. In addition, all three sites share overlapping interest and user groups. It has also been more cost effective for the NMSP to review the three sites jointly, rather than conducting three independent reviews.

This management plan review process has provided CBNMS with the opportunity to: take a closer look at how the environment has changed over the past seventeen years; understand the cause and effect relationship of human activity and natural perturbations on the marine resources; and engage the public in the management decision making process. As a result of this process, CBNMS is reshaping how it manages the marine resources, from restructuring its program areas to updating its regulations.

CBNMS' Original Management Plan

The specific requirements of the sanctuary's original management plan were compatible with the overall sanctuary management concept embodied in the NMSA and its implementing regulations (15 CFR, Part 922), which requires that a management plan be prepared for each national marine sanctuary. The original management plan, developed at the time of designation of the sanctuary, provided guidelines to ensure that all management actions undertaken in the first five years of designation were directed to resolving important issues as a means of meeting sanctuary objectives. Management objectives were considered in three areas: resource protection, interpretation, and research. The management plan also called for promulgation of five regulations or prohibitions.

CBNMS' Revised Management Plan

This new CBNMS Final Management Plan (FMP) is one of three (Volume I of IV) management plans, including a Final Environmental Impact Statement (FEIS), that comprise the set of management strategies and proposed regulatory actions for the three sanctuaries that have been engaged in the Joint Management Plan Review (JMPPR). Although there has been every attempt to coordinate structure and content across the three management plans, each plan reflects the different working groups, make-up of sanctuary advisory councils and sanctuary staff, and site-specific approaches to the management plan review process. Additionally, each of the three sanctuaries has a different history and is in a different stage of its life cycle.

Since its designation in 1989, CBNMS has grown from having no dedicated staff for the first six years, to hiring the first full-time staff member in 1995, but was funded by Gulf of the Farallones National Marine Sanctuary (GFNMS). In 1998, a separate \$129,000 budget was allocated; in 2000, two additional staff were hired; and in 2003, a manager was hired.

The NMSP has identified six phases that describe the evolution of a sanctuary from designation to maturation over a period of approximately 10-20 years. The phases include pre-designation and designation, start-up and early operations, transition (first management plan review), mature operations, recalibration (second management plan review), and adaptive management. Today, CBNMS is in the transition phase, implementing its first management plan with the support of a staff of six and a budget of \$635,000, and many new partnerships. The new management plan provides the framework for implementing the five action plans listed below.

The CBNMS final management plan will guide the operation of the sanctuary for the next five to ten years, helping the sanctuary set budget and project priorities each year in preparation of its annual operating plan. Timelines and annual estimates are presented in this plan to: assist staff in the development of the CBNMS annual operating plan; assist the sanctuary advisory council (SAC) in advising management on priority issues; and help the public to better understand the approximate time frames and costs needed to carry out the strategies and activities presented throughout the plan.

Five action plans are contained in the FMP:

1. Education and Outreach
2. Ecosystem Protection
3. Partnerships with Community Groups
4. Conservation Science
5. Administration

The implementation of the five action plans within the CBNMS management plan will take place within the framework of the Ecosystem Protection Implementation Plan (see pages 197-205), which is organized around three key habitats of the sanctuary: rocky relief of the Bank, soft bottom habitat, and open ocean. This approach ensures that the sanctuary adequately addresses the priority resource management issues within each key habitat. It also allows sanctuary staff to identify opportunities to collaborate between program areas focused around priority sanctuary habitats.

INTRODUCTION

OVERVIEW

Purpose and Need for Designation

Cordell Bank National Marine Sanctuary (CBNMS) has been vested with the authority, in accordance with the National Marine Sanctuaries Act (NMSA), to provide comprehensive and coordinated conservation and management of the marine resources surrounding the northernmost seamount on the California continental shelf. Cordell Bank is characterized by a combination of oceanic conditions and undersea topography that provide for a highly productive environment in a discrete, well-defined area. The Bank itself consists of a series of steep-sided ridges and narrow pinnacles resting on a plateau 300 to 400 feet deep. The shallowest depth on Cordell Bank is 115 feet below the sea surface, yet only a few miles to the west there are water depths of 6,000 feet.

The prevailing California current flows southward along the coast, moving nutrients to the upper levels of the Bank, while upwelling of nutrient-rich bottom waters stimulates growth of planktonic organisms. These nutrients, combined with high light penetration in bank waters, sustain a vigorous biological community that includes various algae and numerous types of invertebrates, fish, marine mammals, sea turtles and seabirds. The particular combination of benthic plants and animals at Cordell Bank and their variation with depth may be found in few, if any, other places. Some species are deep-water forms, but most are known from nearshore waters.

The eastern edge of the sanctuary is located 6 nautical miles from the coast and is separated from the coast of Marin and Sonoma counties by the northern arm of Gulf of the Farallones National Marine Sanctuary (GFNMS). The coastal areas of west Marin and Sonoma counties are sparsely populated, with ranching, dairy farms, agriculture, and public open space maintaining the rural character. Bodega Bay is a fishing port that harbors the closest marinas to the sanctuary. The harbor also serves as the departure point for charter vessels that provide recreational fishing and wildlife viewing opportunities in the sanctuary, although access to the sanctuary is often limited due to unfavorable sea conditions.

History of CBNMS

In July 1981, the National Oceanic and Atmospheric Administration (NOAA) received a recommendation to establish Cordell Bank as a National Marine Sanctuary from Cordell Expeditions, a non-profit organization dedicated to the exploration and description of the Bank. NOAA evaluated the recommendation in accordance with the requirements of the National Marine Sanctuary Program (NMSP) regulations (15 CFR 922). Cordell Bank was found eligible for inclusion on the List of Recommended Areas (LRA) and was placed on the list in 1981. More complete information on the site was collected by NOAA and incorporated into a resource summary and site description that was distributed to the public and agencies for comment in 1982. It was determined that Cordell Bank was an area of special significance that was not

adequately protected. The final rule went into place in 1989, and Cordell Bank was designated a national marine sanctuary. The operation and management of CBNMS was originally combined with that of the adjacent GFNMS, then known as the Point-Reyes Farallon Islands National Marine Sanctuary (PRNMS). Under this approach, the management of the research, education, and resource protection programs were a collateral function of the GFNMS manager. Since its designation in 1989, the sanctuary has grown from having no staff or budget to a dedicated staff of six and an annual budget of \$635,000. The first full-time staff member was hired in 1995, but was funded by GFNMS. In 1998, a separate \$129,000 budget was allocated; in 2000, two additional staff were hired; and in 2003, a manager and an additional staff member were hired. The original management plan, developed at the time of designation of the sanctuary, provided guidelines to ensure that all management actions undertaken in the first five years of designation were directed to resolving important issues as a means of meeting sanctuary objectives. Management objectives were considered in three areas: resource protection, interpretation, and research. The management plan also called for promulgation of five regulations or prohibitions.

THE CBNMS MANAGEMENT PLAN

The CBNMS management plan is made up of two complementary parts: regulatory and non-regulatory. The regulatory component includes both site-specific regulations or prohibitions and general regulations that apply to all thirteen national marine sanctuaries. Regulations are used to control or restrict human behavior that is not compatible with resource protection. The non-regulatory component of the management plan includes CBNMS' three program areas: Education and Outreach; Conservation Science; and Resource Protection. These three program areas are supported by an administrative framework that ensures all resource management activities are coordinated and provides an appropriate infrastructure to help meet the goals and objectives set forth by this management plan. Collectively, the above-mentioned parts make up the whole of the management plan and all the parts are important tools for effective resource management.

Both the regulatory and non-regulatory components of the management plan are structured to address the priority resource management issue areas identified during the management plan review, which include the following site-specific issues and programs: Education and Outreach; Ecosystem Protection; Partnerships with Community Groups; Conservation Science; Boundary Modifications; and Administration. The priority cross-cutting issues and programs identified through the management plan review process include: Maritime Heritage; Ecosystem Monitoring; Community Outreach; and Administration. The spatial context for addressing these issues is not limited by the geographically drawn, and often politically driven boundaries of just a single sanctuary, but is across all three sanctuaries included in the Joint Management Plan Review (JMPR) process as well as areas outside of CBNMS, GFNMS, and the Monterey Bay National Marine Sanctuary (MBNMS).

Management Plan Reviews

The 1992 congressional legislation that reauthorized the NMSA required that each of the national marine sanctuaries engage in a management plan review process to reevaluate site-specific goals and objectives, management techniques, and strategies. This five-year management plan review process has provided CBNMS with the opportunity to: take a closer

look at how the environment has changed over the past fifteen years; understand the cause and effect relationship of human activity and natural perturbations on the marine resources; and engage the public in the management decision making process. As a result of this process, CBNMS is reshaping how it manages the marine resources by restructuring its program areas and regulations. Management issues are complicated by many factors including: incomplete ecosystem-based scientific knowledge on which to base decisions; the diversity of uses and interests that need to be considered; the environmental, social, economic, and cultural value of the resources; and the complexity and diversity of the marine resources themselves.

Joint Management Plan Review Process (JMPR)

The NMSP reviewed the management plans of CBNMS, GFNMS, and MBNMS jointly. These sanctuaries are located adjacent to one another, are managed by the same program, and share many of the same resources and issues. In addition, all three sites share overlapping interest and user groups. It was also more cost effective for the NMSP to review the three sites jointly than to conduct three independent reviews. During the review, the sanctuaries evaluated management and operational strategies, regulations, and boundaries. The review process provided an opportunity to better coordinate programs between the three sanctuaries.

Cross-Cutting Action Plans

The goal of the cross-cutting action plans is to build upon existing coordination efforts and identify some activities that should be jointly implemented so that these three sites can operate as integrated and complementary sites to better protect the sanctuary resources. This will ensure that scarce program resources are used more efficiently and result in more consistent and coordinated delivery of programs, products and services to the public. Cross-cutting actions plans were developed to address: Administration and Operations; Community Outreach; Ecosystem Monitoring; and Maritime Heritage. Though the implementation of other activities contained in the site-specific plans may also be effectively coordinated, the NMSP determined that the cross-cutting action plans would be jointly developed and implemented jointly across the three sites.

Biogeographic Assessment

In support of the JMPR process, NOAA's Biogeography Program developed an assessment to identify important biological zones, time periods, and ecological linkages within the three national marine sanctuaries and their encompassing biogeographic region. This Geographic Information Systems (GIS) analysis extended from Point Arena in the north to Point Sal in the south, and identified key biological areas (e.g., areas of species richness and reproductive areas), time periods, and communities within the area of interest on the continental shelf and slope. The results of the biogeographic assessment have been integrated into the FMP / Final Environmental Impact Statement (FEIS).

The Value in Building Community Partnerships

Recognizing the challenges that lay ahead with the management plan review process, in December 2001, a CBNMS Sanctuary Advisory Council was assembled with six members and five alternates to provide advice to the sanctuary manager on resource management issues. The advisory council includes one agency and five stakeholder representatives, with an alternate for each seat. The advisory council provides a platform for public input into the management of the marine resources of CBNMS. This partnership has allowed CBNMS to make use of and build on the knowledge, roles, and resources that the private sector and other agencies have to offer. The advisory council participated in the entire management plan review process, from scoping meetings to providing input on the range of issues to be addressed in the new management plan. The advisory council has been a vehicle for drawing in public support, making progress through cooperation, and including the community in the decision-making process.

BUILDING A NEW MANAGEMENT PLAN

Vision Statement

The vision, goals, and objectives that follow are based on those in the original management plan. At the commencement of the JMPR process, CBNMS staff worked together to build a vision for the future of the site over the next five years and beyond that reflects the current sanctuary framework and needs:

Cordell Bank is characterized by a combination of oceanic conditions and undersea topography that supports rich and diverse marine communities. Two worlds come together at this offshore submerged island: open ocean species thrive in close proximity to a benthic reef community.

CBNMS' highest priority is resource protection. The sanctuary takes a leading role in ecosystem management, focusing on biological and physical processes. Together, with our partners, we work to protect biological communities and their habitats. By addressing current management issues and anticipating future challenges to Cordell Bank, we strive to maintain a healthy marine environment now and for future generations.

CBNMS Goals and Objectives

CBNMS has clearly defined goals on which to develop program areas and regulations for the Cordell Bank Sanctuary. These goals are broad and intended to be for the site as a whole. Specific goals and objectives were also developed for each issue or program area in the management plan. In order to be consistent with the guiding legislation established in the NMSA, the overriding constitution for the thirteen national marine sanctuaries, CBNMS has chosen the following priority goals:

Improve the conservation, understanding, management, and sustainable use of marine resources;

Enhance public awareness, understanding, and appreciation of the marine environment;

Maintain for future generations the habitat and ecological integrity of the natural assemblage of living resources that inhabit these areas;

Maintain the natural biological communities, protecting and (where appropriate) restoring and enhancing natural habitats, populations, and ecological processes;

Provide authority for comprehensive and coordinated conservation and management of these marine areas and activities affecting them, in a manner that complements existing regulatory authorities;

Create models of, and incentives for, ways to conserve and manage these areas, including the application of innovative management techniques; and

Cooperate with global programs encouraging conservation of marine resources.

The management strategies planned for CBNMS are directed to meet these goals and objectives. It should be noted that although the sanctuary goals and objectives are listed discretely, they are overlapping. Collectively, the management strategies developed in the management plan address the full range of goals and objectives set forth in the previous paragraph.

Addressing Goals and Objectives within an Ecosystem Context

These priority goals and objectives lead CBNMS to take an ecosystem-based approach to managing a fluid marine environment with great temporal and spatial complexity and diversity. CBNMS' experience during the management plan review process has shown that the scientific community, resource agencies, and the public have recognized the importance of an integrated ecosystem-based approach to protect marine biodiversity and habitats. The NMSP's emphasis on marine ecosystem management is consistent with other state and federal agencies' programs and initiatives.

Very early on, CBNMS took the steps to ensure an ecosystem approach for the management plan review process by identifying a study area for the DEIS. It was determined that in this JMPPR process the study area would be inclusive of a broader biogeographic area from Point Arena to Point Sal, where biological zones, time periods, and ecological linkages could be identified irrespective of the political boundaries of the individual sanctuaries. In addition to looking at ecological components across boundaries, human-use activities and corresponding resource management issues were evaluated and, as appropriate, addressed across a broader geographic boundary than a single sanctuary. This broad-scale ecosystem approach is carried over into the action plans in the FMP.

Tools for Effective Management Planning

CBNMS' management plan was built not only to protect the marine resources and biodiversity, but also to consider maintenance of economic equity, cultural integrity, and human social structures. CBNMS is looking at a wide range of activities that take place in the sanctuary and evaluating them in terms of whether they are compatible with resource protection and protect the structure, function, and diversity of the marine environment. In order to better evaluate human-

Introduction

CBNMS Final Management Plan

use activities and their impacts on the resources, CBNMS used three strategic tools in the development of the management plan: science, socioeconomics, and local knowledge.

Science

Protection of living and nonliving marine resources is the primary objective of the NMSP, and science serves an important role in understanding, measuring, and predicting change in the status of the marine ecosystem. Scientific inventories, research, and monitoring provide an important information base for resource managers to understand and evaluate the effectiveness of management regimes. NOAA collected data from individual researchers and institutions throughout the region and, where possible, integrated it into our GIS to spatially identify significant living and nonliving marine resources, habitats, and physical and geological features. These data were used to help describe and define the ecosystem, identify areas of special significance, and locate important ecosystem support systems.

Socioeconomics

In California alone, ocean industries such as fishing and shipping account for approximately 2 percent of the gross domestic product, amounting to roughly \$800 billion annually. These numbers paint an important picture about the need to properly manage the marine resources. A sustainable community recognizes both ecosystem sustainability and economic sustainability as mutually beneficial. The NMSP considers not only the potential cost of management restrictions on income generating activities, but also public benefits derived from long-term protection of nationally significant resources. A cost/benefit analysis, found in the FEIS, will help to determine the socioeconomic impacts on user groups of any proposed actions in this management plan.

Local Knowledge

Local knowledge represents the voice of direct experience and interaction with the marine resources over time. Many of the community partners involved in the management plan review process have been in and on the waters of the sanctuary for up to half a century. Their knowledge is more extensive and long range than much of the scientific research available for the study area. CBNMS not only honors and incorporates local knowledge, but also realizes stakeholder groups have a deep and integrated respect for the natural world. These local voices represent local interests, issues, and concerns to be balanced against those from the outside. The sanctuary advisory council (SAC), local mariners, and the public provided valuable input to the development of this management plan.

Looking at the Next Five Years and Beyond

Since its establishment in 1972, the NMSP has been building models for better marine resource management. But even today, with better knowledge of the natural world and more experience managing human behavior, the NMSP continues to build new models to enhance resource protection. This is why we call the CBNMS management plan a “living document,” serving as a flexible and responsive framework for managing impacts on natural marine systems.

Cordell Bank Sanctuary’s “living document” also serves as a proactive tool for planning a sustainable future. To ensure a sustainable future, CBNMS’ “living document” will provide a framework for not only addressing the resource management issues of the present, but also anticipating those emerging issues of the future.

The emergence of new issues and other unforeseeable factors may affect specific aspects of sanctuary management as described in this plan. However, the overall goals, management objectives, and general guidelines will continue to be relevant. Throughout the next five years of this plan, the aim is to carefully adjust the plan to changing circumstances in light of the experience gained in actual management. Additionally, modification to the scope and scale of the action plans may have to be made due to unforeseeable changes in levels of funding. Again, the goals and objectives of the plan will remain unchanged.

OVERVIEW OF JOINT MANAGEMENT PLAN REVIEW PROCESS

The National Marine Sanctuaries Act (NMSA) requires the National Marine Sanctuary Program (NMSP) to periodically review sanctuary management plans to ensure the sanctuary sites continue to best conserve, protect, and enhance their nationally significant living and cultural resources. Cordell Bank National Marine Sanctuary (CBNMS) had not reviewed or revised its management plan since its designation in 1989. Recent scientific discoveries, advancements in managing marine resources, and new resource management issues provide the basis for the development of this new five-year management plan.

The NMSP has reviewed the management plan of CBNMS together with those of Gulf of the Farallones and Monterey Bay national marine sanctuaries. These sanctuaries are located adjacent to one another, managed by the same program, and share many of the same resources and issues. In addition, all three sites share many overlapping interest and user groups. It is also more cost effective for the program to review the three sites jointly rather than conducting three independent reviews. Using a community-based process that has provided numerous opportunities for public input, the NMSP identified priority resource management issues to be addressed in the management plans. Through the review process, management strategies, regulations, and boundaries were also evaluated.

The sanctuary's management plan describes the objectives, policies, and activities for CBNMS. It also describes boundaries, identifies staffing and budget needs, and sets priorities and performance measures for resource protection, research, and education programs. The management plan will guide the development of future management activities over the next five years.

STAGES OF THE CBNMS MANAGEMENT PLAN REVIEW PROCESS

Public Scoping Meetings

The CBNMS management plan review process began in Fall 2001 with a four-month public scoping period to identify specific management priority issues for the next five to ten years. As a part of the Joint Management Plan Review (JMPR), the NMSP held twenty public scoping meetings in communities throughout the northern-central California coast, in Sacramento, and in Washington, D.C. Approximately 1,000 people participated in these forums and submitted approximately 4,000 comments. All comments were compiled and posted on the JMPR website (<http://www.sanctuaries.nos.noaa.gov/jointplan/>).



*Joint management plan review public meeting.
Photo: Sarah Marquis, NOAA*

Overview of Jmpr Process CBNMS Final Management Plan

In addition to public scoping meetings, the program accepted written comments. Comments were sent to the NMSP in the form of e-mails, letters, faxes, and petitions. The program received approximately 6,500 e-mails, 300 letters, 13 faxes, and a petition with 1,700 signatures. A *Summary Scoping Document* was prepared and distributed to each of the sanctuary advisory councils. This document organizes all the comments received through early February 2002 into thirty general issue categories.

Issue Prioritization

Four separate prioritization workshops were held with the sanctuary advisory councils to evaluate the cross-cutting and site-specific marine resource management issues identified during the public scoping process. These recommendations were given to staff for consideration in developing the final list of issues to address in the Jmpr.

The first workshop held in April 2002 in Half Moon Bay, involved all three advisory councils jointly prioritizing the cross-cutting issues raised during the scoping process. Cross-cutting issues were defined as any issue that applied to two or more sanctuaries. Following this joint workshop, individual advisory councils met to prioritize site-specific issues raised during the public scoping process. The results from these workshops were distributed to advisory council members in a document entitled *Report on Sanctuary Advisory Council Prioritization Workshops*. The document is posted on the Jmpr website (<http://www.sanctuaries.nos.noaa.gov/jointplan/>).

The *Report on Sanctuary Advisory Council Prioritization Workshops* summarizes the results from four separate prioritization workshops held with members of the Cordell Bank, Gulf of the Farallones, and Monterey Bay national marine sanctuaries advisory councils. One workshop was held jointly with all three advisory councils to prioritize the cross-cutting issues. The three advisory councils also met individually to prioritize site-specific issues raised during scoping. This document includes the actual ranking the councils gave to each issue based upon the following criteria: site benefits, urgency, and feasibility.

NMSP staff (from all three sanctuaries and the NMSP headquarters) met to determine, as a program, the final list of priority cross-cutting and site-specific marine resource management issues to address in the management plan reviews. This group developed the final list of management plan issues using the advice of the advisory council and sanctuary staff, including the *Report on Sanctuary Advisory Council Prioritization Workshops*. The final list was released to the public in the document entitled *National Marine Sanctuary Program Selection of Priority Issues to Address in the Joint Management Plan Review*. This document is posted on the Jmpr website (<http://www.sanctuaries.nos.noaa.gov/jointplan/>).

The *National Marine Sanctuary Program Selection of Priority Issues to Address in the Joint Management Plan Review* report presented the priority issues the NMSP planned to address in the Jmpr process. The cross-cutting and site-specific priorities are presented in a summary chart as well as a text explanation of the rationale behind the decision to address or not address each issue.

Issue-Based Working Groups

Issue based working groups were established to recommend specific actions for the sanctuary to undertake to address priority issues identified during the public scoping and prioritization phases. The working groups met, on average, eight times over a seven-month period from December 2002 through June 2003. Membership of the groups included sanctuary staff, members of the advisory council, nominated experts from the community, agency representatives, and the public. The groups heard from technical advisors, reviewed published documentation, and used this information to recommend specific management actions for the sanctuary to use in developing the new management plan. CBNMS created four working groups and two internal teams, and participated in five cross-cutting working groups. While working groups included outside experts, internal teams consisted of sanctuary staff only.

The CBNMS site-specific working groups were: Education and Outreach; Ecosystem Protection; Partnerships with Community Groups; and Conservation Science. The site-specific internal teams were Administration and Boundary Modifications. The cross-cutting working groups (including representatives from two or more sanctuaries and advisory councils) were: Ecosystem Monitoring; Maritime Heritage; and Community Outreach. The cross-cutting internal team was Administration. The recommendations that came out of these working groups were prioritized and the highest ranked activities were compiled in a document entitled *Cordell Bank National Marine Sanctuary Recommendations*. The document is posted on the JMPR website (<http://www.sanctuaries.nos.noaa.gov/jointplan/>).

The *Cordell Bank National Marine Sanctuary Recommendations* report details the goals, objectives, and strategies recommended by each working group. The report includes background information, an overview of the working group participants and process, a detailed description of each proposed strategy, and how each strategy was ranked according to the criteria of: Site Benefits; Complexity; Short-term Feasibility; Long-term Feasibility; Improved Coordination Between Sites; and Urgency.

Review of Working Group Recommendations

The recommendations from the issue-based working groups underwent several rounds of review in preparation for creating the Draft Management Plan (DMP). The recommendations were first sent to the sanctuary advisory council (SAC), which reviewed the document as a whole and forwarded it with their comments and priorities to the sanctuary manager. The advisory council considered: overlaps or gaps within the recommendations; the feasibility and value of each proposed activity; and any suggestions or comments. The advisory council also prioritized each activity as high or low priority based on six criteria: Site Benefits; Complexity; Short-term Feasibility; Long-term Feasibility; Improved Coordination Between Sites; and Urgency (the same criteria used by the working groups).

The sanctuary staff then reviewed the SAC's recommendations, comments and priorities using the same considerations and criteria that the SAC had used. The sanctuary manager considered both the staff and advisory council comments as he made the final decision regarding activities to be included in the DMP.

Final Management Plan

Following the DMP public comment period, sanctuary staff revised the DMP, by addressing comments, and incorporating changes to create the Final Management Plan (FMP) and Final Environmental Impact Statement (FEIS). The FMP/FEIS will be released to the public and submitted to Congress and the governor for review. Following a 45-day review period and completion of any necessary changes, the final management plan (FMP) and accompanying regulations will become effective.

SANCTUARY SETTING

PHYSICAL SETTING

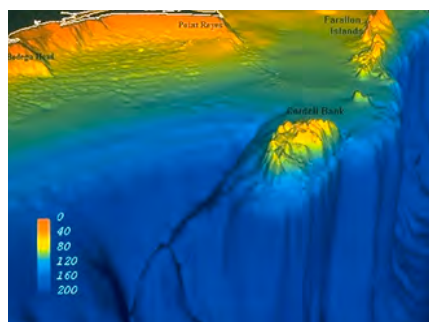
Location

Cordell Bank National Marine Sanctuary (CBNMS) protects an area of 529 square miles (399 square nautical miles) off the northern California coast. The main feature of the sanctuary is Cordell Bank, an offshore granite bank located on the edge of the continental shelf, about 43 nautical miles northwest of the Golden Gate Bridge and 20 nautical miles west of the Point Reyes lighthouse. CBNMS is entirely offshore, in federal waters, and shares its southern and eastern boundary with the Gulf of the Farallones National Marine Sanctuary (GFNMS). The CBNMS eastern boundary is six miles from shore and the western boundary is the 1000 fathom isobath on the edge of the continental slope.

CBNMS is located in one of the world's four major coastal upwelling systems. The combination of oceanic conditions and undersea topography provides for a highly productive environment in a discrete, well-defined area (Shmieder, 1982a). The vertical relief and hard substrate of the Bank provides benthic habitat with nearshore characteristics in an open ocean environment 20 nautical miles from shore.

Geology

Two distinctive geologic features characterize the geology of CBNMS: the shallow granitic Cordell Bank and the surrounding soft bottom of the continental shelf and slope.



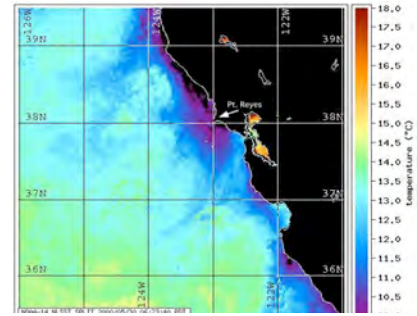
Cordell Bank perches dramatically on the edge of the continental shelf.

Cordell Bank is composed of a granite block that was created as part of the southern Sierra Nevada range some 93 million years ago. The Bank is one of the few offshore areas where the granite block emerges from the newer sediments that make up most of the continental shelf. The Bank itself is about 4.5 miles wide by 9.5 miles long. The Bank meets the continental shelf in water depths between 300 and 400 feet. Jagged ridges and pinnacles rise abruptly from this plain and reach up to 115 feet below the sea surface. In many places, the sides of the ridges and pinnacles are extremely steep, often with slopes greater than 80 degrees (Shmieder, 1985). Six nautical miles to the west of the Bank, along the sanctuary boundary, the continental slope drops steeply to 6,000 feet and more.

The ocean bottom around the Bank and within the sanctuary contains few distinguishing features and is chiefly comprised of mud and sand deposits. Deposits of undifferentiated mud and sand extend in a plume to the south and a fan to the east of Cordell Bank. The complexity of the underwater topography and sediment distribution increases near the coast within GFNMS.

Climate and Oceanography

The calendar year at Cordell Bank can be broken into three oceanographic seasons: upwelling season, relaxation season, and winter storm season. The upwelling season typically begins with the spring transition, characterized by strong persistent winds from the northwest. This usually occurs sometime in late February or early March, and is the start of the annual productivity cycle along northern and central California. During this season, upwelling driven by winds from the northwest alternate with periods of calm. These winds generally begin to subside by late July. August through mid-November is the relaxation season. During this time, winds are mostly light and variable, and the seas can be calm for a week or two at a time. This changes abruptly with the arrival of the first winter storms from the Gulf of Alaska. From late November through early February, winter storms create large waves and strong winds along the coast. Ocean conditions can be treacherous all year, but especially during winter storms.



*Satellite image of the temperature of the ocean surface from the spring of 2000.
Photo: NOAA*

BIOLOGICAL SETTING/ LIVING MARINE RESOURCES

Marine Birds



Black-footed Albatross feed in the productive waters of CBNMS. Photo: Rich Stallcup

The waters around Cordell Bank provide critical foraging habitat for many species of seabirds. Seabird density over Cordell Bank can be among the highest of any area in central and northern California. Fifty-nine seabird species have been identified feeding in or near the sanctuary. The composition of seabirds found at Cordell Bank is a mix of local breeding birds and highly migratory, open-ocean species. While the local residents use the nearby Farallon Islands and Point Reyes areas to nest, some migrants nest thousands of miles away. A recent study using radio tags documented that Black-footed Albatross nesting in the northwest Hawaiian Islands were “commuting” to Cordell Bank waters to forage before returning to feed chicks on their nests on Midway Atoll.

Other migratory species use the productive waters around the Bank as a stopover on their annual migration route. Hundreds of thousands of Sooty Shearwaters can be seen on days when they are migrating through the sanctuary. Sanctuary waters are equally important to local breeders. Most of the world’s small population of Ashy Storm-petrels, which nest on Southeast Farallon Island, can be seen on the water near the Bank. More than 20,000 Cassin’s Auklets have been counted in a single day.



Gulls, albatross, and many other marine birds inhabit the surface of CBNMS in search of food. Photo: Rich Stallcup

Some common sanctuary species include the Black-footed Albatross, Northern Fulmar, Sooty Shearwater, storm-petrels, Cassin's Auklet, Rhinoceros Auklet, phalaropes, and many species of gulls.

Marine Mammals

Twenty-six species of marine mammals (a combination of resident and migratory species) have been observed within the sanctuary. Gray whales, for example, pass the Bank on their annual migrations between Arctic feeding grounds and Mexican breeding areas.



Dall's porpoises feed on fish species in CBNMS. Photo: Peter Pyle

The Dall's porpoise is one of the most frequently sighted marine mammals in the sanctuary, along with humpback and blue whales. Individuals of all species use the sanctuary as a destination feeding ground. Large numbers of the eastern Pacific humpback whales and blue whales feed during the summer months within the Cordell Bank-Bodega canyon area.

The harbor porpoise, a species widely distributed in coastal waters but rarely seen offshore, is regularly observed within the sanctuary's shallow areas. Pacific white-sided dolphins and northern right whale dolphins are abundant. Other cetaceans observed in the sanctuary include Risso's dolphins and killer whales.

The California sea lion, the most abundant pinniped in California waters, has been observed in CBNMS more frequently and in greater numbers than other pinnipeds. The northern fur seal is also abundant in the area in late fall and winter (most of them use summer breeding grounds in the Channel Islands). Steller sea lions have decreased drastically in California in recent years, but Cordell Bank remains a feeding area for this species, possibly because of the abundance of rockfish and sardines around the Bank. Nearby rookeries include Año Nuevo Islands and the Farallon Islands. The sea lions' winter haul-out grounds include Point Reyes and offshore rocks along the Sonoma County coast.



California sea lions are the most common pinniped found in CBNMS. Photo: NOAA

Fish Resources

More than 180 species of fish have been identified in the CBNMS. Many species of rockfish (*Sebastes* spp.) can be found at all depths and habitats on and around the Bank. The Bank provides critical habitat for young of the year, juvenile, and adult rockfishes. Lingcod are especially conspicuous in the wintertime, when they move up onto the Bank to spawn. Many species of flatfish use the soft-bottom habitat around the Bank, and albacore tuna and salmon frequent the



Humpback whales congregate in the waters of CBNMS for the krill found there in abundance. Photo: Tom Kieckhefer

Sanctuary Setting ***CBNMS Final Management Plan***

sanctuary on a seasonal basis. The recovery of the Pacific sardine population is apparent in the waters surrounding Cordell Bank.

Benthic Organisms

An abundant cover of benthic organisms can be seen on the upper rock surfaces of Cordell Bank. The constant food supply washing the Bank combined with a hard substrate for attachment provide ideal conditions that support a rich assemblage of benthic invertebrates. The high light penetration allows for algal photosynthesis far deeper than in nearshore coastal waters. These conditions support benthic algae more commonly associated with shallow nearshore habitats. Space is the limiting factor on the upper pinnacles and ridges of Cordell Bank. Ridges are thickly covered with sponges, anemones, hydrocorals, gorgonian corals, hydroids, tunicates, and scattered crabs, holothurians, and gastropods. In some places, the cover is up to one foot thick and very brightly colored, mainly in white, pink, yellow, and red. The brilliant reds produced by the fluorescent strawberry anemones are especially striking.



Rockfish (Sebastes spp.) occupy many niches in the Bank ecosystem. Photo: Tony Chess



Encrusting life of all colors cover the bank pinnacles. Photo: Cordell Expeditions

HUMAN-USE ACTIVITIES

Regional Context

The eastern edge of the sanctuary is located six nautical miles from shore and is separated from the coast of Marin and Sonoma Counties by the northern arm of GFNMS. As an offshore sanctuary, human activities within the sanctuary are limited due to its remote nature. The primary activities include commercial shipping (the northern shipping lane of San Francisco Bay passes through the sanctuary), commercial and recreational fishing, wildlife viewing, research, and education. The coastal areas of west Marin and Sonoma counties are sparsely populated, with ranching, dairy farms, agriculture, and public open space maintaining their rural character. Most of the people in Marin and Sonoma live about an hour inland from the coast. Bodega Bay is an active fishing port that has the closest marinas to the sanctuary. This harbor also serves as the departure point for charter vessels that provide recreational fishing and wildlife viewing opportunities in the sanctuary.

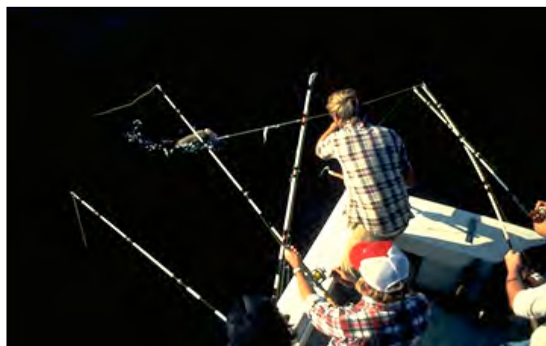
To the southeast of the sanctuary is the major San Francisco metropolitan area, with a population of about eight million people. The City and County of San Francisco functions as the administrative center of the Bay Area, providing a focal point for many financial, transportation, manufacturing, and government establishments, as well as a source of jobs for area residents.

Commercial Shipping

The southeast corner of Cordell Bank is located approximately five nautical miles from the terminus of the northern shipping lanes designated by the U.S. Coast Guard (USCG). Vessel

traffic entering or leaving San Francisco Bay via the northern lane passes through the sanctuary. From June 1, 2000, through June 30, 2001, 2,291 commercial vessels reported using the northbound shipping lanes. Of these, 935 were inbound and 1,356 were outbound. San Francisco is a staging port for cruise ships traveling north through CBNMS to Alaska and, to a lesser degree, south to Monterey. Cruise ship calls to San Francisco Bay in 2005 included 88 separate visits.

Fishing Activities



Commercial and recreational fishing target rockfish, salmon, and pelagic species. Photo: NOAA

The Cordell Bank area has supported an active commercial and recreational fishery. Commercial and recreational activity is regulated by the Pacific Fishery Management Council (PFMC) and the California Department of Fish and Game (CDFG). Commercial fisheries have generally targeted groundfish, flatfish, salmon, crab and albacore tuna. Recreational fisheries have generally focused on rockfish, lingcod, salmon, and albacore tuna. Most of the private boats and charter vessels that fish at Cordell Bank are from Bodega Bay. Recreational fishing at Cordell Bank is strongly influenced by the

weather. Strong winds and rough ocean conditions often prevent smaller boats from venturing out to the Bank.

Wildlife Viewing

Wildlife viewing is an increasingly popular activity at Cordell Bank. The birding community has traveled to the Bank for many years to observe species of open ocean seabirds. More species of albatross have been seen over Cordell Bank than anywhere else in the Northern Hemisphere.



Wildlife viewing is the best way for people to experience the rich environment of Cordell Bank. Photo: NOAA

Because of the abundance of food, the Cordell Bank area is also a destination feeding ground for leatherback sea turtles, humpback and blue whales. Beginning in early summer and continuing through fall, feeding turtles, humpback and blue whales frequent sanctuary waters. This coincides with the calmest weather of the year, and many charter vessels from Bodega Bay and San Francisco make regular whale-watching trips to the Bank at this time.

Education

One of the sanctuary's goals is to promote appreciation, public awareness, and understanding for the marine resources of Cordell Bank. The sanctuary education program sponsors a yearly lecture series; participates in many outreach events; hosts a monthly radio show; delivers programs at local schools; and trains teachers to educate about the sanctuary and the ecosystem it protects. Other opportunities for the public to learn about the sanctuary include: interpretive displays, brochures, websites, and field ecology outings.

Research

The first research effort at Cordell Bank occurred in 1869 when Edward Cordell mapped the Bank. Early research was confined to geographic surveys and rock sampling. In the 1970s and 80s, Cordell Expeditions, a non-profit organization, initiated a process of exploration to describe the Bank. Today, the majority of research and monitoring in the sanctuary is conducted by the sanctuary or in partnership with other state and federal agencies and non profit organizations. Every year, the National Marine Fisheries Service assesses juvenile rockfish recruitment and regularly conducts population surveys for adult fishes. The sanctuary has been monitoring ocean conditions since 1997.

These programs have included the investigation of oceanographic conditions and how they relate to the distribution and abundance of krill, seabirds, and whales. From 2001 to 2005, the sanctuary and partners characterized benthic habitats on Cordell Bank and monitored fishes and invertebrates on and around the Bank.



Research in CBNMS answers important questions about the ecosystem the sanctuary protects. Photo: NOAA

Schmieder, Robert W. Cordell Bank Expedition Report 1984. Cordell Expeditions, Walnut Creek, CA. November 1985



NATIONAL MARINE
SANCTUARIES™

CORDELL BANK

**SITE-SPECIFIC
ACTION PLANS
CBNMS FINAL MANAGEMENT PLAN**

- I. Structure of Action Plans**
- II. Education and Outreach**
- III. Ecosystem Protection**
- IV. Partnerships with Community Groups**
- V. Conservation Science**
- VI. Administration**

STRUCTURE OF ACTION PLANS

This Final Management Plan (FMP) is a set of functionally based action plans that outline how the sanctuary will be managed for the next five years. Each action plan outlines how different strategies will be conducted and presents the costs that might be incurred for each strategy; sets coordinated timelines for carrying out all strategies; and proposes performance indicators as a measure of management effectiveness.

DEVELOPMENT OF ACTION PLANS

Through the extensive community-based management plan review, resource management issues to be addressed in the management plan were identified. Working groups were formed to address each of these issues. Working groups consisted of sanctuary staff, members of the advisory council, experts, agency representatives and the public. These groups worked together to identify the priority issues the sanctuary faced and the outcomes that should be sought for each issue. The working groups developed the goals and objectives, strategies, and activities to achieve those outcomes. The following issues and program areas are addressed in this management plan:

- A. Education and Outreach
- B. Ecosystem Protection
- C. Partnerships with Community Groups
- D. Conservation Science
- E. Administration

OUTLINE OF ACTION PLANS

Each action plan is divided into eight sections, which are described in detail below.

Issue Statement/ Program Statement

The issue (or program) statement clearly and concisely provides an introduction about “why” this is a priority issue to be addressed by the sanctuary in the management plan. It may include a brief description of the current situation or problem, and specific areas, which need attention.

Issue Description/ Program Description

The issue (or program) description provides a general background on what the sanctuary currently knows or understands about an issue. Program descriptions explicitly describe the types of activities already undertaken by the sanctuary and the general direction it would like to move in the future. It includes the status of natural resources, related human-use activities occurring in the sanctuary, and jurisdictional authorities pertinent to the specific issue.

Goals

The goal states “what” is the desired future state of the Cordell Bank National Marine Sanctuary (CBNMS) ecosystem and management relevant to the specific resource management issue or program area. The goal is a broad statement about a long-term desired outcome that may or may not be completely obtainable.

Objectives

The objectives are measurable outcomes for evaluating progress and success in moving toward the future desired condition. It will be achieved in a specific time frame to help accomplish the desired goal.

Strategies

The strategies section is a description of how the objectives will be accomplished for the particular issue or program area. Each strategy addresses one or more objectives and is divided into specific activities for the sanctuary staff to carry out. Activities are developed and implemented to achieve the goals and objectives of the issue or program area.

Where applicable, the potential partners, products, and complementary strategies are listed. The potential partners are only those organizations that the sanctuary has contacted as possible partners on the particular activity, and have shown interest in contributing to the effort. This list does not limit the partners the sanctuary may work with, but merely serves as a guide when implementing the activity. The sanctuary may partner with other organizations as work on the particular activity progresses. Likewise, the products listed are projected, but additional or altered products may become more appropriate as the strategy is completed.

Many activities within this plan complement each other by providing the groundwork for other activities to take place or by being similar such that efficiencies can be achieved by working on them together. Where this is the case, the complementary strategies are listed beneath the activity.

Timeline

A general timeline is included for each action plan and presents the projected calendar for initiating and completing each strategy over the next five years. The timeline shows the planning, implementation, and where appropriate, the completion stage for each strategy. These timelines are based upon staff workload, coordination with related strategies, and the assumption that funds will be available.

Budget

The budget table for each action plan presents the estimated costs by year for conducting the activities and strategies contained in this plan, including estimated staff salaries. These budget numbers represent the sanctuary’s best estimate of what it will cost to conduct the programs and projects described over a five-year period. However, each year the sanctuary will prepare an annual operating plan that will determine that year’s priorities and costs in the context of not

only the overall revised management plan, but current problems facing the site and general national priorities as well. Therefore, costs as estimated in this management plan may be somewhat different than determined by the Annual Operating Plan (AOP) each year. These estimates are also subject to a number of other caveats:

- The sanctuary's base budget is available each year from appropriated funds;
- There is both availability of and opportunity to receive additional funding from appropriated funds;
- The estimates do not take into account increasing personnel costs each year or inflation; and
- The estimates do not take into account unexpected events or emergencies or unforeseen projects.

Where appropriate, a PAC FUNDS entry indicates that strategy costs will be covered by a separate congressionally allocated fund for facilities and construction.

Performance Measures

Each action plan includes a chart presenting the outcomes expected and the performance indicators that will be used to measure progress toward the outcome. This effort is being undertaken to measure the sanctuary's management effectiveness (i.e. the achievement of a planned effort or activity). The methodology to be used to assess the effectiveness of each strategy in achieving the desired goal is detailed in this chart. The definitions for the performance measure terminology follow.

<i>Strategy</i>	The management action taken by the sanctuary to address a particular issue.
<i>Performance Goal</i>	The overarching, very broad target for the action plan. The goal(s) under each issue area or program area action plan.
<i>Desired Outcome (Objective)</i>	The more specific outcomes we want to achieve with our activities within the scope of the performance goal. The objectives under each issue area or program area action plan.
<i>Outcome Measure</i>	A specific amount or degree of the indicator that shows progress towards the desired outcome. Could contain temporal (by year) and range targets (percent, fraction, etc.).
<i>How Measured</i>	Describes exactly how the outcome measure will be measured.
<i>Who Measures</i>	Who of the staff or outside partner will measure the outcome.
<i>Output Measure</i>	A specific product or tool that results from the activity. Its production demonstrates a completed objective.

OVERVIEW MATRICES OF PROGRAM AREA STRATEGIES

From a manager's perspective, every strategy in the management plan is a task for staff in one or more of the four program areas. The Program Area Overview Matrices (Appendix I) section organizes all strategies and activities into the four program areas: Administration, Education and

Outreach, Conservation Science, and Resource Protection. The overview matrices list the Strategies, Activities, Objectives, and Complementary Strategies under each program area.

IMPLEMENTATION OF THE MANAGEMENT PLAN

This plan is designed to guide management of the marine resources of CBNMS for the next five years. Implementation of this new management plan will require cooperation and coordination among many federal, state, and local government agencies, as well as private organizations and individuals. Information exchange, sharing facilities and staff, and the coordination of policies and procedures within an ecosystem context are features of this management plan and each of its program areas. As this plan is being implemented, CBNMS will work to facilitate all public and private uses of those resources that are compatible with the primary objective of resource protection.

Limitations

Although this five-year management plan for CBNMS details the action plans for the five program areas, how these strategies are implemented may be affected by multiple factors. These factors include: (1) funding that comes primarily from congressional appropriations that may fluctuate from year to year; (2) CBNMS' ability to forge new partnerships in which staff, facilities and financial resources may be shared; (3) CBNMS' need to be responsive to the ever changing impacts on the sanctuary's marine resources from both natural perturbations and human activities; (4) an increased understanding of the complexity of the ecosystem, habitats, and living marine resources; and (5) learning better ways to manage the resources through experience, experimentation, and the sharing of knowledge. Sanctuary staff, the sanctuary advisory council, the public, and CBNMS' partners will, as appropriate, provide oversight and guidance for redirecting any management plan strategies. A summary of the estimated cost for each action plan is included in Table 1.

Incremental Funding Scenarios

Table 2 provides an outline of how the various strategies in the management plan will be implemented. The implementation of the strategies depends on various factors including:

- Status of strategy implementation
- Priority of strategy implementation
- Coordination level necessary with partners for implementation, and
- Funding source for strategy implementation

The status of the strategy indicates the amount of work completed or the level of implementation of a strategy at the time of the management plan review. Certain strategies and activities have been partially or wholly implemented prior to or during the management plan review. Other strategies are new as part of the updated management plan or may not be initiated until the future.

The priority of a strategy or action plan is indicated by the level of implementation based upon the funding or resources available. As stated previously, full implementation of the management

plan exceeds the resources available to the CBNMS therefore requiring some prioritization of the action plan or strategies. As resources become available, a greater level of implementation is possible. Table 2 outlines how much implementation could occur with the existing amount of resources and how increases in resources would affect the amount of implementation possible for each strategy or action plan.

Implementation of most of the strategies in this management plan will require some input or coordination from partners, particularly other government agencies, research institutions and non-governmental organizations (NGOs). Table 2 outlines the level of involvement expected from partners to achieve full implementation of each strategy. Many action plans and strategies are completely dependent on involvement from other agencies or dependent on research conducted by a research institution.

Funding for implementation of many of the strategies will require a mix of internal National Marine Sanctuary Program (NMSPP) funds as well as funding from external sources such as grants or in-kind work from partner agencies. Table 2 highlights the probable source of funding, primarily internal or external or a mix of funding sources.

Table 1: Estimated Costs for Action Plans

Action Plan	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Site-Specific Action Plans						
Education and Outreach	\$149	\$171	\$201	\$264	\$281	\$1066
Ecosystem Protection	\$103	\$138	\$274	\$289	\$279	\$1083
Partnerships with Community Groups	\$30	\$50	\$50	\$52	\$55	\$237
Conservation Science	\$175	\$205	\$327	\$541	\$326	\$1574
Administration	\$206	\$221	\$311	\$416	\$496	\$1650
Cross-Cutting Action Plans						
Administration and Operations	\$288	\$276	\$264	\$264	\$264	\$1356
Community Outreach	\$144	\$180	\$180	\$180	\$216	\$900
Ecosystem Monitoring	\$381	\$525	\$567	\$531	\$471	\$2475
Maritime Heritage	\$237	\$237	\$246	\$270	\$270	\$1260
Total Estimated Annual Cost	\$1713	\$2003	\$2420	\$2807	\$2658	\$11601

The sanctuary's base budget is available each year from appropriated funds.

There is both availability of and opportunity to receive additional funding from appropriated funds.

The estimates do not take into account increasing personnel costs each year or inflation.

The estimates do not take into account unexpected events or emergencies or unforeseen projects.

**Education and Outreach Action Plan
CBNMS Final Management Plan**

Table 2: Incremental Funding Scenarios

		A	B	C	D	E	F
Funding Scenarios and Implementation of Action Plan Strategies		Activity Status:	Implementation Level Funding: Scenario 1	10% per year Increase: Scenario 2	20% per year Increase: Scenario 3	Partnership Coordination:	Primary Funding Sources:
Education and Outreach							
	ED-1: General Outreach	●	H	H	H	●	●
	ED-2: Sanctuary Naturalist Program	○	M	H	H	●	●
	ED-3: Media and Communications	●	M	M	H	●	●
	ED-4: Educational Tools to Promote Ocean Literacy	●	M	H	H	○	○
	ED-5: Interpretive Signage	○	H	H	H	●	●
	ED-6: Integrate Conservation Science into Education	●	H	H	H	●	○
	ED-7: Adult Education	●	M	H	H	●	●
	ED-8: Education Advisory Panel	●	H	H	H	●	●
	ED-9: Multicultural Programming	○	M	M	M	●	○
Ecosystem Protection							
	EP-1: Sanctuary Representation At Fisheries Forums	○	H	H	H	●	○
	EP-2: Track Human Use Activities	○	M	H	H	●	○
	EP-3: Evaluate Human Use Activities	○	M	H	H	●	○
	EP-4: Address Impacts From Human Use Activities	○	M	H	H	●	○
	EP-5: Support Krill Harvesting Ban	○	H	H	H	●	●
	EP-6: Profile Fishing Activities In Sanctuary	○	H	H	H	●	●
	EP-7: Assess Acoustic Impacts		M	H	H		
	EP-8: Assess and Remove Marine Debris		H	H	H		
Partnerships With Community Groups							
	PC-1: Research Community Partnerships	●	H	H	H	●	●
	PC-2: Sanctuary Advisory Council	●	H	H	H	●	○
	PC-3: Media Partnerships	●	H	H	H	●	●
	PC-4: Fiscal Partnerships	●	H	H	H	●	●
Conservation Science							
	CS-1: Oceanographic Climatology Report	○	M	H	H	●	○
	CS-2: Habitat Characterization	●	M	H	H	●	●
	CS-3: Characterize Soft-Bottom Epifaunal Communities	●	L	M	M	●	○
	CS-4: Characterize Soft-Bottom Infaunal Communities	●	M	H	H	●	○
	CS-5: Voucher Specimen Collection	○	L	M	M	●	○
	CS-6: Survey Museum Collections	○	L	M	M	●	●
	CS-7: Pelagic Monitoring	●	H	H	H	●	○
	CS-8: Fish and Invertebrate Monitoring	●	H	H	H	●	○
	CS-9: Data Management	●	H	H	H	●	○
	CS-10: Retention and Dispersal of Larval Fishes	●	M	H	H	○	○
Administration							
	AD-1: Operations	○	M	M	H	●	○
	AD-2: Staffing	○	M	H	H	○	○
	AD-3: Partnerships	●	M	M	H	●	●
	AD-4: Sanctuary Advisory Council	●	H	H	H	●	○

**Education and Outreach Action Plan
CBNMS Final Management Plan**

		A	B	C	D	E	F
Funding Scenarios and Implementation of Action Plan Strategies		Activity Status:	Implementation Level Funding: Scenario 1	10% per year Increase: Scenario 2	20% per year Increase: Scenario 3	Partnership Coordination:	Primary Funding Sources:
	AD-5: Interagency Coordination	●	M	H	H	●	●
	AD-6: Enforcement Plan	●	M	M	H	●	●
	AD-7: Emergency Response	●	H	H	H	●	●
	AD-8: Planning and Evaluation	●	M	H	H	○	○
	AD-9: Regulations and Permitting	●	H	H	H	○	○
	AD-10: New and Emerging Issues	○	M	M	M	●	○
	Boundary Modifications						
	B-1: Boundary Modification Framework	○	L	M	M	●	○

Legend			
Column A	Column B, C, D	Column E	Column F
Strategy Status: ● – Existing w/o significant modification ● – Existing w/ significant modification ○ – New (since '05) or future (not yet implemented)	Implementation* (w/ NMSP Funding): H – High M – Medium L – Low * Implementation ranking considers the priority of each strategy as well as the percentage of activities that could be initiated, maintained, and/or completed under differing funding scenarios.	Necessary Partnership Coordination: ● – Not possible w/o partners ● – Significant reliance on partners ○ – Little reliance on partners	Primary Funding Sources (e.g., grants, Foundation): ● – External (e.g., grants) ● – Internal/ External ○ – Internal



EDUCATION AND OUTREACH ACTION PLAN

PROGRAM STATEMENT

Cordell Bank National Marine Sanctuary (CBNMS) has developed a long-term education and outreach action plan that builds a greater understanding and seeks to emphasize the ocean's influence on people and peoples' influence on the ocean using Cordell Bank National Marine Sanctuary and the greater California Current ecosystem as a focus. CBNMS will work to increase ocean literacy and awareness of the National Marine Sanctuaries to encourage ocean stewardship.

PROGRAM DESCRIPTION

This action plan addresses the need to cultivate an informed, involved constituency who care about protecting, conserving, and restoring our precious ocean resources and national marine sanctuaries. In addition to NOAA, NOS, and the national marine sanctuary program identifying a 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, stresses the need to increase 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 of conservation of marine resources, and realize future benefits from the ocean."*

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 increase 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,*
- *can 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.

Education programs listed in this plan are designed to enhance public awareness and understanding of the sanctuary in the context of its larger ecosystem-the ocean, and how people are connected to it, and to build stewards to take on the responsibility of protecting it. The development of effective and coordinated education programs is a priority for all national marine sanctuaries.

CBNMS will use education and outreach as a resource management tool to address specific priority resource management issues that are identified in the management plan and will coordinate with other program areas such as conservation science to disseminate findings. Developing partnerships with other agencies, institutions, and organizations is the key to success in building effective, well-coordinated education strategies. CBNMS and Gulf of the Farallones National Marine Sanctuary (GFNMS) will collaborate to serve common audiences.

Awareness raising activities cut both ways in generating greater support for sanctuary protection, as well as greater demand to access it. The harsh conditions and remoteness of CBNMS has kept it from the public eye-“out of sight, out of mind” and barring historical fishing activities, it has been relatively untouched to date. But as more people learn about the beauty and awe of Cordell Bank, many will want to go there and experience it either through diving or surface wildlife viewing trips. The sanctuary must therefore consistently underscore the message that in order to preserve the fragile balance of this special place, people must love it respectfully. Education and outreach activities therefore will focus on “bringing the place to the people.”

EDUCATION AND OUTREACH GOALS

1. Use education as a management tool to protect the sanctuary’s resources.
2. Build an education program that complements and promotes other sanctuary programs such as conservation science and resource protection.
3. Create an ocean literate public that is informed and involved

EDUCATION AND OUTREACH OBJECTIVES

1. Take a hierarchical educational approach by developing awareness and building a knowledge base to change behavior and build stewardship.
2. Increase communication and coordination among sanctuary education and outreach programs and partners.
3. Develop programs to target students, teachers, content builders, user/impact groups, influencers, and decision makers, citizens in Sonoma, Marin, and Mendocino watersheds.
4. Develop programs that target diverse audiences including various multicultural, socioeconomic, age, and gender groups.

EDUCATION AND OUTREACH STRATEGIES

STRATEGY ED-1: *Develop community support and partnerships for ocean conservation through targeted outreach efforts.*

Activity 1.1 In coordination with GFNMS and Monterey Bay National Marine Sanctuary (MBNMS), build community partnerships by engaging and informing the public about the CBNMS, neighboring sanctuaries, and the greater California Current Ecosystem.

- A. Develop tailored outreach messages for specific users and audiences and implement in CBNMS communication plan
- B. Develop shared outreach materials, products, lectures, and programs based on established priorities that address ocean literacy, and inspire stewardship by supporting and acknowledging behaviors that protect ocean resources.
- C. Work with the sanctuary advisory council, West Coast region for National Marine Sanctuary Program (NMSP), scientists, NMSP, users, regulatory agencies on identifying appropriate messages for reaching out to constituents.
- D. Identify and target outreach/education strategies that are relevant to reach culturally diverse and underserved communities

Potential Partners: GFNMS, MBNMS, CBNMS Sanctuary Advisory Council (SAC)

Complementary Strategies: GFNMS Management Plan, Education and Outreach, STRATEGY ED-11 and STRATEGY ED-13; MBNMS FMP, Operations and Administration, STRATEGY OA-4; Marine Protected Areas, STRATEGY MPA-8; CBNMS Partnerships with Community Groups, STRATEGY PC-2; Education and Outreach, STRATEGY ED-2, STRATEGY ED-3

STRATEGY ED-2: *Utilize volunteers and interns to assist sanctuary staff in communicating sanctuary messages to a broader audience and carrying out program needs.*

Activity 2.1 Develop a broad-based umbrella program to train volunteers and interns to deliver outreach and education messages in a variety of settings and venues.

- A. Create a framework and plan for supporting or collaborating with a long term volunteer Sanctuary Naturalist Program that trains volunteers and interns to: deliver outreach and educational messages; and deliver interpretive programs to schools, community groups, and at public events.
- B. Explore potential partnership with GFNMS, Farallones Marine Sanctuary Association (FMSA) and Point Reyes National Seashore, Student Conservation Association (SCA), Environmental Forum of Marin, and others as appropriate to develop or collaborate with an existing volunteer program.
- C. Develop training program and materials for volunteers and interns and provide ongoing learning opportunities for volunteer and interns including opportunities at sea,
- D. Evaluate volunteer/intern satisfaction and effectiveness of outreach program and add new training and volunteering opportunities as appropriate.
- E. Explore long term education/outreach formal intern opportunities with NOAA Hollings Scholarship Program, Student Conservation Association (SCA), Sonoma State University, Dominican University, and other area schools.

Potential Partners: GFNMS, FMSA, Point Reyes National Seashore (PRNS), Audubon Canyon Ranch (ACR), Stewards of the Coast and Redwoods, Russian River Stewards, Student Conservation Association, Environmental Forum of Marin, local universities and colleges

Products: Training manual, advertising materials, outreach materials, intern training program

Complementary Strategies: GFNMS FMP, Education and Outreach, STRATEGY ED-7; MBNMS FMP, Operations and Administration, STRATEGY OA-2, STRATEGY OA-4; Beach Closures, STRATEGY BC-2

Activity 2.2 Train volunteers and employees of existing interpretative and volunteer organizations/agencies to deliver and incorporate CBNMS educational messages through their programs.

- A. Identify and survey potential organizations for needs and willingness to partner with CBNMS to distribute education and outreach messages.

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- B. Develop general training presentation on CBNMS to reach a variety of education and interpretation audiences and continually update with current issues, topics of interest, and more effective media such as videos, animations, evaluate effectiveness of delivered programs.
- C. Create and distribute outreach materials about CBNMS.
- D. Maintain regular communication with partners and provide updated presentations, videos, and handouts to staff and volunteers as needed.

Potential Partners: GFNMS, PRNS, Stewards of the Coast and Redwoods, The Marine Mammal Center (TMMC), FMSA, ACR, Bodega Marine Laboratory (BML), Sea Grant Extension, Watershed Councils, Russian River Cleanup Committee.

Products: Sanctuary handbook, presentations, handouts, videos, activity kits, outreach CD, and kits including hands-on activities and models of whales and seabirds

Complementary Strategies: CBNMS FMP, Education and Outreach, STRATEGY ED-1

STRATEGY ED-3: In coordination with GFNMS and MBNMS, leverage local, regional, and national media opportunities to increase California's Ocean Literacy and Ocean Stewardship

Activity 3.1 Communicate with the media. Components of the site's media plan will be developed in coordination and cooperation with GFNMS and MBNMS.

- A. Complete CBNMS media and communications plan and review site plan annually as needed. Incorporate National Marine Sanctuary Communication Playbook tools as appropriate.
- B. Define staff's roles and SAC's roles in working with the media and have all staff and SAC participate in media training.
- C. Develop an annual media plan for upcoming events, including identifying and creating media opportunities, roles, and timelines
- D. Develop a regular CBNMS spot on local radio station (KWMR). Model after "Star Date" and "Zoo Monday." Create podcast of show for Cordell website.
- E. Develop and maintain relationships with local media.
- F. Develop and distribute press kits at events as appropriate.
- G. Participate in NOAA's Ocean Communicators network (Thank you ocean campaign). Apply campaign tools to media work at the site

Potential Partners: National Marine Sanctuary Program (NMSP) Headquarters, PRNS, GFNMS, FMSA, MBNMS, CBNMS SAC

Products: Media/communications plan, media kits, sanctuary radio spot, press releases

Complementary Strategies: CBNMS FMP, Education and Outreach, STRATEGY ED-1; GFNMS FMP, Education and Outreach, STRATEGY ED-11; MBNMS FMP, Operations and Administration, STRATEGY OA-4

STRATEGY ED-4: *Promote ocean literacy and stewardship to far reaching audiences through the development of educational tools*

Activity 4.1 Develop portable products as outreach tools to educate a broader audience about the resources and activities of CBNMS and ocean conservation.

- A. Identify audience, purpose, need and justification to design portable products such as, but not limited to multimedia audio/visual products, internet based, hands on activities, teaching aids, exhibits, displays, photo database accessible to the public
- B. Identify audience, purpose, and need to plan and design printed materials such as posters, brochures, and one pagers. Evaluate those in existence and use results in future publications
- C. Consider cost/benefit of a printed newsletter about activities of CBNMS,
- D. Maintain an active, dynamic, and robust website that is continually reflecting changing programs and activities at Cordell Bank NMS and design standards

Potential Partners: NMSP, West Coast Region of the NMSP, NMSF, Point Reyes National Seashore Association, Point Reyes National Seashore

Products: Video, teaching aids, 3-D models, maps, exhibits, displays, public photo database, online podcasts, printed materials, website

Complementary Strategies: CBNMS FMP, Education and Outreach, STRATEGY ED-1, and STRATEGY ED-2

Activity 4.2 Expand CBNMS' reach into K-12 school audiences by creating standards-based curricular activity sets that complement existing curriculum and provide targeted professional development opportunities for teachers.

- A. Identify ocean themes relevant to people's everyday lives
- B. Identify Ocean Literacy themes, and how these topics apply to National/State based standards

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- C. Develop a finite number of standards-based activities in one or two different age groups (ie 4-6th, 7-8th, 9-12 grades)
- D. Engage partners and assemble an advisory group to review and provide feedback on activity sets.
- E. Present activities at science and environmental education related conferences to engage users
- F. Lead activities at partners' teacher trainings around northern CA.

Potential Partners: NMSP, West Coast Region's Sanctuaries, PORE, BWET program, non-profits in Bay Area doing EE and science education.

Products: curricular activities, CB educ advisory group, videos, props to accompany activities, presentations at conferences and teacher trainings

Complementary Strategies: CBNMS FMP, Education and Outreach, STRATEGY ED-1, STRATEGY ED-2, and STRATEGY ED-3

STRATEGY ED-5: In coordination with West Coast Region, increase awareness of CBNMS through interpretive signage and exhibits throughout the region.

Activity 5.1 Install interpretive signage at key field locations and place exhibits in museums and visitor centers throughout Marin, Sonoma, and southern Mendocino counties. Coordinate and collaborate with West Coast Region on presentation and messaging.

- A. Choose sign/exhibit locations based on diversity of visitors, both geographically, culturally, and relevance to messages.
- B. Establish and coordinate partnerships with staff at key locations where signage and exhibits are identified for the sanctuary.
- C. Secure funding, and create culturally and geographically relevant messages, content and designs
- D. Construct and install signs and exhibits, beginning with highest priority locations.
- E. Continue installing additional exhibits and signage as funding becomes available.

Potential Partners: GFNMS, MBNMS, PRNS, BML, GFNMS, California Academy of Sciences (CAS), Oakland Museum, Port of Bodega, Spud Point Marina, California State Parks

Products: Exhibits, signs, training materials for docents and teachers

Complementary Strategies: CBNMS FMP, Education and Outreach, STRATEGY ED-1,; MBNMS FMP, Interpretive Facilities STRATEGY IF-2

STRATEGY ED-6: *Increase awareness and knowledge of CBNMS Conservation Science programs by creating opportunities, programs, and materials for teachers and students*

Activity 6.1 Link sanctuary research programs with teachers and students by exploring ways to integrate conservation science projects into the classroom.

- A. Collaborate with West Coast Region to establish an annual Teacher at Sea program, with use of west coast vessel's Fulmar and McArthur II. *Note: due to variability of weather and ship time, and projects, this program may vary from year to year.*
- B. Collaborate with scientists conducting research in the sanctuary to make processes, and findings available to broader audiences including classrooms and teachers: ex remote sensing data i.e: Cordell Bank Buoy, and tagging of animals
- C. Work with participants from teacher at sea programs to develop activities and curriculum associated field experiences in relationship to the ecosystems of the sanctuary.

Potential Partners: West Coast Region, local schools, NOAA, BWET Grant recipients.

Products: Curriculum, products for teacher (write up, curriculum, classroom kit), news articles (press coverage), presentations at conferences

Complementary Strategies: CBNMS FMP, Education and Outreach, STRATEGY ED-1; Partnerships with Community Groups, STRATEGY PC-3

Activity 6.2 Encourage marine technology skills and careers in education programming. One of NOAA's goals is to provide skills to the future workforce to become the next leaders in ocean exploration and protection. Several NMS's are working together to align the sanctuary education programming with the marine technology community. We will engage students and teachers in the understanding of marine technology, by creating programs that encourage development of marine engineering skills, remote sensing, GIS skills, monitoring skills, and others.

- A. Increase sanctuary awareness through partnerships with the Marine Advanced Technology Education Center (MATE), Center for Image Processing and Education (CIPE), and National Geographic
- B. Create materials that are relevant to California state standards for teachers that utilize marine technology skills and information.
- C. Explore use of GIS technology and sanctuary related data sets for curriculum
- D. Host, organize and implement marine technology workshops at sanctuary sites to integrate marine technology activities into high school and/or college curriculum.

Potential Partners NMS sites, West Coast Region, National Geographic, MATE, CIPE, local universities, and/or non -profits

Products: Curriculum, products for teachers

Complementary Strategies: CBNMS FMP, Education and Outreach, STRATEGY ED-1

STRATEGY ED-7: Increase awareness, knowledge, and appreciation of CBNMS through adult education programming

Offer in depth field opportunities on the natural history of CBNMS and the productive CA Current Ecosystem.

- A. Continue to sponsor field seminars with PRNSA on the natural history of CBNMS.
- B. Expand 2 day field seminar course into an adult education course through community education programs, or community colleges in Marin and Sonoma, and expand curriculum to include a broad overview of topics relating to the sanctuary and marine environment.

Potential Partners: PRNSA, Santa Rosa Community College, College of Marin, Tam Union HS District Adult and Community Education, Sonoma State University, Marine Mammal Center, Oikonos Ecosystem Knowledge, Bodega Marine Lab, various watershed councils, Environmental Forum of Marin

Products: Handouts, website, seabird/marine mammal checklist, presentations, syllabus, marine mammal/seabird guides, on the water and in classroom teaching tools

Complementary Strategies: CBNMS FMP, Education and Outreach, STRATEGY ED-1

STRATEGY ED-8: *Develop an Education Advisory Group to work with education staff and SAC for specific projects or issues only*

Activity 8.1 Create an advisory group of education experts from local schools, school districts, county offices of education, educational institutions, if appropriate users and other agencies that can advise the sanctuary on the development and implementation of specific education related projects or management issues.

- A. Provide advice and guidance on sanctuary outreach and education programs, and or issues where education can address a sanctuary management issue.
- B. Continuously develop new partnerships and innovative education programs and opportunities for collaboration and reduce potential duplication of efforts.

Potential Partners: Local schools, education institutions, agencies, CBNMS SAC, GFNMS, GFNMS SAC, FMSA

STRATEGY ED-9: Develop a multicultural education plan targeting changing demographics in the CBNMS region of northern California.

Activity 9.1 Identify communities and populations with growing non-english speaking populations. (*North of San Francisco, the Hispanic population is the dominant non-english speaking population.*)

- A. Assess demographic data from counties of Marin, and Sonoma counties
- B. Seek partnerships with other agencies, organizations looking to reach underserved audiences in environmental/ocean literacy related content
- C. Collaborate with West Coast Region sites implementing multi-cultural programming at their sites (ex. MERITO program at MBNMS, CINMS)
- D. Create plan for CBNMS to implement culturally relevant programming for non-english speaking populations, including secure funding scheme and partners roles.

Potential Partners: GFNMS, PRNS, Golden Gate National Recreation Area (GGNRA), FMSA, West Coast Region Sanctuaries, National Marine Fisheries Service (NMFS), NERRS, Romberg, Tiburon Center, MMC, school districts, Sonoma Water District, county and city agencies

Products: Implementation and evaluation plan for multicultural programming

CBNMS Education and Outreach

Timeline

EDUCATION AND OUTREACH STRATEGY	Year 1	Year 2	Year 3	Year 4	Year 5
Strategy ED-1: Develop community support and partnerships for ocean conservation through targeted outreach efforts	—————▶				
Strategy ED-2: Utilize volunteers to assist sanctuary staff in communicating sanctuary messages▶		—————▶		
Strategy ED-3: Leverage local, regional, and national media opportunities to increase California’s ocean literacy and stewardship	—————▶				
Strategy ED-4: Develop educational tools to promote ocean literacy and stewardship					
Action ED-4.1 Sanctuary video▶		◆		
Action ED-4.2 Interactive CD-ROM		▶		
Strategy ED-5: Increase awareness of CBNMS through interpretive signage and exhibits throughout the region	—————▶				
Strategy ED-6: Increase awareness and knowledge of CBNMS Conservation Science by creating opportunities, programs, and products for teachers and students▶				
Strategy ED-7: Increase awareness, knowledge, and appreciation about CBNMS through adult education opportunities	—————▶				
Strategy ED-8: Develop an education advisory group to work with education staff and SAC for specific projects or issues.▶		—————▶		
Strategy ED-9: Develop multicultural education plan to target changing demographics in the CBNMS region of northern CA.			▶	

Legend:

- ▶ **Ongoing Activity**
-▶ **Planning Stage**
- ◆ **Completed Activity**

CBNMS Education and Outreach

Budget

STRATEGY	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy ED-1: Develop community support and partnerships for ocean conservation through targeted outreach efforts	\$23	\$23	\$28	\$30	\$32	\$136
Strategy ED-2: Utilize volunteers to assist sanctuary staff in communicating sanctuary messages	\$0	\$8	\$23	\$25	\$28	\$84
Strategy ED-3: Leverage local and national media opportunities to increase awareness and knowledge of CBNMS resources and activities	\$10	\$10	\$10	\$10	\$10	\$50
Strategy ED-4: Promote lessons of ocean literacy and stewardship to far reaching audiences through the development of educational tools	\$40	\$43	\$48	\$50	\$54	\$235
Strategy ED-5: Increase awareness of CBNMS through interpretive signage and exhibits throughout the region	\$15	\$17	\$18	\$24	\$25	\$99
Strategy ED-6 Increase awareness and knowledge of CBNMS conservation science programs by engaging teachers and students	\$40	\$42	\$44	\$46	\$48	\$220
Strategy ED-7: Increase awareness and knowledge about CBNMS through adult education opportunities	\$11	\$18	\$18	\$22	\$24	\$93
Strategy ED-8: Develop an education advisory group to work with education staff and SAC for specific projects and issues	\$10	\$10	\$12	\$12	\$15	\$59
Strategy ED-9: Develop multicultural education plan targeted to the changing demographics in the CBNMS region of northern CA.	\$0	\$0	\$0	\$45	\$45	\$90
Total Estimated Annual Cost	\$149	\$171	\$201	\$264	\$281	\$1066

The sanctuary's base budget is available each year from appropriated funds.
 There is both availability of and opportunity to receive additional funding from appropriated funds.
 The estimates do not take into account increasing personnel costs each year or inflation.
 The estimates do not take into account unexpected events or emergencies or unforeseen projects.

CBNMS Education and Outreach

Performance Measures

Strategy Title(s)	Performance Goal	Desired Outcome (Objective)	Outcome Measure	How Measured	Who Measures	Output Measure
Strategy ED-1: Develop community support and partnerships for ocean conservation through targeted outreach efforts. Strategy ED-2: Utilize volunteers and interns to assist sanctuary staff in communicating sanctuary messages to a broader audience and carrying out program Needs.	Continually reach broader audiences to create an informed and involved public.	Take a hierarchical educational approach by: developing awareness, building a knowledge base, changing behavior and building stewardship.	Increase in support from the community for sanctuary programs.	1) Completion of the Sanctuary Naturalist Corps training program (short-term) 2) Increase in the number of outreach opportunities undertaken by the sanctuary as a direct result of a well established and coordinated volunteer program (long-term) 3) Increase in number of volunteers (long-term) 4) Increase in retention of volunteers (long-term)	Education Specialist, Volunteer Coordinator (GFNMS), and Sanctuary Superintendent	1) Regularly scheduled volunteer training and follow-up/refreshers program 2) Sanctuary Naturalist training manual
Strategy ED-3: Leverage local and national media opportunities. Strategy ED-4: Develop educational tools to promote ocean literacy Strategy ED-5: Increase awareness through interpretive signage and exhibits.	Continually reach broader audiences to create an informed and involved public.	Develop programs to target content builders, user/impact groups, influencers, and decision makers.	1) Expand messaging tools and venues to continually reach a broader audience 2) Increase attendance in sanctuary programs	1) Track media coverage to determine increases in exposure 2) Track increase in sanctuary awareness at museums etc that have sanctuary exhibits	Education Specialist and Sanctuary Superintendent	1) Increase in number of press releases and radio spots 2) Complete development of outreach tools 3) Complete design, fabrication and installation of signage and displays at new locations

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Strategy Title(s)	Performance Goal	Desired Outcome (Objective)	Outcome Measure	How Measured	Who Measures	Output Measure
<p>Strategy 6: Increase awareness and knowledge of CBNMS conservation science programs by creating opportunities, programs, and materials for teachers and students.</p> <p>Strategy ED-7: Increase awareness and knowledge through adult education opportunities.</p> <p>Strategy ED 8: Develop and Education Advisory Group to work with education staff and SAC for specific projects or issues</p>	<p>1) Continually reach broader audiences to create an informed and involved public.</p> <p>2) Use education to complement and promote other sanctuary programs such as research, monitoring, and enforcement.</p> <p>3) incorporate users input into development of new programs and materials</p>	<p>Take a hierarchical educational approach by: developing awareness, building a knowledge base, changing behavior, and building stewardship.</p>	<p>1) Increase in awareness of CBNMS ecosystem and programs</p> <p>2) Increase involvement in education programs in the sanctuary by students and teachers, and adults</p>	<p>1) Track increase of teachers and students participating in sanctuary programs</p> <p>2) Track increase in use of CBNMS ecosystem topics integrated into school curricula</p>	<p>Education Specialist and Sanctuary Superintendent</p>	<p>1) Classroom curriculum</p> <p>2) Products for teachers</p> <p>3) Website content</p>
<p>Strategy ED 9: Develop multicultural plan that is targeted to the changing demographics in the CBNMS region of northern CA.</p>	<p>1) Continually reach broader audiences to create an informed and involved public</p> <p>2) Develop targeted strategies to reach diverse audiences</p>	<p>Take a hierarchical educational approach by: developing awareness, building a knowledge base, changing behavior, and building stewardship</p>	<p>1) increase in awareness of watershed and ocean environment</p> <p>2) increase in participation of sanctuary education programs by culturally diverse communities</p>	<p>1) create plan that involved regional partners to target culturally diverse communities</p>	<p>Education Specialist and Sanctuary Superintendent</p>	<p>1) Multicultural education plan created</p> <p>2) multicultural education working group assembled to advise on plan</p>



ECOSYSTEM PROTECTION ACTION PLAN

ISSUE STATEMENT

Specific impacts from various activities on Cordell Bank National Marine Sanctuary's (CBNMS) natural resources are complex, and difficult to document and manage. Some of the issues related to activities include: (1) impacts on benthic habitats from fishing gear such as bottom trawls and long lines; (2) potential impacts to higher trophic levels from over-harvesting of forage/lower trophic level species such as krill; (3) the problems with bycatch; (4) potential impacts of acoustics on marine organisms; and (5) impacts from marine debris.

ISSUE DESCRIPTION

CBNMS is located in one of the world's four major upwelling systems. The upwelling of nutrient-rich, deep ocean water provides a food-rich environment and promotes the growth of organisms at all levels of the marine food web. The vertical relief and hard substrate of Cordell Bank provides habitat with nearshore characteristics in an open ocean environment 20 nautical miles from shore. The tremendous biodiversity found in the vicinity of Cordell Bank includes fish, marine mammals, seabirds, sea turtles, algae, and benthic and pelagic invertebrates.

Commercial and sport fisheries in CBNMS have generally targeted rockfish, lingcod, flatfish, salmon, albacore tuna, and crab. Most of the private boats and charter vessels that fish CBNMS are from Bodega Bay, although rough ocean conditions often prevent smaller recreational boats from accessing Cordell Bank. Gear types used in CBNMS have included bottom trawl, mid-water trawl, hook and line, gill nets, crab traps, and long lines (including troll long line, vertical long line, and fixed gear long line). Management of commercial and recreational fisheries in California is the responsibility of the California Department of Fish and Game (CDFG), National Marine Fisheries Service (NMFS) and the Pacific Fishery Management Council (PFMC) (CBNMS is entirely in federal waters). The National Marine Sanctuary Program (NMSP) may regulate fishing activities as necessary to protect the resources and qualities for which a sanctuary is designated.

Noise levels in the marine environment have been increasing from increased shipping traffic, sonar technologies, and research projects. The effects of noise on marine mammals, seabirds, fishes, and turtles is not entirely known, though active sonar has been conclusively linked to the deaths of whales in other areas. Issues of concern include the effects of acoustics on marine mammals by ships, the military, research, or other influences. NOAA has conducted and continues to conduct research regarding the effects of sound disturbance on marine mammals, however additional CBNMS-specific research and monitoring may be necessary.

Levels of debris in both the ocean and at the land-sea interface are of growing concern. Various types of debris are known to have adverse effects on marine species. Plastics in the marine environment never fully degrade and recent studies show plastic is consumed by organisms at all levels of the marine food web. Dichlorodiphenyltrichloroethane (DDT) and other hydrophobic compounds are known to adhere to plastics. Ingestion and entanglement are some of the many problems associated with marine debris, which may eventually lead to death for many organisms. Priority types of marine debris include balloons, abandoned/discarded fishing gear, plastics and styrofoam, and consumer goods including 6-pack rings and plastic shopping bags.

Significant amounts of derelict fishing gear have been documented in Cordell Bank National Marine Sanctuary. This includes long lines, gill nets, crab gear, and trawl warps entangled on and around the Bank. CBNMS research has demonstrated that the Bank's physical structure and benthic invertebrate community provides critical habitat for recovering stocks of west coast rockfish (*Sebastes* spp.). The Pacific Fisheries Management Council recently identified Cordell Bank as a Habitat Area of Particular Concern under their Essential Fish Habitat designation. One concern is that the abandoned fishing gear on Cordell Bank may be negatively impacting sanctuary resources, creating artificial habitat for marine life, and potentially impacting the physical structure of the Bank. This derelict gear also poses a danger to personnel and equipment involved in Sanctuary research and monitoring activities.

JURISDICTIONAL SETTING

Restricted Access Fisheries

Restricted access programs in fisheries limit the quantity of persons, vessels, or fishing gear that may be engaged in the take of a given species of fish or shellfish. Restricted access may also limit the catch allocated to each fishery participant through harvest rights such as individual or community quotas. A primary purpose of restricted access programs is to balance the level of effort in a fishery with the health of the fishery resources. In most situations, except harvest rights, this involves setting an appropriate fishery capacity goal.¹

California's Restricted Access Program

In 1977, California focused its first limited access program on the abalone fishery, followed in 1979 with legislation requiring salmon limited entry permits. In the 1990s, industry began to demand more restricted access programs, so the CDFG decided the time had come to address restricted access in a comprehensive manner. In 1996, a limited entry review committee was formed to develop a standard restricted access policy for the Fish and Game Commission (FGC). The commission approved the restricted access policy in June 1999.¹

Since the passage of the Marine Life Protection Act of 1998 and the FGC's adoption of the restricted access policy in 1999, more restricted access program responsibility has shifted from the legislature to the commission and department. The department works closely with constituent advisory committees and task forces to carefully design and evaluate restricted access

¹ California Department of Fish and Game. December 2001, *California's Living Marine Resources: A Status Report*, Sacramento, California.

plans for submission to the commission. The commission then conducts hearings for further public input. The plan is then returned to CDFG and advisory groups for any necessary revisions before going to the commission for a final decision. The legislature is involved and informed with fisheries that require legislation to implement restricted areas.¹

Federal Restricted Access Program

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 (Magnuson-Stevens Act) was enacted to begin phasing out foreign fishing and encouraged “Americanization” of fisheries, primarily for groundfish, within the 200 mile exclusive economic zone.

The PFMC is one of eight regional councils established by Congress, and manages the fisheries in federal waters off California, Oregon, and Washington. The Pacific Council manages four major west coast fisheries: (1) coastal pelagic species fishery (e.g., sardines); (2) marine salmon fishery; (3) Pacific coast groundfish fishery (including more than 80 species); and (4) west coast highly migratory species fishery (e.g., tunas and sharks).

Marine Life Management Act

The Marine Life Management Act (MLMA) requires CDFG and the FGC to evaluate existing restricted access programs every five years. These evaluations and increase in restricted access programs will require CDFG to expand capabilities to collect and analyze economic and social data related to fisheries. Socioeconomic data and biological data about fisheries’ resources are key components in developing and evaluating restricted access policy alternatives.

Marine Life Protection Act (MLPA)

State legislation requires that CDFG develop a plan for establishing networks of marine protected areas in California waters to protect habitats and preserve ecosystem integrity. The master plan requires that recommendations be made for a preferred alternative network of marine protected areas (MPAs) with “an improved marine life reserve component.” The MLPA further states that “it is necessary to modify the existing collection of MPAs to ensure that they are designed and managed according to clear, conservation-based guidelines that take full advantage of the multiple benefits that can be derived from the establishment of marine life reserves.”

Magnuson-Stevens Fishery Conservation and Management Act

The implementation of the Magnuson-Stevens Fishery Conservation and Management Act virtually eliminated all foreign fishing vessels by extending the United States jurisdiction and control over all marine fisheries resources within 200 miles of the U.S. coast. The act required the establishment of eight regional fishery management councils composed of federal and state fishery management officials and industry representatives. The councils have oversight on developing, monitoring, and revising fishery management plans for each fishery within the U. S. Exclusive Economic Zone (EEZ) that requires management. Every fishery management plan must be approved by the Secretary of Commerce by way of the National Marine Fisheries Service (NMFS).

Marine Mammal Protection Act and Endangered Species Act

National Marine Fisheries Service (NMFS) shares responsibility with the Fish and Wildlife Service for the implementation of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) to protect of any endangered, threatened or otherwise depleted species.

ECOSYSTEM PROTECTION GOAL

1. Improved understanding of human use impacts, and allow for activities that are compatible with sanctuary goals and ecosystem health.

ECOSYSTEM PROTECTION OBJECTIVES

1. Establish a working relationship with state and federal fisheries management agencies.
2. Track, evaluate, and address, as appropriate, existing, new, and emerging issues for their potential impacts on sanctuary resources.
3. Support adaptive management plans that promote ecosystem health.
4. Develop a definition of “compatible use” for activities that complement the sanctuary’s primary objective of resource protection.
5. Broaden and formalize partnerships between the sanctuary, fishing community, and non-governmental organizations (NGOs).
6. Increase awareness of acoustic impacts on marine organisms and pursue partnering opportunities to monitor ocean sound in CBNMS.
7. Continue to document the extent of marine debris in CBNMS and initiate debris removal and habitat restoration activities.

ECOSYSTEM PROTECTION STRATEGIES

STRATEGY EP-1: *Establish consistent and coordinated region-wide sanctuary representation at the PFMC and FGC meetings.*

Activity 1.1 Select a regional west coast sanctuaries representative to attend PFMC and FGC meetings, and participate as appropriate.

- A. The west coast sanctuaries (Olympic Coast, Cordell Bank, Gulf of the Farallones, Monterey Bay, and Channel Islands) need a single point of contact that will consistently represent all five sanctuaries to inform and update the council and

commission on current activities and emerging fishing issues. The sanctuaries also need to track, and as appropriate, be responsive to issues PFMC and FGC are addressing.

- B. Communicate with the council and commission on a regular basis to keep them informed and updated on sanctuary activities.

Potential Partners: NMSP, Olympic Coast National Marine Sanctuary (OCNMS), Gulf of the Farallones National Marine Sanctuary (GFNMS), Monterey Bay National Marine Sanctuary (MBNMS), Channel Islands National Marine Sanctuary (CINMS)

Complementary Strategies: GFNMS Management Plan (FMP), Fishing Activities, STRATEGY FA-6; MBNMS FMP, Fishing Related Education and Research, STRATEGY FER-1

STRATEGY EP-2: *Establish ongoing process to track human-use activities and their impacts in and around sanctuary waters.*

Activity 2.1 Establish a standing ecosystem protection working group of the sanctuary advisory council.

- A. Work with the sanctuary advisory council to establish appropriate representation from the fishing community, other stakeholders, interest groups, NGOs and agencies to sit on the ecosystem protection working group and advise the sanctuary advisory council on how to address specific types of activities that may not be compatible with the sanctuary's primary purpose of resource protection.

Potential Partners: Sanctuary advisory council, stakeholders, NGOs, and state and federal agencies

Activity 2.2 Develop a tracking process to continually identify trends in current, new, and emerging activities.

- A. Work with the sanctuary advisory council and the ecosystem protection working group to identify current, new, and emerging activities taking place in and around sanctuary waters.
- B. Work with the fishing community, mariners, the research community, and other resource management agencies to identify current, new, and emerging activities taking place in and around sanctuary waters.

Potential Partners: GFNMS, OCNMS, MBNMS, CINMS, CBNMS Sanctuary Advisory Council and the broader community

Complementary Strategies: CBNMS FMP, New and Emerging Issues, Administration, STRATEGY AD-10; GFNMS FMP, Fishing Activities, STRATEGY FA- 3; MBNMS FMP, Benthic Habitats, STRATEGY BH-1,

STRATEGY BH-2; Fishing Related Education and Research, STRATEGY FRER-3

STRATEGY EP-3: *Establish a process to evaluate impacts of human-use activities on sanctuary resources.*

Activity 3.1 Work with the standing ecosystem protection working group of the sanctuary advisory council to develop a definition for “compatible use.” The “compatible use” definition will establish a threshold for maximum allowable impacts on sanctuary resources from activities. The “compatible use” definition will set a standard for the “compatibility index” (see Activity 3.2 below).

Potential Partners: NMSP, MBNMS, GFNMS, CBNMS Sanctuary Advisory Council, NMFS, CDF&G

Complementary Strategies: CBNMS FMP, Regulations and Permitting, Administration, STRATEGY AD-9; GFNMS FMP, Ecosystem Protection, STRATEGY EP-3; MBNMS FMP, Benthic Habitats, STRATEGY BH-2, Fishing Related Education and Research, STRATEGY FER-3

Activity 3.2 Develop a “compatibility index” to rank and evaluate types and levels of impacts from human-use activities. The compatibility index will be based on a model similar to the Severity Ranking of Collateral Impacts model for fishing gear types and will include consideration and rankings for different types and levels of impacts such as:

1. Habitat impacts (physical)
2. Habitat impacts (biological)
3. Levels of by-catch (sea turtles, shellfish and crabs, finfish, sharks, marine mammals and seabirds, juvenile life stages)
4. Impacts associated with species life history (such as aggregated behavior during spawning)

Potential Partners: Sanctuary advisory council, NMFS, NMSP, GFNMS, MBNMS

Complementary Strategies: CBNMS FMP, Administration, STRATEGY AD-9, and STRATEGY AD-10; GFNMS FMP, Ecosystem Protection, STRATEGY EP-3

STRATEGY EP-4: *Develop policy recommendations or management action(s) to address impacts from human-use activities on sanctuary resources.*

Activity 4.1 If the compatibility index indicates significant negative impacts on sanctuary resources from human-use activities, a stakeholder-based, issue-specific working group of the

sanctuary advisory council will be developed to evaluate and make recommendations on actions the sanctuary should take to address impacts from specific activities.

- A. A stake-holder based working group (issue-specific) may include: resource management agencies, interest groups, user groups, fishers representing different gear types, and the scientific community.
- B. The working group will make recommendations based on best available scientific and socioeconomic data.

Potential Partners: Sanctuary advisory council, stakeholder representatives, agency representatives, interest groups, experts and user groups

Complementary Strategies: CBNMS FMP, Administration, STRATEGY AD-9, and STRATEGY AD-10; GFNMS FMP, Ecosystem Protection, STRATEGY EP-4; MBNMS FMP, Benthic Habitats, STRATEGY BH-2

Activity 4.2 Develop a series of management categories (policy responses) based on relative level of impact from an activity, as determined by the compatibility index.

- A. Management responses or recommendations to other appropriate management agencies may include a range of recommendations such as:
 - 1. Using less ecologically damaging methods
 - 2. Changing practices using appropriate incentives
 - 3. Promoting innovations in fishing gear and technology
 - 4. Establishing area-based restrictions
 - 5. Supporting future studies, including assessment of social and economic effects of policy actions on activities
 - 6. Using tools such as adaptive management to reintroduce closed fisheries.
- B. Develop a timeline and mechanism(s) for implementation of recommendations, establishing protocols and procedures for working with other agencies when appropriate.

Potential Partners: Sanctuary advisory council, topical experts, stakeholders, interest groups, fishing community, PFMC, CDFG, NMSP, GFNMS, MBNMS, CINMS and OCNMS

Products: Compatibility Index

STRATEGY EP-5: *Work with Gulf of the Farallones and Monterey Bay National Marine Sanctuaries and the Pacific Fisheries Management Council to support actions prohibiting the commercial harvest of krill.*

Activity 5.1 Krill are currently not harvested within the sanctuary, however, the potential exists for this fishery to develop in the future due to an increasing need for aquaculture feed. A krill fishery could severely impact the integrity of the marine ecosystem, and could adversely affect commercial and recreational fisheries of all kinds as most targeted species are directly or indirectly dependent on this resource. The PFMC is currently engaged in rule making to prohibit the commercial harvest of krill. The Sanctuary will continue to support the PFMC process as the council moves toward a permanent ban on the commercial harvest of krill.

- A. CBNMS will work with GFNMS, MBNMS, and the PFMC to support activities that result in a permanent ban on krill harvesting.

Potential Partners: GFNMS, MBNMS, PFMC, NMFS, CDFG, FGC

STRATEGY EP-6: *Profile fishing activities and communities in and around the sanctuary to better understand levels of impacts specific to CBNMS.*

Activity 6.1 Work with the NMFS on increasing the number of observers on fishing vessels in CBNMS. Observers will collect data on catch and by-catch levels and also evaluate experimental gear types.

Potential Partners: Fishing community, NMFS

Activity 6.2 Hire a contractor to profile the history and evolution of fishing activities occurring in and adjacent to the sanctuary. Profile should include information on actual numbers of boats actively engaged in each fishery; areas where the fishery is taking place; gear types; catch levels; a socioeconomic profile of the harbors and marinas accessing the sanctuary; and an understanding of markets, changing gear types, and changing fisheries management regulations that influence this profile. Information exchange with mariners will provide important input to the profile, and provide support for continual update of the database.

Potential Partners: Fishing community, NMFS, NOAA, The National Centers for Coastal Ocean Science (NCCOS), Coastal Services Center (CSC)

Products: Publication

STRATEGY EP-7: *Assess impacts from acoustics on sanctuary resources.*

Activity 7.1: Expand research and monitoring of acoustics in CBNMS.

- A. Gather more information and data on the effects of sound in the marine environment.
- B. Work with partners to conduct passive acoustic monitoring to identify and quantify sources of anthropogenic noise underwater and continue to be apprised of survey and monitoring activities that are evaluating the effects of sound.

Potential Partners: GFNMS, MBNMS, NMFS, Scripps Institution of Oceanography

Activity 7.2: Continue evaluation of individual projects with potential acoustic disturbance.

- A. CBNMS will continue evaluating individual proposals on a case-by-case basis to determine impacts of proposed projects, and make management recommendations.
- B. The CBNMS should work with NOAA Fisheries and other partners to determine acceptable sound levels in the different frequency ranges affecting wildlife.

Potential Partners: GFNMS, MBNMS, NMFS, Scripps Institution of Oceanography

STRATEGY EP-8: *Assess impacts from marine debris on sanctuary resources and conduct mitigation activities.*

Activity 8.1: Expand GIS database to characterize benthic marine debris in CBNMS

- A. CBNMS will work with partners to expand databases to track and characterize the type, location and amounts of marine debris observed during benthic monitoring and habitat mapping and characterization research activities within CBNMS.

Potential Partners: GFNMS, MBNMS, University of California-Davis Wildlife Health Center, State Coastal Conservancy, National Fish and Wildlife Foundation

Activity 8.2: Develop protocols to monitor pelagic marine debris and incorporate into monthly monitoring activities

Activity 8.3: Work with partners in removing derelict fishing gear from CBNMS

- A. CBNMS will work with partners to assess the feasibility and test methods of removing derelict fishing gear from deep water environments, like Cordell Bank.

- B. CBNMS will work with partners in the removal of derelict fishing gear from deep water benthic habitats.

Potential Partners: GFNMS, MBNMS, University of California-Davis Wildlife Health Center, State Coastal Conservancy

Ecosystem Protection

Timeline

ECOSYSTEM PROTECTION STRATEGY	Year 1	Year 2	Year 3	Year 4	Year 5
Strategy EP-1: Establish region-wide sanctuary representation at PFMC and FGC meetings	—————▶				
Strategy EP-2: Establish process to track activities in the sanctuary▶				
Strategy EP-3: Establish process to evaluate activities in the sanctuary	—————▶				
Strategy EP-4: If significant negative impacts detected, develop policy recommendations or management actions to address impacts from activities on sanctuary resources	—————▶				
Strategy EP-5: Work regionally to support recommendations prohibiting krill harvesting	—————◆				
Strategy EP-6: Profile historic and evolution of fishing activities occurring in the sanctuary	—————▶				
Strategy EP-7: Assess impacts from acoustics on sanctuary resources▶				
Strategy EP-8: Assess impacts from marine debris on sanctuary resources and conduct mitigation activities	—————▶				

Legend:

- ▶ **Ongoing Activity**
-▶ **Planning Stage**
- ◆ **Completed Activity**

Ecosystem Protection Action Plan
CBNMS Final Management Plan

Ecosystem Protection

Budget

ECOSYSTEM PROTECTION STRATEGY	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy EP-1: Establish region-wide sanctuary representation at PFMC and FGC meetings	\$0	\$1	\$1	\$1	\$1	\$4
Strategy EP-2: Establish process to track activities in the sanctuary	\$0	\$16	\$21	\$16	\$16	\$69
Strategy EP-3: Establish process to evaluate activities in the sanctuary	\$0	\$18	\$15	\$5	\$5	\$43
Strategy EP-4: If significant negative impacts detected, develop policy recommendations or management actions to address impacts from on sanctuary resources	\$0	\$0	\$0	\$15	\$5	\$20
Strategy EP-5: Work regionally to support recommendations prohibiting krill harvesting	\$0	\$0	\$0	\$0	\$0	\$0
Strategy EP-6: Profile historic and evolution of fishing activities occurring in the sanctuary	\$33	\$33	\$2	\$2	\$2	\$72
Strategy EP-7: Assess impacts from acoustics on sanctuary resources	0	0	\$165	\$130	\$130	\$425
Strategy EP-8: Assess impacts from marine debris on sanctuary resources and conduct mitigation activities	\$70	\$70	\$70	\$120	\$120	\$450
Total Estimated Annual Cost	\$103	\$138	\$274	\$289	\$279	\$1083

The sanctuary's base budget is available each year from appropriated funds.

There is both availability of and opportunity to receive additional funding from appropriated funds.

The estimates do not take into account increasing personnel costs each year or inflation.

The estimates do not take into account unexpected events or emergencies or unforeseen projects.

Ecosystem Protection

Performance Measures

Strategy Title(s)	Performance Goal	Desired Outcome (Objective)	Outcome Measure	How Measured	Who Measures	Output Measure
<p>Strategy EP-2: Track activities and their impacts on sanctuary resources.</p> <p>Strategy EP-3: Evaluate activities and their impacts on sanctuary resources.</p> <p>Strategy EP-4: Address impacts from activities.</p>	<p>Better understand and allow for activities that are compatible with sanctuary goals and ecosystem health.</p>	<p>1) Track, evaluate, and address, new and emerging issues for their potential impacts on sanctuary resources.</p> <p>2) Support adaptive management plans that promote ecosystem health.</p> <p>3) Develop "compatible use" standards for activities that complement the sanctuary's primary objective of resource protection.</p>	<p>Improved ability to carry out a consistent and systematic evaluation of impacts from activities occurring in the sanctuary.</p>	<p>1) Complete "compatible use" definition or threshold</p> <p>2) Complete "compatibility index" framework</p> <p>3) Develop series of management or policy response categories</p>	<p>Sanctuary Superintendent, Ecosystem Protection Working Group, Sanctuary Advisory Council</p>	<p>1) Process for tracking existing, new, and emerging issues</p> <p>2) Compatibility index matrix</p>



PARTNERSHIPS WITH COMMUNITY GROUPS ACTION PLAN

ISSUE STATEMENT

In order to fully carry out its mission, Cordell Bank National Marine Sanctuary (CBNMS) needs to develop community partnerships to maximize its limited resources and minimize the risk of working in isolation and missing partnership opportunities. Through community partnerships, opportunities will be leveraged to develop public awareness, education, and stewardship; obtain volunteer, financial, and in-kind support; and increase research opportunities.

ISSUE DESCRIPTION

CBNMS is a small offshore sanctuary that does not have the necessary resources to complete key research or education projects, or establish the same unique identity and level of interest and support enjoyed by other established near-shore sanctuaries. The sanctuary's primary program focus is on conducting research, developing associated education programs, and identifying and protecting the sanctuary's natural resources and habitats. CBNMS faces a significant challenge in effectively building community identity, interest, and support.

One major way to achieve the sanctuary's goals is through community partnerships. Sanctuaries function more effectively with community support. All sanctuaries work with sanctuary advisory councils, community groups, and agencies to provide support in reaching out to the community and building stewardship. Community partnerships will allow CBNMS to:

- Work in concert with other agencies, institutions and organizations;
- Not duplicate efforts of other agencies and community groups; and
- Have opportunities to leverage research partnerships and expertise, develop public awareness and education, build public support, and leverage and build financial and in-kind support.

A model used by the neighboring Gulf of the Farallones National Marine Sanctuary (GFNMS) is a friends group called the Farallones Marine Sanctuary Association (FMSA). The FMSA works in coordination with the GFNMS to: enlist volunteers to monitor and protect fragile marine habitats; develop educational programs; offer sanctuary field adventures and tours; publish newsletters; and create visitor centers, educational materials, and exhibits to enhance the public's appreciation and enjoyment of the sanctuary. Since the needs and characteristics of the CBNMS differ from those of other sanctuaries like GFNMS, moving forward with partnership opportunities will require analysis of how the partnership could effectively provide support to CBNMS.

PARTNERSHIPS WITH COMMUNITY GROUPS GOALS

1. Maximize partnerships to facilitate the sanctuary's ability to identify, understand, and protect sanctuary resources.
2. Instill within the community a sense of value and stewardship of the sanctuary.

PARTNERSHIPS WITH COMMUNITY GROUPS OBJECTIVES

Create partnerships to:

1. Further research and monitoring that assists in answering resource management questions.
2. Establish a strong identity for the sanctuary within various interest groups in the community.
3. Identify and cultivate potential sources of revenue and in-kind support.
4. Build education programs that build stewardship to support and advocate for the needs of the sanctuary.

PARTNERSHIPS WITH COMMUNITY GROUPS STRATEGIES

STRATEGY PC-1: *Develop partnerships with the research and education community to leverage opportunities and expertise to fulfill the sanctuary's research and education goals.*

Activity 1.1 Collaborate with other research entities including agencies and institutions to share in-kind resources and services.

- A. Identify potential research and education partners, including other resource management agencies, marine research institutions, and individual researchers.
- B. Identify ways to collaborate with potential partners. The sanctuary should determine what it could offer to the partnership, including but not limited to providing ship time, housing, and/or outreach opportunities. For example, collaborations might include partnering on grants, internship programs, and symposiums.
- C. Identify and secure outside funding to support field researchers and an internship program.
- D. Partner on outreach components of research/monitoring programs (may also satisfy grant requirements).

Potential Partners: Point Reyes National Seashore (PRNS), Bodega Marine Laboratory (BML), Point Reyes Bird Observatory (PRBO), San Francisco State

University (SFSU) Romberg-Tiburon, National Marine Fisheries Service (NMFS), National Fish Wildlife Federation, California Department of Fish and Game (CDFG), United States Coast Guard (USCG), other research organizations

Products: Reports, papers, symposiums

Complementary Strategies: CBNMS Final Management Plan (FMP), Education, STRATEGY ED-7, and STRATEGY ED-8; Administration, STRATEGY AD-3

Activity 1.2 Collaborate with other education and outreach partners such as agencies, non-profits, museums, and others to share projects, in kind resources, collaborate on shared audiences and education goals.

- A. Identify potential education partners that share same goals of the national marine sanctuary program for education.
- B. Identify Sanctuary education/outreach programs that could be accomplished through collaborations: criteria to include facilities, staff resources, related education goals and shared audiences
- C. Identify and secure outside funding to support education/outreach interns to help with site projects

Potential Partners: Point Reyes National Seashore (PRNS), Sonoma State University (SSU), marine related or environmental education related non-profits in Bay Area, College of Marin, Santa Rosa Junior College, US Satellite Group, Gulf of the Farallones NMS

Products: Outreach lectures, curriculum, workshops, exhibits, shared internships

Complementary Strategies: CBNMS Management Plan-ED 1, ED2, ED3, ED4, ED5, ED 6, ED 7, ED 8, ED9 and Administration Strategy AD-3

STRATEGY PC-2: *Culture the sanctuary advisory council as a link to the community.*

Activity 2.1 Raise the profile of CBNMS by identifying the role of sanctuary advisory council members in increasing awareness of the sanctuary and encouraging them to reach out to their constituencies and the community-at-large.

- A. Review “lessons learned” from other sanctuary advisory councils and coordinators in the National Marine Sanctuary Program (NMSP) to learn from successes and failures in reaching out to their community and constituencies.
- B. Provide media training to council members. Develop support materials such as PowerPoint or slide presentations for council members to use.
- C. Work with advisory council members on ways to engage constituents.

- D. Clarify and evaluate the council chairperson's roles, responsibilities, and expectations for representing the advisory council.

Potential Partners: CBNMS Sanctuary Advisory Council, other NMSP advisory councils and coordinators, NMSP staff

Products: Outreach materials for council members, annual report

Complementary Strategies: CBNMS FMP, Administration, STRATEGY AD-4

STRATEGY PC-3: *Use media opportunities to promote the sanctuary's programs and raise the identity of the sanctuary in Marin, Sonoma, and southern Mendocino counties.*

Activity 3.1 Use media opportunities to raise the identity of the sanctuary within the surrounding coastal and greater communities.

- A. Identify and implement effective use of media tools to reach broad audiences (through newspaper, TV, radio). Incorporate key research findings into outreach messages.
- B. Keep the media informed about the current activities in the sanctuary.
- C. Nurture relationships with key media individuals and organizations. Work with regular columnists to create marine-focused columns and features in the local papers. Work with local radio stations to incorporate feature stories about the sanctuary into their programming.

Potential Partners: Local newspapers and writers, local radio stations, national media groups

Products: Periodical articles in newspapers, weekly/monthly radio show, videos

Complementary Strategies: CBNMS FMP, Education, STRATEGY ED-3, ED-4

STRATEGY PC-4: *Identify mechanisms to raise and manage additional sources of revenue and in-kind services.*

Activity 4.1 CBNMS does not expect to have the financial resources to fully implement this management plan. Developing partnerships will allow the sanctuary to leverage additional financial and in-kind support. As the need arises, CBNMS will develop partnerships to manage and generate additional sources of revenue.

- A. Establish fiscal agent relationship with existing non-profits to manage grants and donations.
- B. Explore mechanisms such as individual donations, grants, and events to generate additional sources of revenue.

- C. Build community capacity and interest to help generate donations.
- D. Support community effort to create non-profit organization focus on CBNMS if appropriate.

Potential Partners: Farallones Marine Sanctuary Association (FMSA), Point Reyes National Seashore Association (PRNSA), National Marine Sanctuaries Foundation (NMSF), sanctuary advisory council




Products: Fiscal agent, merchandise sales, membership, field seminars, grants, and fundraising events

CBNMS Partnerships with Community Groups

Timeline

PARTNERSHIPS WITH COMMUNITY GROUPS STRATEGY	Year 1	Year 2	Year 3	Year 4	Year 5
Strategy PC-1: Develop and maintain partnerships with research and education community					→
Strategy PC-2: Culture the advisory council as a link to the community					→
Strategy PC-3: Use media opportunities to raise identity of sanctuary		→			→
Strategy PC-4: Identify mechanisms to raise and manage additional sources of revenue		→			→

Legend:

-  **Ongoing Activity**
-  **Planning Stage**
-  **Completed Activity**

CBNMS Partnerships with Community Groups

Budget

PARTNERSHIPS WITH COMMUNITY GROUPS STRATEGY	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy PC-1: Develop and maintain partnerships with research and education community	\$20	\$15	\$15	\$17	\$20	\$87
Strategy PC-2: Culture the advisory council as a link to the community	\$10	\$10	\$10	\$10	\$10	\$50
Strategy PC-3: Use media opportunities to raise identity of sanctuary	\$0	\$15	\$15	\$15	\$15	\$60
Strategy PC-4: Identify mechanisms to raise and manage additional sources of revenue	\$0	\$10	\$10	\$10	\$10	\$40
Total Estimated Annual Cost	\$30	\$50	\$50	\$52	\$55	\$237
The sanctuary's base budget is available each year from appropriated funds.						
There is both availability of and opportunity to receive additional funding from appropriated funds.						
The estimates do not take into account increasing personnel costs each year or inflation.						
The estimates do not take into account unexpected events or emergencies or unforeseen projects.						

CBNMS Partnerships with Community Groups

Performance Measures

Strategy Title(s)	Performance Goal	Desired Outcome (Objective)	Outcome Measure	How Measured	Who Measures	Output Measure
Strategy PC-1: Develop partnerships with the research community to leverage opportunities and expertise, and fulfill the sanctuary's research goals.	Maximize partnerships to facilitate the sanctuary's ability to identify, understand, and protect sanctuary resources.	Create partnerships to further research and monitoring and to assist in answering resource management questions.	Increase in number of collaborative research projects within the sanctuary.	Identify and secure outside funding for research projects including in-kind services and support.	Sanctuary Superintendent, Research Coordinator	
Strategy PC-3: Use media opportunities to promote the sanctuary's research programs and raise the identity of CBNMS in Marin, Sonoma, and southern Mendocino counties.	Instill within the community a sense of value and stewardship of the sanctuary.	Create partnerships to establish a strong identity for the sanctuary within various interests of the community.	Increase in support from the community for sanctuary programs.	Track media coverage to determine increases in exposure.	Education Coordinator	Articles in newspapers and other media coverage



CONSERVATION SCIENCE ACTION PLAN

PROGRAM STATEMENT

Although characterization, monitoring, and research have been the cornerstone of Cordell Bank National Marine Sanctuary (CBNMS) activities, a formalized long-term plan is still being developed to coordinate these efforts. All three activities will continue to be a high priority, and CBNMS staff will integrate the findings of these projects into education and outreach programs. Two specific areas the sanctuary will focus on are: (1) development of a coordinated and integrated characterization and research program for CBNMS; and (2) development and implementation of a long-term monitoring plan.

PROGRAM DESCRIPTION

Cordell Bank is an intriguing site due to its high biological diversity and its remote location. The sanctuary is important to researchers, and investigation has been taking place ever since its discovery. The Bank is a difficult place to study on a regular basis in large part because of unpredictable and harsh offshore oceanic conditions. The first extensive study of Cordell Bank was conducted from 1977 to 1987 by Cordell Expeditions. The researchers documented life on the Bank in over 3000 photographs, considerable film and video footage, and a large collection of biological specimens.

Since 1997, CBNMS and Gulf of the Farallones National Marine Sanctuary (GFNMS) have been involved in exploration and investigation of the marine life and habitat of the site through an Ecosystem Dynamics Study. This long-term study focuses on the distribution and relative abundance of krill, an important building block in the food chain for this area. Through the use of acoustics and net sampling, krill are located and identified. The physical parameters influencing their distribution are investigated. These data are analyzed along with seabird and marine mammal sightings to better understand why marine life concentrates in particular areas of the sanctuary.

Remotely operated vehicles (ROV) and the Delta submersible are used to characterize the benthic biota and habitats in CBNMS. In September 2001, sanctuary biologists and partners conducted initial surveys of the Bank, characterizing habitats and documenting species distribution and abundance. The sanctuary conducted these studies between 2001 and 2005 to increase the understanding of this unique environment and to better manage the sanctuary's resources.

CONSERVATION SCIENCE GOALS

1. Increase our knowledge and understanding of the Cordell Bank ecosystem.
2. Develop research programs to identify and address specific resource management issues.
3. Develop monitoring programs to understand long-term status and trends to guide management.

CONSERVATION SCIENCE OBJECTIVES

1. Characterize the habitats and communities of CBNMS; evaluate and synthesize characterization data and information.
2. Develop a monitoring plan, identify indicators, and conduct a targeted monitoring program in order to identify and understand natural variation and impacts from human activities on the marine ecosystem.
3. Recommend research and monitoring results for inclusion in CBNMS' outreach and education programs.
4. Develop new and enhance existing partnerships with other agencies and institutions.

CONSERVATION SCIENCE STRATEGIES

STRATEGY CS-1: *Prepare an oceanographic climatology report. The physical oceanography of CBNMS is integral to Cordell Bank's ecosystem and is not well understood. To fully characterize the sanctuary, a complete and detailed understanding of the oceanographic and atmospheric conditions in and around the sanctuary is needed.*

Activity 1.1 Prepare an oceanographic climatology report summarizing existing knowledge about the physical oceanography and meteorology of this region. This information will expose voids and shortcomings in the existing data, and serve as a guide for designing future programs.

- A. Conduct short-term data analyses from compiled data.
- B. Using existing data, construct a climatology of the oceanographic and meteorological conditions in and around the CBNMS and GFNMS. This document will contain figures, diagrams, satellite images, and tables that illustrate the prevailing environmental conditions, together with text that interprets, synthesizes, and summarizes this information. The report will deliver recommendations to the sanctuary for future studies that are needed to characterize the physical environment in and around the sanctuary.

Potential Partners: GFNMS, Moss Landing Marine Laboratories (MLML), National Weather Service (NWS), contractor

Products: Climatology report including graphical and tabular summaries

STRATEGY CS-2: *Map and characterize CBNMS' habitats. A habitat map will provide important baseline information for management including: relative proportions of sanctuary habitats; the current state of sanctuary resources as a basis against which to measure future change; unique habitats; unique potential habitat for species of concern including essential fish habitat; and extent of habitat damage from human disturbance.*

Activity 2.1 Conduct sonar surveys to determine habitat types and their spatial extent, specifically delineate: (1) rocky regions and outcrops within low relief soft bottom areas of sanctuary; (2) soft and mixed sediments within the Bank region; (3) trawl disturbance in soft sediments; and (4) marine debris and submerged cultural resources.

- A. Survey entire extent of sanctuary using sonar technology. Analyze information to develop fine-scale bathymetry maps, habitat maps, maps of marine debris and submerged cultural resources. This information can be used in conjunction with biological surveys to produce habitat suitability models for selected species.
- B. Habitat maps created using sonar systems will be ground truthed using data collected by manned submersible and ROV surveys over high relief rocky regions of the sanctuary and towed camera systems and grabs over low relief unconsolidated substrates.
- C. Incorporate research findings into CBNMS education/outreach and management programs and messages.

Potential Partners: United States Geological Survey (USGS) Coastal and Marine Geology Program

Products: Cruise report, technical data summaries, peer-reviewed article(s), geographic information systems (GIS) coverages, habitat maps

Complementary Strategies: CBNMS Management Plan (FMP), Research, STRATEGY CS-1 and STRATEGY CS-3

STRATEGY CS-3: *Characterize the soft-bottom epifaunal* communities of CBNMS.*

**Epifauna are animals that live in contact with the sea bottom, either moving freely over the substrate or attached to it.*

Activity 3.1 Survey the surface biota and sediment characteristics of the soft-sediment portion of the shelf area of CBNMS.

- A. Conduct survey of soft-bottom habitats of CBNMS. Survey will provide habitat assessment, estimates of distribution and abundance of epifauna, assessment of

disturbance effects and marine debris, species list of invertebrates, and description of any submerged cultural resources.

- B. Results from this survey will be used to refine the habitat map.
- C. Create partnerships to continue monitoring epifaunal communities over time.

Potential Partners: National Marine Fisheries Service (NMFS), USGS/US Seabed

Products: Publications and reports (cruise report, technical data summary, peer-reviewed article(s)), photographs (still and video), habitat map, map of submerged cultural resources

Complementary Strategies: CBNMS FMP, Research, STRATEGY CS-1, STRATEGY CS-2, STRATEGY CS-4

STRATEGY CS-4: *Characterize soft-bottom infaunal* communities of CBNMS.*

****Infauna are animals that live within or burrow through substrate.***

Activity 4.1 Characterize the infaunal biota of the soft sediment portion of the shelf and slope of CBNMS.

- A. Conduct literature review to obtain current knowledge about infaunal communities. Relevant sources may be the United States Environmental Protection Agency (EPA) status and trends information; Minerals Management Service (MMS) reports; invertebrate collections made by NMFS /North West Fisheries Science Center (NWFSC) slope and shelf trawl surveys; and regional universities and research institutions.
- B. Conduct baseline survey of infaunal communities of CBNMS using bottom grabs. Survey should determine species diversity, distribution, and abundance, as well as describe characteristics of the sediment. Design sampling so that temporal variability of infaunal community can be assessed and correlated to changing oceanographic conditions.
- C. Utilize partnerships to continue monitoring infaunal communities over time.
- D. Use results to ground truth habitat map.

Potential Partners: NMFS (trawl survey data), National Ocean Service/The National Centers for Coastal Ocean Science (NOS/NCCOS) (analysis), California Academy of Sciences (CAS), Bodega Marine Lab (BML), San Francisco State University (SFSU) Romberg – Tiburon Lab (analysis)

Products: Publications and reports (cruise report, technical data summary, peer-reviewed article(s)), photographs, additions to species list, GIS-based summary report

Complementary Strategies: CBNMS FMP, Research, STRATEGY CS-2 and STRATEGY CS-3

STRATEGY CS-5: *Collect, inventory, and catalog new and previously unsorted Cordell Bank benthic invertebrate specimens.*

Activity 5.1 Generate a voucher specimen database of the benthic invertebrates of Cordell Bank.

- A. Existing collections of Cordell Bank specimens at CA) will be taxonomically upgraded, computer catalogued, and maintained by CAS as research specimens.
- B. CAS will develop computerized species list for Cordell Bank and provide the data to the sanctuary for future investigations.
- C. Specimens of interest will be targeted for subsequent identification, description, and future publication.
- D. CAS will identify and describe sponge species collected from Cordell Bank, including not-yet-described species.

Potential Partners: CAS, Cordell Expeditions

Products: Computerized voucher specimen database, voucher specimen collection. CAS will publish descriptions of all new sponge species and a review of the sponge fauna of Cordell Bank as peer reviewed papers.

Activity 5.2 Continue to collaborate with CAS on collection and identification of other Cordell Bank benthic invertebrates.

- A. Partner with CAS on future taxonomic identification, database maintenance, and expansion of specimen collection.

Potential Partners: CAS, Cordell Expeditions

Products: Updated computerized voucher specimen database, updated voucher specimen collection

STRATEGY CS-6: *Survey available museum collections, data archives, and literature indexing services for Cordell Bank specimens, data, and publications.*

Activity 6.1 Conduct a literature, specimen, and data search to compile existing knowledge about Cordell Bank, and generate a verified species list. Methods should include:

- A. Search natural history museums and other collections for specimens collected from Cordell Bank.
- B. Search standard literature indexes for references to Cordell Bank. Secure regular access to Lexus-Nexus and/or other literature indexes for CBNMS.

- C. Search agency and academic electronic databases (i.e. metadata clearing houses) for data from Cordell Bank.
- D. Construct a verified species list and store in an easily accessible data repository (such as National Data Center or Sanctuary Integrated Monitoring Network (SIMoN)).

Potential Partners: CAS, Cordell Expeditions, Census of Marine Life

Products: Confirmed species list, list of references, reprint library, inventory of location of voucher specimens

STRATEGY CS-7: *Understand the function and variability of pelagic ecosystems.*

Activity 7.1 Quantitatively assess the distribution and abundance of marine birds, mammals, and sea turtles relative to ocean conditions, seasons, and biological productivity. This study will initially provide baseline data on production, populations, and trophic structure, and it will be continued as long-term monitoring.

- A. Physical oceanography will be described with data collected in the field and from remotely sensed data. Data will be collected on salinity and temperature at sea surface and at depth. Remote data will include upwelling indices, satellite images, and current information.
- B. Systematically survey along transect lines and record the presence of marine birds, mammals and sea turtles within CBNMS.
- C. Assess biological productivity by sampling zooplankton and phytoplankton using hydro-acoustics and net sampling.
- D. Use an echosounder to map the distribution of zooplankton and fish.
- E. Observe and document human activities at CBNMS.

Potential Partners: GFNMS, Monterey Bay National Marine Sanctuary (MBNMS), Point Reyes Bird Observatory (PRBO), BML

Products: Cruise reports, technical data summaries, peer-reviewed articles, fine-scale seasonal distribution maps

STRATEGY CS-8: *Continue monitoring fish and invertebrate assemblages in relation to the fine-scale habitat on and adjacent to the Bank portion of CBNMS. Identify locations and quantity of anthropogenic impacts, including derelict gear and other marine debris.*

Activity 8.1 Perform submersible field surveys (one- to three- year intervals) to monitor the distribution and abundance of fishes and invertebrates on and adjacent to the Bank. This project will include the following components:

- A. Assess and monitor distribution, abundance, and life history (size and maturity) of Bank fishes.
- B. Assess and monitor percent cover of invertebrates and distribution and abundance of specific macroinvertebrate species.
- C. Create an inventory of derelict fishing gear and marine debris using submersible transects and video footage.
- D. Use video transects and rock grab samples to further characterize habitats identified by the sonar survey.
- E. Compare the biota of Cordell Bank with other deep reefs along the west coast (eg., Bowie Seamount in British Columbia, Point Sur Bank in California, and Heceta Bank in Oregon).
- F. Determine the fish assemblages associated with different habitat types.

Potential Partners: National Oceanic and Atmospheric Administration (NOAA) Fisheries, California Department of Fish and Game (CDFG), USGS, BML, SFSU, Moss Landing Marine Laboratories (MLML)

Products: Cruise report, technical data summary, peer-reviewed article(s), habitat map, photographs (still and video)

Complementary Strategies: CBNMS FMP, Conservation Science, STRATEGY CS-1, STRATEGY CS-2, STRATEGY CS-3, STRATEGY CS-4, STRATEGY CS-5, and STRATEGY CS-6

STRATEGY CS-9: *Manage and store data in easily accessible and secure formats and locations. Data collected by the sanctuary should be accessible to interested public and should be securely stored to prevent loss.*

Activity 9.1 Paper data sheets from research cruises will be photocopied. One set will be kept in the sanctuary office and the second set kept offsite. Paper data sheets provide general information (e.g., location, time) describing the sampling environment.

Activity 9.2 Electronic media collected on research cruises (files and tapes) will be copied and stored in the sanctuary office. Electronic media (files and video tapes) provide the detailed information (e.g., water temperature profiles, number of organisms observed).

Activity 9.3 Data obtained from laboratory analyses of video transects or plankton collections will be stored in a relational database, modeled after the National Park Service's Natural Resources Database Template. All electronic data are available to sanctuary staff through the CBNMS local area network. Since the relational databases comprise the core of the sanctuary research program, copies of the databases are housed on an off-site computer to guard against catastrophic loss.

Activity 9.4 Ensure data are compliant with federal standards for accessibility and quality, and formatted to be compatible with Federal Geospatial Data Center (FGDC) and other relevant agency initiatives (e.g., the Integrated Ocean Observing System).

STRATEGY CS-10: Assess the role of Cordell Bank in the supply and receipt of fish larvae within the regional marine ecosystem by linking population genetics and oceanography.

Activity 10.1 Determine the genetic make-up of adult, juvenile and larval populations of fish with pelagic larval stages within the Cordell Bank region relative to regional populations to understand levels of mixing and retention of early life history stages.

- A. Collect adult, juvenile, and larval stages of several common species with pelagic larvae from Cordell Bank as well as at multiple locations north and south of the Bank within the California Current System. Conduct genetic analyses on collected individuals to determine likely birthplaces of individuals.

Potential Partners: Bodega Marine Lab (BML), San Francisco State University (SFSU) Romberg-Tiburon Lab, Moss Landing Marine Lab (MLML), Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), National Marine Fisheries Service Santa Cruz Laboratory

Products: Publications and reports (cruise report, technical data summary, peer-reviewed articles(s))

Activity 10.2 Examine larval dispersal through simulations of coupled bio-physical models.

- A. Develop or modify an existing 3-D bio-physical simulation model to determine: 1) the geographic fate of larvae released from Cordell Bank; 2) the geographic origin of larvae that are likely to settle on Cordell Bank. Examine predicted dispersal patterns for larvae with different behavioral characteristics as well as larval periods. Examine predicted dispersal patterns given various oceanographic conditions.

Potential Partners: Bodega Marine Lab (BML), San Francisco State University (SFSU) Romberg-Tiburon Lab, Moss Landing Marine Lab (MLML), Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO)

Products: Publications and reports (technical data summary, peer-reviewed articles(s))

CBNMS Conservation Science

Timeline

CONSERVATION SCIENCE STRATEGY	Year 1	Year 2	Year 3	Year 4	Year 5
Strategy CS-1: Prepare an oceanographic climatology			—◆		
Strategy CS-2: Map and characterize CBNMS habitats	—————▶				
Strategy CS-3: Characterize soft-bottom epifaunal communities	—◆				
Strategy CS-4: Characterize soft-bottom infaunal communities			—◆		
Strategy CS-5: Collect, inventory, and catalog new and previously unsorted Cordell Bank benthic invertebrate specimens		—◆			
Activity CS-5.1 Generate voucher specimen database of CBNMS benthic invertebrates (work with CAS)			—◆		
Activity CS-5.2 Continue collaborative studies of CBNMS invertebrates with CAS, ongoing as needed			—▶		
Strategy CS-6: Survey museum collections and literature for information about CBNMS and generate a verified species list		—◆			
Strategy CS-7: Understand the function and variability of pelagic ecosystems▶				
Strategy CS-8: Continue monitoring of fish and invertebrate assemblages in relation to the fine-scale habitat on and adjacent to the Bank portion of CBNMS	—————▶				
Strategy CS-9: Manage and store data in easily accessible and secure formats and locations	—————▶				
Strategy CE-10: Assess the role of Cordell Bank in the supply and receipt of fish larvae within the regional marine ecosystem by linking population genetics and oceanography.				—◆	
			—◆		

Legend:

- ▶ **Ongoing Activity**
-▶ **Planning Stage**
- ◆ **Completed Activity**

**Conservation Science Action Plan
CBNMS Final Management Plan**

CBNMS Conservation Science

Budget

CONSERVATION SCIENCE STRATEGY	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy CS-1: Prepare an oceanographic climatology	\$0	\$0	\$35	\$35	\$0	\$70
Strategy CS-2: Map and characterize CBNMS habitats	\$20	\$50	\$50	\$150	\$60	\$330
Strategy CS-3: Characterize soft-bottom epifaunal communities of CBNMS	\$23	\$0	\$0	\$0	\$0	\$23
Strategy CS-4: Characterize soft bottom infaunal communities of CBNMS	\$0	\$0	\$0	\$35	\$20	\$55
Strategy CS-5: Collect, inventory, and catalog new and previously unsorted Cordell Bank benthic invertebrate specimens	\$0	\$0	\$18	\$0	\$0	\$18
Action CS-5.1 Generate voucher specimen database of CBNMS benthic invertebrates with CAS	\$0	\$0	\$0	\$19	\$0	\$19
Action CS-5.2 Collaborate with CAS on collection and identification of Cordell Bank benthic invertebrates	\$0	\$0	\$9	\$9	\$9	\$27
Strategy CS-6: Survey museum collections and literature for information about CBNMS and generate a verified species list	\$0	\$15	\$0	\$0	\$0	\$15
Strategy CS-7: Understand the function and variability of the pelagic ecosystem	\$37	\$40	\$42	\$44	\$52	\$215
Strategy CS-8: Continue monitoring of fish and invertebrate assemblages	\$85	\$88	\$91	\$94	\$100	\$458
Strategy CS-9: Manage and store data in easily accessible and secure formats and locations	\$10	\$12	\$12	\$15	\$15	\$64
Activity 10.1 Determine the genetic make-up of adult, juvenile and larval fish populations	0	0	0	70	70	140
Activity 10.2 Examine larval dispersal through simulations of coupled bio-physical models	0	0	70	70	0	140
Total Estimated Annual Cost	\$175	\$205	\$327	\$541	\$326	\$1574

The sanctuary's base budget is available each year from appropriated funds.

There is both availability of and opportunity to receive additional funding from appropriated funds.

The estimates do not take into account increasing personnel costs each year or inflation.

The estimates do not take into account unexpected events or emergencies or unforeseen projects.

CBNMS Conservation Science

Performance Measures

Strategy Title(s)	Performance Goal	Desired Outcome (Objective)	Outcome Measure	How Measured	Who Measures	Output Measure
Strategy CS-1: Prepare oceanographic climatology report. Strategy CS-2: Map and characterize habitats. Strategy CS-3: Characterize epifaunal communities. Strategy CS-4: Characterize infaunal communities.	Increase our knowledge and understanding of the Cordell Bank ecosystem.	Characterize the habitats and communities of CBNMS.	Increased understanding of: oceanographic and atmospheric conditions; relative abundance and distribution of habitats; epifaunal and infaunal benthic communities.	Complete site characterization including: detailed oceanographic climatology; clear delineation of habitat types; use surface biota and soft bottom characteristics to ground truth habitat types; cross reference infaunal with habitat mapping to cross-reference results.	Sanctuary Superintendent, Research Coordinator, research partners	1) Oceanographic climatology report with effective maps and graphics 2) Fine scale bathymetric and habitat maps 3) Technical data summary on infaunal and epifaunal communities
Strategy CS-5: Collect, inventory and catalog benthic invertebrate specimens. Strategy CS-6: Survey museum collections, data archives, and literature indexing for specimens.	Increase our knowledge and understanding of the Cordell Bank ecosystem.	Characterize the habitats and communities of CBNMS.	Increase understanding of species diversity.	1) Complete verified species inventory. 2) Taxonomically upgrade, catalog, and maintain specimen collection.	Sanctuary Superintendent, Research Coordinator, research partners	1) Computerized voucher specimen database 2) House invertebrate voucher specimens 3) Confirmed species list
Strategy CS-7: Characterize pelagic ecosystems.	Develop research programs to identify and address specific resource management issues.	Determine monitoring objectives and indicators and conduct a comprehensive monitoring program.	Increase understanding of oceanographic habitats and communities (short-term); and detect and evaluate impacts from anthropogenic or natural perturbations (long-term).	1) Quantitatively assess the distribution and abundance of marine mammals and seabirds. 2) Assess biological productivity (food) and assess human activity and oceanographic conditions. Cross-reference for correlation.	Sanctuary Superintendent, Research Coordinator, advisory council research panel, research partners	1) Technical data summaries 2) Fine-scaled seasonal/annual distribution maps

Conservation Science Action Plan
CBNMS Final Management Plan

Strategy Title(s)	Performance Goal	Desired Outcome (Objective)	Outcome Measure	How Measured	Who Measures	Output Measure
Strategy CS-8: Maintain fish and invertebrate monitoring.	Maintain monitoring programs to understand long-term status and trends to guide management.	Characterize the habitats and communities of CBNMS.	Track changes to ecosystem over time and correlate to environmental conditions and to human use.	Characterize the Bank habitats and characterize and monitor faunal communities, while identifying locations and quantities of anthropogenic impacts.	Sanctuary Superintendent, Research Coordinator, research partners	1) Technical data summary 2) Peer reviewed articles 3) Workshop presentations

The following proposed studies represent important research activities that have not been fully developed as strategies within the Conservation Science Action Plan. Nevertheless, they are important topics that deserve attention when time and resources allow, and serve as an addendum to the main strategies that have been identified in this action plan. These proposed research activities originated from various sources including: 1) discussions of the Conservation Science working group that was assembled during the management plan review process; 2) comments received during the management plan review process; 3) assessment report of the condition of Cordell Bank National Marine Sanctuary resources.

- 1) **Quantify Temporal Patterns of Gelatinous Zooplankton.** Use of Tucker trawl or vertical haul sampling and acoustics to assess seasonal and interannual patterns of abundance and community composition of gelatinous zooplankton as part of the Cordell Bank pelagic monitoring program.
- 2) **Assess Primary Productivity within the Cordell Bank Ecosystem.** Examine spatial and temporal variability in primary productivity and phytoplankton standing stock using simulated *in-situ* and photosynthesis-irradiance incubations coupled with satellite remote sensing data of ocean color.
- 3) **Directed Oceanographic Field Studies.** Use of current meter arrays and acoustic Doppler current profiler to measure currents at different levels in the water column around Cordell Bank, drifters to track motion at and near the surface, and remotely-sensed observations from satellites to provide information on both local and regional conditions.
- 4) **Marine Mammal Observations Using Ships of Opportunity.** Use of volunteer observers riding on ships of opportunity (e.g., wildlife viewing trips) to survey the distribution and abundance of marine mammals.
- 5) **Understanding the Emerging Role of Humboldt Squid in the Cordell Bank Ecosystem.** Use of submersible to conduct surveys on the Bank and off the slope to acquire basic information on squid abundance and distribution. Use of hook and line sampling to assess squid foraging habits and diet.
- 6) **Geomorphology of Cordell Bank and Nearby Shelf and Slope Subsurface Geology.** Collect sub-bottom profile data and synthesize with rock samples from Cordell Bank to summarize the subsurface geology and surficial geomorphology of the region.
- 7) **Water quality assessment.** Assess potential environmental degradation of Sanctuary waters arising from certain changing physical processes and anthropogenic inputs by reviewing and summarizing existing data sets to better understand the potential water quality threats to the Sanctuary waters.
- 8) **Benthic contaminant assessment.** Assess potential environmental degradation of benthic habitats and bottom dwelling species (as well as transfer further along the food chain) arising from concentrations of contaminants such as pesticides, hydrocarbons, and heavy metals by collecting and analyzing benthic samples.



ADMINISTRATION ACTION PLAN

PROGRAM STATEMENT

In order for Cordell Bank National Marine Sanctuary (CBNMS) to build a management plan that is effective in addressing the priority site-specific and cross-cutting resource management issues, as identified through the management plan review process, CBNMS will need to strengthen its infrastructure by adding staff and financial resources to its base budget. In addition to basic infrastructure needs, some administrative areas that will be addressed include: building partnerships; improving interagency coordination; and addressing regulatory and enforcement issues.

PROGRAM DESCRIPTION

Since its designation in 1989, the sanctuary has grown from having no staff or budget to a dedicated staff of six and a budget of \$627,000. The first full-time staff member was hired in 1995, but was funded by Gulf of the Farallones National Marine Sanctuary (GFNMS). In 1998, a separate \$129,000 budget was allocated; in 2000, two additional staff were hired; and in 2003, a manager was hired.

Administrative roles for managing the sanctuary are shared between the CBNMS manager and the National Marine Sanctuary Program (NMSP). The NMSP provides oversight and coordination among the thirteen national marine sanctuaries by developing a framework for resource management, and directing program and policy development. The sanctuary manager oversees site-specific management functions including implementation of the management plan. The management plan makes use of two complementary and strategic tools for ecosystem management: (1) programs, or action plans, carried out through research, education, and marine resource protection programs, and (2) regulations for controlling or restricting human behavior that is not compatible with resource protection. The sanctuary manager establishes who is responsible for implementing specific programs, provides an administrative framework to ensure that all resource management activities are coordinated, and provides and manages an appropriate infrastructure to meet the goals and objectives of the management plan. The sanctuary manager reports directly to the NMSP. In this capacity, the sanctuary manager represents the NMSP and is the primary spokesperson for CBNMS.

The NMSP and CBNMS are committed to coordinating with other federal, state, and local agencies in a continuous ecosystem management process. This process is designed to ensure the long-term protection of the unique resources of this region, while considering the demands of multi-use interests. Because of the complexity of managing the activities and resources in the sanctuary, cooperative efforts are necessary to effectively meet sanctuary goals. Overlapping

jurisdictions, different agency mandates, and limited resources necessitate the development of a management plan that brings together multiple institutions for the common purpose of ecosystem management. Achieving the long- and short-term goals for this region requires the development of close and continuing partnerships.

ADMINISTRATIVE STRUCTURE

All thirteen national marine sanctuaries are managed by the NMSP. The NMSP takes responsibility for ensuring that the management plan prepared for each sanctuary is coordinated and consistent with the National Marine Sanctuaries Act (NMSA). On an annual basis, the NMSP reviews and adjusts funding priorities and requirements to reflect resource management needs at each of the thirteen national marine sanctuaries. The NMSP also establishes policy and priorities in response to specific needs and issues at each site. The NMSP and the site manager monitor the effectiveness of the management plan, both regulations and programs, and may promulgate changes when necessary. The NMSP and the site manager coordinate efforts to protect and manage sanctuary resources with other federal, state, regional, and local agencies.

SANCTUARY SUPERINTENDENT

The CBNMS superintendent recommends to the NMSP priorities for annual allocation of funds for site-specific resource protection needs. The superintendent reports to the NMSP on enforcement activities, violations, and emergencies. The superintendent coordinates with the NMSP on evaluating, processing, and issuing permits; monitors and evaluates research, education, and marine resource management programs; oversees staffing needs and requirements; coordinates on-site efforts of all parties involved in sanctuary activities including state, federal, regional, and local agencies. Finally, the superintendent evaluates overall progress toward the resource protection objectives of the NMSP and prepares regular reports highlighting progress made in realizing these goals.

SANCTUARY STAFF

Under the direction of the sanctuary manager, the sanctuary staff is directly responsible for implementation of the management plan. Although each staff member is assigned to one of the program areas, collectively the staff is responsible for coordinating their efforts in addressing all the priority resource management issues.

SANCTUARY ADVISORY COUNCIL

The sanctuary advisory council has been structured in accordance with the NMSA and national guidelines developed by the NMSP. The advisory council, with its expertise and broad based representation, offers advice to the sanctuary manager on resource management issues and decisions. CBNMS Sanctuary Advisory Council representation includes six agency and stakeholder representatives and five alternates. The advisory council is representative of a broad based constituency to ensure that the manager has a broad information base upon which to make management decisions.

IMPLEMENTATION OF THE MANAGEMENT PLAN

Each of CBNMS' program areas—Education and Outreach; Conservation Science; and Marine Resource Protection—have outlined action plans for implementing the management plan. These action plans are designed to directly address resource management issues and guide management of CBNMS over the next five years.

Action plans are purposely designed with only preliminary implementation guidelines because their parameters may change in the future. The action plans presented in the management plan address current resource management issues identified as priorities by the sanctuary during the management plan review process. The implementation of these action plans is highly dependent on available staffing and financial resource allocation.

Implementation of the new management plan will require: coordination within and between action plans; sharing of staff and financial resources between program areas; and cooperation and coordination among many federal, state, and local government agencies, as well as private organizations, institutions, and individuals.

CBNMS administration provides an organized structure and support system for implementing management strategies while providing the flexibility and guidance necessary to address changing, new, and emerging resource management issues.

IMPLEMENTATION COSTS

Operating funds for sanctuary management come from federal appropriations to the NMSP. These funds cover expenses such as personnel salaries, vessel maintenance, property rental, equipment, and supplies.

In addition to calculating operating costs, CBNMS will perform an estimated cost analysis for carrying out each of the program areas. This analysis is necessary in order to secure appropriate and adequate funding for implementation of the management plan over the next five years.

Unpredictable and variable funding for staff and program development over the next five years may affect specific aspects of the sanctuary management plan. The scale and scope of certain programs may be modified due to any unforeseeable changes in the level of funding, however the goals and objectives of the plan will remain unchanged.

OTHER MANAGEMENT TOOLS

With limited staff and financial resources, partnerships are an integral part of successful ecosystem management of CBNMS. The sanctuary manager may draw from a selection of standard management tools to formalize relationships with other federal, state and local agencies or the private sector. Examples of these agreements are:

MEMORANDUM of UNDERSTANDING (MOU) / MEMORANDUM of AGREEMENT (MOA) establishes a formal relationship between two or more entities for general purposes, or for a specific purpose or project, that is expected to continue for an extended period of time.

This mechanism cannot be used to transfer funds, but generally addresses commitment of resources.

LETTER of AGREEMENT / LETTER of UNDERSTANDING is an informal mechanism used to establish a relationship between two or more entities, for a specific project or purpose, for a short period of time. This mechanism cannot be used to transfer funds.

INTERAGENCY AGREEMENT is used when one agency has expertise, equipment, and/or personnel to perform work more efficiently than another, and it is in the government's interest to do so. Generally, funds are transferred to the agency carrying out the work.

COOPERATIVE AGREEMENT provides funding to a non-federal entity for a project/product that benefits the public. Cooperative agreements are the primary mechanism used for financial assistance. The National Oceanic and Atmospheric Administration (NOAA) must serve as the program officer on the cooperative agreement with financial oversight maintained by the Grants Management Division.

GRANTS provide funding to a non-federal entity for a project/product that benefits the public and in which NOAA does not need/want to have substantial involvement. A grant is considered one of the major kinds of financial assistance and must be awarded competitively or include a sole source justification. NOAA must serve as the program officer with financial oversight maintained by the Grants Management Division.

CONTRACT is a mechanism used by the federal government to procure goods and services. A contract must be awarded competitively or include a sole source justification. The program office has administrative oversight. During the term of the contract, financial oversight is maintained by the Finance Services Division.

JURISDICTIONAL SETTING

Although the sanctuary does coordinate with state agencies such as California Department of Fish and Game (CDFG) and the California Coastal Commission, CBNMS lies entirely in federal waters. Federal jurisdictional partners include:

UNITED STATES COAST GUARD (USCG) holds broad responsibility for enforcing all federal laws throughout the sanctuary and assists NOAA in the enforcement of sanctuary regulations. USCG provides on-scene coordination with Regional Response Center facilities under the National Contingency Plan for removal of oil and hazardous substances in the event of a spill that threatens sanctuary resource.

NATIONAL MARINE FISHERIES SERVICE (NMFS) has responsibility along with the CDFG, under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), for approving, implementing and enforcing Fishery Management Plans (FMPs) prepared by regional fishery management councils to ensure sustainability *of fishery resources. NMFS also shares responsibility with the Fish and Wildlife Service for the implementation of the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA) to prevent takings of any species protected under these laws.

ENVIRONMENTAL PROTECTION AGENCY (EPA) has regulatory responsibilities with regard to sewage outfalls (under the Clean Water Act) via National Pollutant Discharge Elimination System (NPDES) Permits, and ocean dumping (under Title I of the Marine Protection, Research, and Sanctuaries Act) to protect water quality.

UNITED STATES FISH AND WILDLIFE SERVICE (USFWS) is responsible for protecting all marine mammal species other than whales, porpoises, and pinnipeds under the Marine Mammal Protection Act (MMPA) and for protecting endangered or threatened bird and other species under the ESA.

ADMINISTRATION GOAL

1. Build a strong foundation which supports the development of: effective program areas; a strong regulatory framework; and an array of partnerships. This foundation will allow for growth and flexibility in addressing the priority issues and recommendations laid out in the management plan.

ADMINISTRATION OBJECTIVES

1. Develop a structured administrative framework to continuously evaluate, maintain, and expand as necessary, administrative operations.
2. Identify appropriate staffing, budget levels, and facility needs to support implementation of the management plan.
3. Continue to build on partnerships, collaborative efforts, and coordination with other agencies, institutions, and organizations.

ADMINISTRATION STRATEGIES

Operations

STRATEGY AD-1: *CBNMS will expand its facilities to include satellite offices, visitor centers, signage, and vessels located throughout the region as necessary to support implementation of the management plan.*

Additional sanctuary facilities may be developed through various partnerships with both the public and private sector. Currently, CBNMS' main office is located in Bear Valley on the grounds of Point Reyes National Seashore (PRNS) near Olema, California.

Activity 1.1 Expand the current main office space and increase storage capacity at Bear Valley (Red Barn) facility to accommodate additional staffing needs and allow for future growth.

Activity 1.2 Increase presence in Bodega Bay, the nearest access point to CBNMS, by opening a satellite office and visitor center that would serve both research and outreach needs and assist in the further development of partnerships.

Activity 1.3 Work with the PRNS to identify intern/researcher housing options on park lands. These facilities may also include wet labs for researchers' use. Several possible sites (existing buildings) have been identified and preliminary investigations into potential partnerships are taking place. Formalized agreements may include the sanctuary providing restoration and maintenance funds in return for use of the building(s). (This effort may be coordinated with Activity 1.5 C – Pacific Coast Learning Center [PCLC]).

Activity 1.4 Increase the sanctuary staff's ability to access the marine waters of the sanctuary by expanding vessel capabilities and contracting more vessel time to support research and monitoring efforts. Currently, the sanctuary's research vessel *C. magister*, a 33' Gaski, serves as a day-use platform supporting research efforts of the sanctuary and its partners. This effort will include annual vessel time planning for research and education programs. Vessel planning will include CBNMS' vessel, NOAA ship time, and chartered boat time.

Activity 1.5 Complete priorities and implement facilities plan for visitor centers and outreach venues. CBNMS has identified a number of outreach opportunities that cover the sanctuary's interpretive needs from both geographical and thematic points of view. The proposed plan covers a geographic area from Oakland to Salt Point in Sonoma County, and includes shared signage with GFNMS. Outreach and interpretive exhibit venues being considered include:

- A. Bear Valley Visitor Center at PRNS headquarters provides space to CBNMS for its exhibit needs. The visitor center averages 350,000 visitors per year and is a destination for school programs local, national and international visitors. Funds have been approved for design of the exhibits.
- B. Point Reyes Lighthouse averages 110,000 visitors a year and is the closest landfall to CBNMS. The Park has offered two vacant buildings next to the lighthouse for wayside signage or other forms of exhibitry.
- C. Pacific Coast Learning Center (PCLC) at PRNS is part of a network of centers across the nation facilitating science-based management and education. CBNMS is interested in participating in the construction of a wet lab that would be co-developed with PRNS (also see Activity 1.3).
- D. Bodega Marine Laboratory (BML) is the marine research arm of University of California at Davis (UCD), and the center of marine research on the north coast. CBNMS, in partnership with GFNMS, is proposing to update and expand its interpretive panels at the lab.
- E. Fort Ross State Park celebrates the Russian presence in northern California in the 19th century during the heydays of the Russian-American Company. It also tells the story of local Native American tribes who fished and hunted in the area. CBNMS and GFNMS are proposing to develop wayside signage themed on wildlife watching, including tidepool etiquette and marine mammal viewing.
- F. Salt Point State Park is a major access point for recreational scuba divers. CBNMS proposes to create signage on marine stewardship and wildlife watching

etiquette (diving, whale watching, marine mammals, seabirds and rocky intertidal). Additional signage would provide a map of the sanctuary and its mission. An interactive kiosk could be placed at the campground.

- G. Bodega Head State Park is the best vantage for getting a perspective on GFNMS and CBNMS. This is a popular whale-watching and sunset-watching location. GFNMS and CBNMS propose to build a permanent whale-watching station modeled after one under construction at Beach 6, along the Olympic coastline. This signage would complement the CBNMS Bodega satellite office signage.
- H. Gleason Beach, Marshall Gulch, North Salmon Creek Beach and Salmon Creek are pullout areas located between Fort Ross and Bodega Bay, and are ideal wayside signage locations that could be used to interpret various sanctuary themes.
- I. The Oakland Museum of California is undergoing an \$80 million renovation that includes reinstallation of its science wing, with a greater emphasis on marine education. CBNMS is considering entering into a long-term partnership that would include exhibitry and outreach opportunities, with a focus on minorities and low-income families. This project would be a regional effort, including Gulf of the Farallones, Monterey Bay, and Channel Islands National Marine Sanctuaries.

Staffing

STRATEGY AD-2: *CBNMS will fill basic staffing requirements to provide support for administration and the program areas of conservation science, education and outreach, and resource management.*

Activity 2.1 Sanctuary staff skills should collectively represent expertise in policy, marine resource management, education, outreach, volunteer development, research, monitoring, geographic information systems (GIS), communications technology, and administration. The actual number and expertise of staff will depend on budget allocations and the operating priorities of CBNMS. In order to meet the objectives of this management plan, minimum staffing requirements have been laid out (see pg. 95).

Activity 2.2 Each staff member must exhibit general knowledge about all CBNMS program areas and the ability to effectively communicate with constituents, other professionals, and the community at large. In an effort to attract and maintain a consistent and high caliber staff base, the CBNMS manager will allocate 1.5 percent of the base budget, and offer and encourage staff participation in professional development.

Partnerships

STRATEGY AD-3: *With limited staff and financial resources, CBNMS will develop partnerships and identify outside funding sources and in-kind services to assist in the implementation of the management plan.*

Activity 3.1 In partnership with regional research and educational institutions and agencies, establish a Sanctuary supported internship program with graduate students to assist the sanctuary in monitoring, research, and education priorities. Agreements could be entered into with academic institutions and agencies such as:

- A. Bodega Marine Lab (BML) to provide on-going support for a graduate student internship program.
- B. Moss Landing Marine Lab (MLML) to provide on-going support for a graduate student internship program.
- C. San Francisco State University (SFSU)-Romberg/Tiburon Center to provide on-going support for a graduate student internship program.
- D. Point Reyes National Seashore (PRNS) to provide housing for graduate student internship program.

Complementary Strategies: CBNMS Management Plan (FMP), Partnerships with Community Groups, STRATEGY PC-1

Activity 3.2 Maintain and expand informal working relationship with federal, state, and local agencies. Partnership activities include coordination on education and outreach projects, research projects, data analysis, and cruise operations.

STRATEGY AD-4: *As the sanctuary advisory council matures and develops a strong voice within the community, its role in resource management will be more clearly defined. With experience, the advisory council will assume a leading role in providing advice to the sanctuary manager.*

Activity 4.1 In consultation with the sanctuary advisory council (SAC), strengthen the structure of the council by: evaluating and amending as necessary the SAC charter; evaluating and developing organizational strategies to enhance the council's level of participation and effectiveness; evaluating and adjusting, if necessary, council membership; and providing support to help the council develop a respected voice in the community.

Activity 4.2 Identify the role of the advisory council in addressing resource management issues by developing a format for assisting in the building of CBNMS policies and procedures.

Activity 4.3 Provide support, resources, and guidance to help the council engage and educate the public about current, new, and emerging resource management issues in the sanctuary.

Activity 4.4 Advisory council members will be asked to serve on various council working groups. Working groups will be convened by the council to focus on specific issues and to allow for participation by additional stakeholders and community experts.

Complementary Strategies: CBNMS FMP, Partnerships with Community Groups, STRATEGY PC-2; GFNMS FMP, Administration, STRATEGY AD-4; Monterey Bay National Marine Sanctuary (MBNMS) FMP, Sanctuary Advisory Council, STRATEGY SAC-1

Interagency Coordination

STRATEGY AD-5: *CBNMS will formalize intra- and interagency partnerships to ensure coordination and cooperation with federal, state, and local jurisdictions within or adjacent to the sanctuary. NOAA and CBNMS recognize all other authorities in and around sanctuary waters as important components of effective ecosystem management.*

Activity 5.1 CBNMS will engage other agencies in reviewing each other's proposed actions, responding to Environmental Impact Statements, participating in sanctuary panels and working groups. Building agency relationships allows for: coordination of the development of policies at the federal, state and local level; the sharing of research and education resources; and the opportunity to work together to identify resource management issues.

Activity 5.2 CBNMS will formalize agreements with federal co-trustee managers signaling that the cooperative and integrated management approach established for the CBNMS has been adopted by other agencies. To formally implement cooperative management of the sanctuary, a number of separate types of agreements may be entered into, including: cooperative agreements, memoranda of understanding, memoranda of agreement, and consultation.

Activity 5.3 CBNMS will formalize agreements for the following programs: (1) Protected Resources Enforcement Plan (USCG, NMFS, Sonoma County Sheriff's Department, CDFG) (see below); and (2) Emergency Response Plan (local, state and federal emergency response agencies).

Protected Resources Enforcement Plan

STRATEGY AD-6: *Enhance resource protection through increased compliance with sanctuary regulations and other applicable state and federal statutes. The mission of sanctuary enforcement is to ensure compliance with the National Marine Sanctuaries Act (16 USC § 1431 et seq.) and appropriate regulations of the sanctuary (15 CFR § 922).*

The approach to the enforcement program should be two-fold in nature: (1) the use of interpretive enforcement (such as public outreach) as a tool to inform and encourage voluntary compliance; and (2) the use of patrols and other traditional law enforcement methods to enforce regulations and investigate and respond to suspected prohibited activities. Together, these two programs should result in a regular and ongoing enforcement presence in sanctuary waters and compliance with sanctuary regulations.

Activity 6.1 Ensure sufficient patrol presence in the sanctuary through the development of partnerships and interagency coordination. Additionally, CBNMS needs to maintain an active

enforcement relationship with the USCG, NOAA Office of Law Enforcement, CDFG, and Sonoma County Sheriff's Department (Bodega Bay).

- A. CBNMS will coordinate with other enforcement authorities on investigations, regulatory violations, permit violations, incidents, and citizen complaints.

Activity 6.2 Use interpretive enforcement as a tool to inform and encourage voluntary compliance with sanctuary regulations. Interpretive enforcement may be used to affect behavior and change values. Interpretive enforcement efforts will include:

- A. Train Sanctuary Naturalist Program volunteers to use interpretive enforcement (see Education STRATEGY ED-2, page 30).
- B. Develop signage program at Bodega Harbor.
- C. Work with California Department of Motor Vehicles to include informational inserts in boat license renewal packets (to be coordinated with all California national marine sanctuaries).
- D. Give presentations at yacht clubs and the Coast Guard Auxiliary.
- E. Provide follow-up letters to possible violators with “you may be in violation” notices that inform the boater about sanctuary regulations.

Potential Partners: Coast Guard Auxiliary, CA Department of Motor Vehicles, GFNMS

Complementary Strategies: CBNMS FMP, Administration, Regulations and Permitting, STRATEGY AD-9; Education, STRATEGY ED-1

Emergency Response

STRATEGY AD-7: *Develop a plan that prepares sanctuary staff to respond to an emergency in or adjacent to the sanctuary. This plan will provide the framework for a seamless operation in cooperation with other federal, state, and local emergency response agencies in California. The plan will be developed in coordination with GFNMS and MBNMS.*

Activity 7.1 CBNMS will review and revise its emergency response plan, based on the Incident Command System (ICS) and the USCG's Area Contingency Plan (ACP), to respond to oil spills, hazardous material spills, sunken vessels, or natural disasters. In coordination with GFNMS and MBNMS, the response plan will be reviewed, evaluated, and updated on an annual basis. CBNMS' emergency response plan will:

- A. Lay out emergency response notification plans (including all relevant agencies, user groups and media) and preparation procedures.
- B. The plan will include coordination and decision-making responsibilities on use of dispersants

- C. Identify specific duties for sanctuary staff.
- D. Develop damage assessment guidelines.

Activity 7.2 All appropriate sanctuary staff will be trained on an ongoing basis with regular updates and refresher courses, and will be ready to respond in the case of an emergency. Staff training to include:

- A. Understanding the ICS.
- B. Familiarization with the ACP.
- C. Assigned emergency response duties.
- D. Taking part in emergency response drills.
- E. Developing resource damage assessment skills.

Complementary Strategies: GFNMS FMP, Resource Protection, Emergency Response, STRATEGY RP-7; MBNMS FMP, Operations and Administration, STRATEGY OA-4

Regulations and Permitting

STRATEGY AD-8: *Continuously evaluate the appropriateness and effectiveness of current sanctuary regulations (prohibitions) and permitting authority (15 CFR §922) in addressing the priority resource management issues identified in the management plan.*

Activity 8.1 CBNMS uses two complementary and strategic tools to carry out an ecosystem management approach: (1) programs, or action plans, which address resource management issues through the use of Education and Outreach, Conservation Science, and Resource Protection; and (2) regulations, which help establish priorities for guiding or restricting human behavior that may not be compatible with resource protection (see Appendix III). To ensure that CBNMS' regulations provide protection for natural resources and address the site's priority resource management issues, CBNMS will take the following steps:

- A. On a regular basis, the sanctuary staff and superintendent will, in consultation with the NMSP, evaluate the appropriateness and effectiveness of current regulatory language.
- B. Based on the evaluation and need for action in response to current, new and emerging human-use activities that may be inconsistent with the sanctuary's primary goal of resource protection, the sanctuary manager may propose new regulations or amendments to current regulations.
- C. CBNMS will provide guidance and understanding of policy in the NMSA.

- D. CBNMS will ensure, to the extent appropriate, coordination and consistency with other resource management agencies' regulations and permits.
- E. CBNMS will track, review, and comment on Environmental Assessments and Environmental Impact Statements prepared by other agencies.

Activity 8.2 The sanctuary permit program provides a mechanism to review requests to conduct prohibited activities within the sanctuary, and where possible, permit these activities to be conducted in a way that results in negligible effects. Generally, these requests are for research or education purposes. The sanctuary evaluates these requests on a case-by-case basis in detail to consider factors such as whether the activity needs to be conducted in the sanctuary; the value of the activity; the proposed methods and procedures; and the activity's effect in the sanctuary.

- A. In order to understand, measure, and control prohibited activities within the sanctuary, and to minimize cumulative impacts from these activities, the permit program will:
 - i. Evaluate permit requests on a case-by-case basis.
 - ii. Develop permit requirements to applicants on procedures and operations to avoid or reduce impacts to sanctuary resources.
 - iii. Monitor permitted activities to ensure compliance with permit conditions and to understand direct and cumulative impacts.
 - iv. Require applicants provide the sanctuary with the data and findings gained through research conducted with research permits.
- B. Certain educational or research activities may violate sanctuary prohibitions, although actual environmental impacts to sanctuary resources may be negligible. A streamlined application process could be developed for activities that clearly fall within this category.
 - i. Develop a streamlined application process by creating a simple form on which applicants can submit concise and relevant information.
 - ii. Develop a system to issue programmatic permits that may include many activities conducted by one organization or institution under one permit.

New and Emerging Issues

STRATEGY AD-9: *It is the sanctuary's responsibility to track existing, emerging, and potential future activities and their impacts on living marine resources and habitats of the sanctuary. In an effort to take a proactive ecosystem approach to resource management, CBNMS, GFNMS and MBNMS will need to coordinate on examining and evaluating activities that take place in and adjacent to each or all of the sanctuaries in order to better understand and anticipate impacts from these activities.*

Activity 9.1 Establish a framework for identifying and addressing new and emerging issues.

- A. Establish an evaluation system for determining if the issue (eg. climate change) is relevant to the site and develop steps for addressing as appropriate.
- B. Set up an electronic Web-based cataloging system to capture information on new and emerging issues (including sources and references). This system should be easily accessible by sanctuary staff for both adding information and accessing information.

Activity 9.2 Establish better coordination between sanctuary sites, the NMSP, and other resource management agencies.

- A. Establish a dynamic and up-to-date electronic system to inform one another of new and emerging issues, share information, and provide a forum for exchange and policy discussion.
- B. Track and comment on a variety of related resource protection projects and plans, including the review of Environmental Impact Statements and Environmental Assessments.

Complementary Strategies: GFNMS FMP, Administration, New and Emerging Issues, STRATEGY RP-1; MBNMS FMP, New and Emerging Issues, STRATEGY EI-1, STRATEGY EI-2

Boundary Modifications

STRATEGY AD-10: *To ensure that CBNMS' boundary reflects and is inclusive of the area's natural resource and ecological qualities, including the biogeographic representation of the area, the sanctuary will develop and implement an analytical process designed to evaluate boundary alternatives relative to CBNMS using the best available information and decision-making tools.*

Activity AD-10 Develop an incremental process for gathering information, analyzing data, and developing a recommendation on boundary options. This process will be in place, and executed

as appropriate, based on the identification of specific areas outside the current sanctuary boundary that warrant further investigation.

- A. Review and analyze the biogeographic assessment to make an initial determination if there are particular areas that require immediate attention.
- B. Identify additional data sets not provided by the biogeographic assessment that may be needed for further analysis. In particular, identify smaller scale features and refined spatial scales that were either not available, or not analyzed on a fine enough scale by the biogeographic assessment.
- C. Conduct a literature search to identify additional data sets (also see research recommendations).
- D. Identify sanctuary research needs (opportunistic and planned) to answer boundary questions. Data needs to be received by the sanctuary in a format that is usable for answering boundary questions.
- E. Propose that SAC assemble a working group with broad-based stakeholder representation and scientific expertise.
- F. Develop a framework for quantitative analysis and evaluation of data by working group.
- G. The working group should strive to come to consensus on building a recommendation(s) on boundary options. The following recommended criteria could be used by the working group to evaluate different boundary options:
 - A boundary change should:
 - i. Provide additional comprehensive and coordinated conservation and management of this area.
 - ii. Ensure the maintenance of the area's natural resource and ecological qualities, including its contribution to biological productivity, maintenance of ecosystem structure, maintenance of ecologically or commercially important threatened or endangered species or species assemblages, maintenance of critical habitat of endangered species, and the biogeographic representation of the site.
 - iii. Increase protection, and where appropriate, restore natural habitats, populations, and ecological processes.
 - iv. Enhance public awareness, understanding, appreciation, participation, stewardship, and sustainable use of the marine environment, and the natural, historical, cultural, and archeological resources of the marine area.
 - v. Enhance coordination of scientific research and long-term monitoring of the resources of the marine area.

- H. The working group will forward their recommendation to SAC for their review and comments before forwarding a final recommendation to the sanctuary superintendent.

Potential Partnerships: NCCOS, SAC, research community

Complementary Strategies: CBNMS FMP, Ecosystem Protection, STRATEGY FA-4 and FA-6; Conservation Science, STRATEGY CS-1, STRATEGY CS-2, AND STRATEGY CS-7

Planning and Evaluation

Evaluating performance as part of the regular cycle of management is a relatively new concept for the NMSP. Periodic reviews have taken place over the course of the sanctuary program's existence, but a process for integrating a system for performance evaluation has not been implemented up to now. As a result, NMSP headquarters staff began working on models for integrating performance measurement into the management plan review process as well as for evaluating overall performance of the sanctuary program. The idea behind these models was simple, but implementing them has been challenging due to the inherent difficulties of performance measurement (developing quantifiable outcome-based targets, projecting outward for results, estimating needs, relying on outputs or products for results reporting, etc.). With the measures in this FMP, however, CBNMS is initiating the performance measurement process for the sanctuary and, therefore, is beginning to establish a baseline of information that can be used by the NMSP to evaluate effectiveness of both the site and the sanctuary program over time.

Program Description

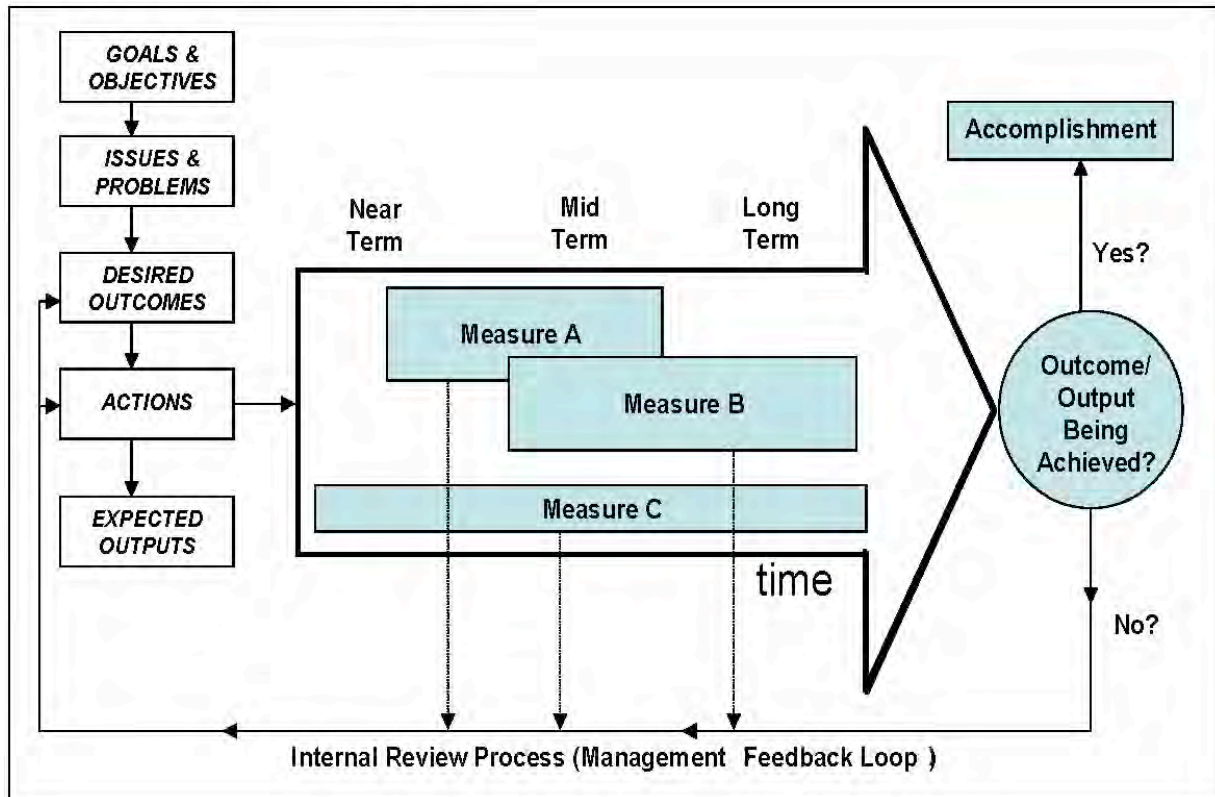
As part of an effort to improve overall management of sanctuaries, ongoing and routine performance evaluation is a priority for the NMSP. Both site-specific and programmatic efforts are underway to better understand the sanctuary program's ability to meet the objectives outlined in each of the action plans. Performance evaluation has many other benefits, including:

- Highlighting successful (or not so successful) efforts of site management;
- Keeping the public, Congress, and other interested parties apprised of sanctuary effectiveness;
- Helping management identify resource gaps so that they may better manage their sites;
- Improving accountability;
- Improving communication among sites, stakeholders and the general public;
- Fostering the development of clear, concise and, whenever possible, measurable outcomes;
- Providing a means for managers to comprehensively evaluate their sites in both the short and long term;
- Fostering an internal focus on problem solving and improved performance;
- Providing additional support for the resource allocation process; and
- Motivating staff with clear policies and a focused direction.

Administration Action Plan
CBNMS Final Management Plan

Throughout the management plan review process, CBNMS staff worked towards developing performance measures for the action plans. The principal objective of these measures is to present a set of performance targets that demonstrate progress towards desired outcomes for each action plan. The flowchart (page 82) depicts the basic idea behind this process, which will be implemented in all sanctuaries undergoing management plan review.

NMSP Performance Evaluation Logic Model



Priority resource management issues were identified during the management plan review process relative to CBNMS’ goals and objectives. Staff developed desired outcomes (targets based on a desired change in the status quo of the ecosystem, such as the sanctuary’s environmental condition or management capacities). Strategies (as identified in each of the action plans) are then grouped under the relevant outcomes. Expected outputs, or products, are also identified. Performance measures are then created, which identify the means by which the sanctuary will evaluate its progress towards achievement of the desired outcomes (based on goals and objectives). As represented by the large arrow in the figure above, measures were developed to provide information on results over time, from the near term (within one year, for example) to the long term (over the span of ten years or more, for example). As these measures are monitored over time, data is collected on progress towards the achievement of outcomes and the production of outputs. Outcomes that are being achieved and outputs that are being produced are reported as accomplishments; the inability to achieve outcomes or produce outputs is reported as an area that is falling short of target. In these areas, staff will work to identify the obstacles that

are preventing management from reaching targets (represented in the figure above by the arrow that runs along the bottom of the graphic). This internal review is one of the primary benefits of the performance evaluation process as it provides an opportunity for staff to think carefully about why particular strategies in the management plan are not meeting stated targets and how they can be altered to do so.

The information produced by performance measures in sanctuary management plans will be used not only to improve the management of individual sanctuaries, but to inform the sanctuary program's performance evaluation through the NMSP Report Card.

The NMSP Report Card will use action-plan-specific performance information from the site management plans (along with information on headquarters-specific tasks) to evaluate the sanctuary program's performance in a wide variety of functional areas (such as education, research and monitoring, planning and policy, enforcement, and operations). Although this will be an internal process, results will be compiled, synthesized and then reported by the NMSP Director in a public document (such as the *State of the Sanctuary Report*).

Performance Evaluation Goal

1. Ensure that CBNMS' management plan strategies are producing effective results in addressing the priority resource management issues identified in the management plan.

Performance Evaluation Objectives

1. CBNMS will continuously measure and evaluate the successes and challenges of the strategies put forth in the five-year management plan.
2. Based on the outcome of these evaluations, the sanctuary will modify existing programs and make recommendations for the future that best support the sanctuary's primary objective of ecosystem protection.

Performance Evaluation Strategy

STRATEGY AD-11: *Develop and make use of performance indicators to measure effectiveness of the management of the sanctuary as a whole, as well as to evaluate specific strategies within the management plan.*

Activity 11.1 CBNMS staff will conduct routine performance evaluations to collect and record data on sanctuary performance over time. Using this data, staff will determine the effectiveness of management plan strategies by (a) evaluating progress towards achievement of each action plan's desired outcomes and (b) assessing the role or added value of those outcomes in the overall accomplishment of site goals and objectives.

Activity 11.2 Results from performance monitoring will be collected, analyzed and used to populate and inform the NMSP Report Card and, when necessary, National Ocean Service (NOS) or NOAA-wide performance requirements. Performance data may also be presented in a

Administration Action Plan
CBNMS Final Management Plan

site-specific annual report that would explain each measure, how it was evaluated, the site team that conducted the evaluation, and next steps. Based on this analysis, site staff, in cooperation with the advisory council, will identify accomplishments as well work to determine those management actions that need to be changed to better meet their stated targets. The targets themselves may also be analyzed to determine their validity (if, for instance, they are too ambitious or unrealistic given current site capacities).

Activity 11.3 An annual assessment on the implementation of the CBNMS Management Plan will be conducted. This assessment will be conducted internally by CBNMS staff who will consider the progress and effectiveness of activities implemented over the previous year. In this activity, successes or weaknesses of specific activities will be determined. Activities deemed less than successful in achieving desired outcomes will be addressed to correct or improve the outcomes/outputs. Successful activities will be recognized with application of positive lessons learned to other programs.

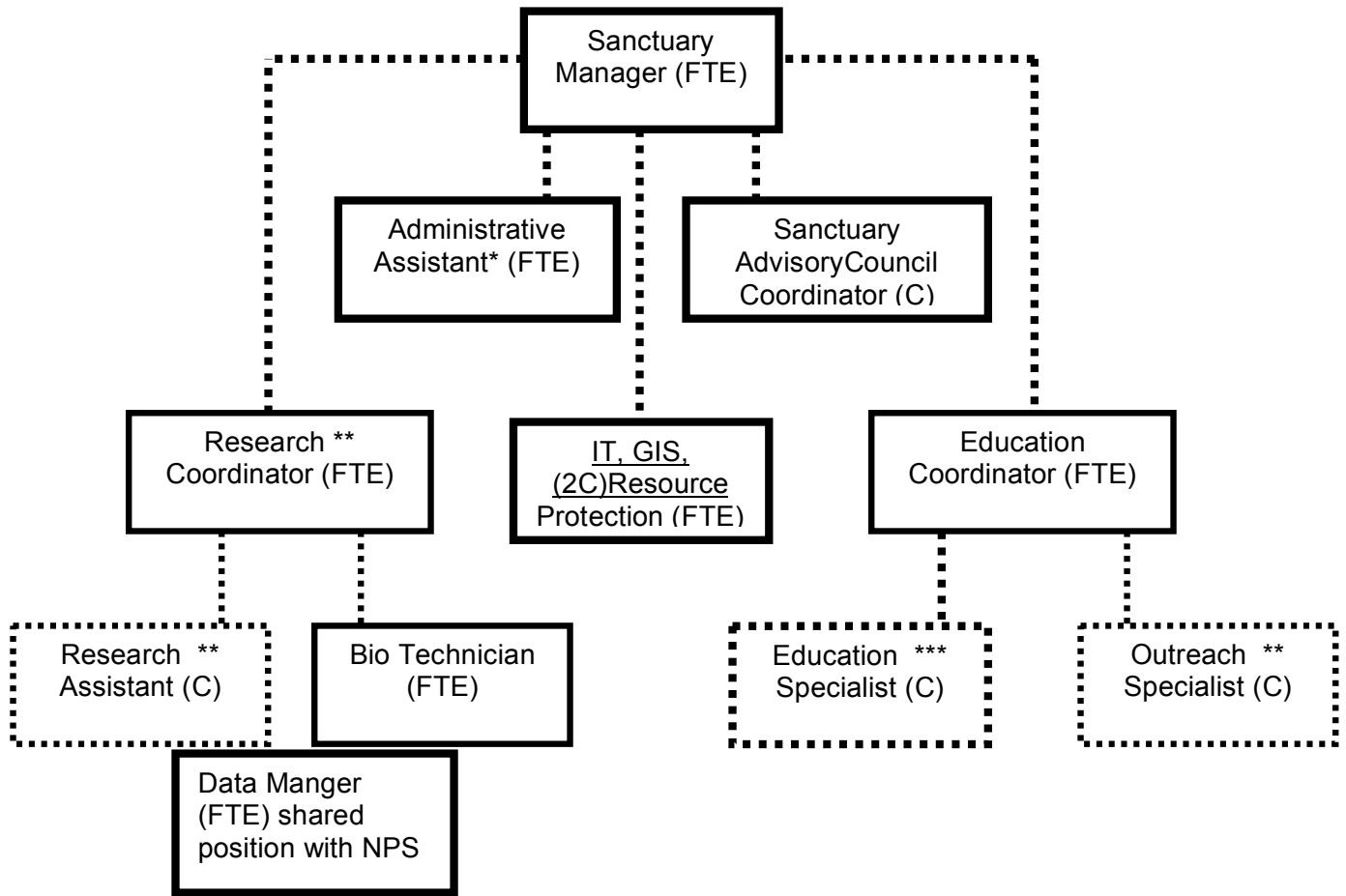
Activity 11.4 As the NMSP continues to increase the rigor of its internal evaluation process, CBNMS will begin to increase the frequency with which partners collaboratively join with CBNMS in assessing the effectiveness of joint-management actions (those actions conducted primarily in partnership with others). Toward this end, regular evaluation of partner dependent strategies within this management plan is proposed.

Potential Partnerships: NMSP, SAC, strategy partners

Complementary Strategies: All strategies

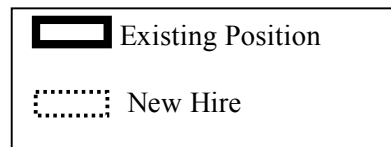
Cordell Bank National Marine Sanctuary

Proposed Staffing Plan



- * Requires budget and finance experience
- ** To be located in Bodega Bay
- *** Requires web experience

FTE Full Time Government Employee
C Contractor



CBNMS Administration

Timeline

ADMINISTRATION STRATEGY	Year 1	Year 2	Year 3	Year 4	Year 5
Strategy AD-1: Facilities					▶
Strategy AD-2: Staffing					▶
Strategy AD-3: Partnerships					▶
Strategy AD-4: Strengthen structure and function of sanctuary advisory council					▶
Strategy AD-5: Interagency Coordination					▶
Strategy AD-6: Protected Resources Enforcement Plan					▶
Strategy AD-7: Emergency Response					▶
Strategy AD-8: Regulations and Permitting					▶
Strategy AD-9: New and Emerging Issues					▶
Strategy AD-10: Boundary Modifications.					▶
Strategy AD-11: Planning and Evaluation					▶

Legend:

- ▶ **Ongoing Activity**
-▶ **Planning Stage**
- ◆ **Completed Action**

CBNMS Administration

Budget

ADMINISTRATION STRATEGY	Estimated Annual Cost (1000's)*					Total Est. 5-YR Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy AD-1: Develop additional facilities through partnerships	\$8	\$8	\$8	\$8	\$8	\$40
Strategy AD-2: Acquire basic staffing requirements to support administration and program areas	\$80	\$95	\$185	\$285	\$365	\$1,010
Strategy AD-3: Develop partnerships to assist in the implementation of the management plan	\$24	\$24	\$24	\$24	\$24	\$120
Strategy AD-4: Clearly define a leading role for the advisory council in providing advice to the sanctuary manager	\$26	\$26	\$26	\$26	\$26	\$130
Strategy AD-5: Formalize intra- and interagency efforts	\$8	\$8	\$8	\$8	\$8	\$40
Strategy AD-6: Create a regular, on-going enforcement presence in sanctuary waters and compliance with sanctuary regulations	\$15	\$15	\$15	\$15	\$15	\$75
Strategy AD-7: Review and revise emergency response plan	\$10	\$10	\$10	\$10	\$10	\$50
Strategy AD-8: Continuously measure and evaluate activities	\$5	\$5	\$5	\$5	\$5	\$25
Strategy AD-9: Continuously evaluate the effectiveness of current sanctuary regulatory language and permitting authority	\$15	\$15	\$15	\$15	\$15	\$75
Strategy AD-10: Track existing, emerging, and potential future issues	\$0	\$0	\$0	\$5	\$5	\$10
Strategy AD-11: Continuously measure and evaluate activities	\$15	\$15	\$15	\$15	\$15	\$75
Total Estimated Annual Cost	\$206	\$221	\$311	\$416	\$496	\$1,650

The sanctuary's base budget is available each year from appropriated funds.

There is both availability of and opportunity to receive additional funding from appropriated funds.

The estimates do not take into account increasing personnel costs each year or inflation.

The estimates do not take into account unexpected events or emergencies or unforeseen projects.



CROSS-CUTTING

ACTION PLAN

CBNMS FINAL MANAGEMENT PLAN

- I. Cross-Cutting Introduction**
- II. Administration and Operations**
- III. Community Outreach**
- IV. Ecosystem Monitoring**
- V. Maritime Heritage**

CROSS-CUTTING INTRODUCTION

Cordell Bank (CBNMS), Gulf of the Farallones (GFNMS), and Monterey Bay (MBNMS) National Marine Sanctuaries are located adjacent to one another along a 350-mile stretch of the north-central California coast. All three sanctuaries are managed by the National Marine Sanctuary Program (NMSP), share many of the same resources and issues, and have some overlapping interest and user groups. There are many opportunities for these sites to work cooperatively, share assets, and address resource management issues in a coordinated manner.

The three sanctuaries continue to coordinate on many important resource management issues, such as oil spills and volunteer monitoring. However, each site is, for the most part, managed independently of the others. The three sanctuaries have separate administrative staffs, sanctuary advisory councils (SACs), and independent education, research and resource protection programs. As a result, opportunities to maximize collaborations and share resources have not fully been realized.

GOALS

The goal of the cross-cutting action plans is to build upon existing coordination efforts and identify some activities that should be jointly implemented so that these three sites can operate as integrated and complementary sites to better protect the sanctuary resources. This will ensure that scarce program resources are used more efficiently and result in a more consistent and coordinated delivery of programs, products and services to the public. Cross-cutting actions plans were developed to address: Administration and Operations; Northern Management Area; Community Outreach; Maritime Heritage; and Ecosystem Monitoring. Though the implementation of other activities contained in the site-specific plans may also be effectively coordinated, the NMSP determined that the cross-cutting action plans would be jointly developed and implemented jointly across the three sites.

IMPLEMENTATION WITHIN THE CONTEXT OF A NEW REGIONAL STRUCTURE

NMSP efforts to address certain priority issues in a cross-cutting framework was a first step in a larger effort to begin looking at sanctuary resource management issues in a regional or ecosystem-based context. Since the cross-cutting plans were developed, the NMSP has been slowly moving toward adopting a new regional management structure. This new regional structure establishes four regions, including a West Coast region, which will be led by a regional superintendent. The purpose of this new structure is to maximize program integration among the NMSP sites, regions, and national program and to other state and federal programs and partners – across all levels. The regional structure dedicates program leadership and regional staff resources directly towards integrating programs and forging partnerships that supports the National Oceanic and Atmospheric Administration’s (NOAA’s) evolving ecosystem-based management approach.

Cross-Cutting Introduction
CBNMS Final Management Plan

The regional superintendent and staff will be based in the region and dedicate their efforts towards addressing priority regional issues and capitalizing on regional opportunities and partnerships. In the case of the Joint Management Plan Review (JMPR), some of their expertise and responsibilities could include working closely with individual sanctuary staff to coordinate the implementation of certain cross-cutting action plans. For example, regional ecosystem monitoring has emerged as a NOAA priority. To be effective, this requires the integration of sanctuary monitoring activities not only across the three sites in the JMPR, but those at partner state and federal agencies and at other marine sanctuaries such as Channel Islands and Olympic Coast. Regional staff could clearly play an important role in helping coordinate and ensure the linkages as the various site or cross-cutting ecosystem monitoring plans are being implemented. Regional staff and resources may also be involved in helping coordinate or implement the community outreach and maritime heritage action plans. However, it may also be appropriate for individual sanctuaries to either share the lead for implementing the cross-cutting action plans or for one site to take the lead. Ultimately, determining who will take the lead on cross-cutting action plan implementation will be worked out after the regional structure and priorities get established, and after full consideration of the staffing and resources available at each of the three sites.



ADMINISTRATION AND OPERATIONS ACTION PLAN

GOALS

The goals of cross-cutting Administration and Operations for the Joint Management Plan Review (JMPR) are to (1) improve coordination and cooperation across the three sanctuaries to better and more efficiently manage and protect sanctuary resources, and (2) for the individual sites to start working and functioning as an integrated team. Fulfilling these goals for the three sanctuaries requires enhancing communication and collaboration among and between managers, program staff and the newly established National Marine Sanctuary Program (NMSP) regions.

ISSUE DESCRIPTION

During scoping meetings, the NMSP received many comments relating to the need to coordinate various administration and operations across the sites. The three sanctuary advisory councils (SACs) and sanctuary staff identified several of these issues as priority items to address in the management plan review. These include:

- Improve resource management consistency and efficiency
- Expand coordination and communication between sites and to the public
- Evaluate emergency response capabilities in the region, and clarify and coordinate the sanctuary's role in relation to other agencies
- Develop a mechanism to address current and emerging issues between the sites
- Coordinate research/monitoring, education/outreach, and enforcement activities

ADDRESSING THE ISSUE

Each of the three sanctuaries developed site-specific administration and operations action plans to address staffing and infrastructure needs in order to implement their new management plans. In contrast, this cross-cutting administration and operations plan targets some initial activities that will be implemented by all three sites in order to improve communication and maximize their ability to collaborate and cooperate on many important resource management and program areas.

STRATEGY XAO-1: *Improve Internal Communications Among the Three Sanctuaries.*

Successful collaboration and coordination among sanctuaries is related to the amount and intensity of communication. Though individual sanctuary staff may occasionally communicate by e-mail, telephone or meetings, there is no established mechanism to bring together the

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superintendents or staff to proactively discuss issues that may affect multiple sites. This strategy focuses on improving communications between the sites to ensure there are regular opportunities for the managers, staff and the advisory councils to learn what is happening at each of the three sites and jointly plan regional programs and activities.

Activity 1.1 Improve communications between the sanctuary superintendents.

Superintendents will engage in more informal (random pick-up-the-phone) and formal (regularly scheduled calls or meetings) communications. They will meet at least three times a year as part of the newly established NMSP regional leadership team to (1) improve communication, (2) conduct Annual Operating Plan (AOP) planning, and/or (3) assess the implementation of AOPs and the JMPR action plans.

Products: List of cross-cutting AOP activities and an assessment of AOP/action plan implementation

Partners: Superintendents for Cordell Bank National Marine Sanctuary (CBNMS), Gulf of the Farallones National Marine Sanctuary (GFNMS), and the Monterey Bay National Marine Sanctuary (MBNMS)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.2 Sanctuary superintendents will plan and schedule one regional sanctuary update and team building activity per year.

Products: Annual team building/coordination meeting to discuss site-specific and cross-cutting projects, staff roles and responsibilities, and identify how staff can help support and complement the other sites' programs and staff.

Partners: CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.3 Create a new employee orientation program that includes information from the three sanctuaries and the NMSP.

The orientation program should include travel to the other sites to meet staff and learn about their programs and activities. These efforts should be coordinated with similar efforts at headquarters.

Products: Employee orientation program that includes a reference binder with information from the other sites and headquarters, publications lists, staff bios.

Partners: MBNMS, CBNMS, GFNMS and NMSP staff

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-2.1
	GFNMS	AD-2

Activity 1.4 The program coordinators will meet separately at least once per year to share information and plan joint activities prior to the development of the annual operating plans.

Products: Site program coordinators (conservation science, education, resource protection) will develop a list of joint or collaborative activities to include in their respective AOPs.

Partners: Program coordinators (conservation science, education, resource protection at CBNMS, GFNMS, MBNMS)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 1.5 Schedule one joint advisory council chair – sanctuary superintendent meeting to determine whether all three advisory councils should meet annually.

The MBNMS and GFNMS advisory councils currently meet on an annual basis to discuss issues and program activities in the northern management area. This meeting among the advisory council chairs and managers would determine the need for expanding this meeting to include all three sites.

Products: Initial joint advisory council chair meeting, possible future annual joint meetings.

Partners: CBNMS, GFNMS, MBNMS Advisory Council Chairs and Superintendents

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	GFNMS	AD-4

Activity 1.6 Encourage and provide opportunities for site staff to give presentations at each other's SAC Meetings.

Products: Briefings at advisory council meetings.

Partners: CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	PC-2
	GFNMS	AD-4

STRATEGY XAO-2: *Improve the Efficiency and Cost-Effectiveness of Program Operations.*

Each of the three sanctuaries have been designated for over ten years and during this time have accumulated an inventory of equipment, vessels and resources to support their own research/monitoring, education/outreach, and resource protection programs. This strategy recognizes there are instances in which it is more cost-effective to share resources among the sites and some instances when it may be more appropriate for each site to have their own. The sites must first inventory their existing resources and then jointly develop a needs assessment to document what is required to implement the three management plans. This strategy also calls for the sites to coordinate and provide opportunities to conduct joint field operations and to conduct an assessment in order to better cooperate and share facilities, signage and exhibits.

Activity 2.1 Develop a list of existing facilities, exhibits, equipment, vessels and resources based on the revised management plans that could be shared between sites.

Products: List of existing equipment, vessels and resources.

Partners: NMSP, CBNMS, GFNMS, and MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-1

Activity 2.2 Develop a list of needed facilities, exhibits, equipment, vessels and resources based on the revised management plans that could be shared between sites.

Products: List of needed equipment, vessels and resources.

Partners: NMSP, CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-1
	GFNMS	AD-1

Activity 2.3 Contact and inform the other sites early in the planning stages of field operations to provide opportunities to plan joint missions and to share information and data.

Products: List of planned field operations. Shared data and reports.

Partners: CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	CS-9
	GFNMS	WQ-8, WD-1, IS-1, FA-1

STRATEGY XAO-3: *Improve the Efficiency and Cost-Effectiveness of Program Administration.*

Currently each sanctuary office is responsible for managing its own administration and information technology functions, including contracts, procurements, time and attendance, travel orders and vouchers, websites, databases, and geographic information systems. Each site employs a varying number of staff or contractors to perform some or all of these tasks. The goal of this strategy is to evaluate the staffing plans at the sites and maximize opportunities to share personnel and implement methods to make routine administrative functions more efficient. The strategy also highlights the importance of building upon existing efforts to share information technology resources.

Activity 3.1 Review the staffing plans at each sanctuary to determine if collaborations are possible to create efficiencies, fill gaps, share staff resources and complete specific projects.

This review will explore ways to overcome barriers for both contractors and full-time employees to participate.

Products: List of opportunities for collaborations between sites.

Partners: Managers for CBNMS, GFNMS, and MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-2
	GFNMS	AD-2
	MBNMS	OA-1

Activity 3.2 Based on the review in 3.1, and as opportunities arise, create short-term opportunities for staff exchanges, rotations, details and informal staff loans for specific projects or to fulfill on-going needs across all three sites.

Products: Update list of opportunities. Provide administrative, contract and/or financial options that facilitate such collaborations.

Partners: Managers for CBNMS, GFNMS, MBNMS, and NMSP

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	GFNMS	AD-2

Activity 3.3 Participate in each other’s interview panels to review candidates for new and vacant positions, where possible.

Products: Recommendations on new hires.

Partners: CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-2
	GFNMS	AD-2

STRATEGY XAO-4: *Improve the Coordination of Sanctuary Resource Protection Activities and Programs.*

Each of the three site-specific management plans proposes various strategies to address their own resource protection programs (i.e., regulations/permitting, emerging issues, enforcement, emergency response). This strategy is aimed at improving the communication and coordination of resource protection activities across the three sites. The strategy addresses the need to improve internal understanding and awareness of regulatory and permit processes and activities. Secondly, it establishes a process to identify and, when appropriate, jointly address emerging issues in a regional capacity. This includes coordination with local, state and other federal entities. Third, it recommends the development of a regional sanctuary emergency response plan so that the NMSP is better prepared to address emergencies on a regional scale. Finally, it identifies the need to comprehensively evaluate enforcement needs in relation to the new management plans and develop and implement a regional enforcement plan.

Activity 4.1 Improve staff awareness and understanding of each site’s regulations.

Establish a basic and consistent understanding of each site’s regulations and ensure that everyone knows where to direct questions relating to specific regulations and permits.

Products: Fact sheet summarizing each site’s regulatory and permit authority, and identifies the appropriate person to contact at each site.

Partners: NMSP, CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-9
	GFNMS	RP-4
	MBNMS	OA-8 and OA-9

Activity 4.2 Improve staff awareness and understanding of each site’s permits.

Inform the other sites of any new permit applications or other activities that could affect any of the sanctuaries.

Products: Share existing permit reports and explore whether a new reporting system is needed to improve coordination.

Partners: NMSP, CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-9
	GFNMS	RP-5
	MBNMS	OA-8

Activity 4.3 Coordinate emerging issues among the three sites.

As the sites identify emerging issues, determine the significance and potential to impact another site, and communicate this to the potentially affected site(s).

Products: Analysis of emerging issue(s).

Partners: NMSP, CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-10
	GFNMS	RP-1, RP-2, RP-3
	MBNMS	EI-1, EI-2

Activity 4.4 Develop coordinated strategies to address emerging issues.

Jointly determine if a new or emerging issue needs action and identify a strategy and activities to address the issue, depending on whether it is an immediate or long-term threat, what is (or is not) known about it, and if there are adequate resources to address it properly.

Products: Recommendation for action, including next steps.

Partners: NMSP, CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-10
	GFNMS	RP-1, RP-2, RP-3
	MBNMS	EI-1, EI-2

Activity 4.5 Develop a coordinated sanctuary emergency response plan.

Develop a coordinated sanctuary emergency plan describing how the three sanctuaries will internally coordinate and respond to emergencies including: oil spills, hazardous material spills, vessel groundings, plane crashes, natural disasters, and invasive species. The plan should address broad emergency response issues that affect the region, identify NMSP staffing responsibilities and expertise, and outline how the NMSP will coordinate with existing federal, state and local emergency response agencies in California. The plan will be developed to utilize the existing Incident Command System (ICS), the U.S. Coast Guard (USCG) Area Contingency Plan (ACP).

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Products: Regional Sanctuary Emergency Response Plan.

Partners: NMSP, CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-7
	GFNMS	RP-7, RP-8
	MBNMS	OA-4

Activity 4.6 Coordinate with the NMSP Damage Assessment Team on populating and making the Sanctuary Hazardous Incident Emergency Logistics Database System (SHIELDS) functional and operative for the three sanctuaries and integrating it with the existing Sanctuary Integrated Monitoring Network (SIMoN) database.

Products: SHIELDS for CBNMS, GFNMS and MBNMS.

Partners: NMSP, CBNMS, GFNMS, MBNMS and the NOAA Hazardous Materials (HAZMAT)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-7
	GFNMS	RP-7
	MBNMS	OA-4

Activity 4.7 Develop a comprehensive enforcement plan for the tri-sanctuary area.

This plan will evaluate enforcement needs to implement this management plan and integrate existing formal and informal enforcement networks across this region. The plan should also include a consistent enforcement penalty schedule and an internal communication strategy.

Products: Coordinated enforcement plan for the three-sanctuary area.

Partners: CBNMS, GFNMS, MBNMS, General Council Ocean Service (GCOS), General Council Enforcement Litigation (GCE), NOAA-Office of Law Enforcement (OLE), the United States Coast Guard (USCG), National Park Service (NPS), California Parks, CDFG, County Sheriff Departments

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-6
	GFNMS	RP-6

Activity 4.8 Implement a comprehensive enforcement plan for the tri-sanctuary area.

Products: Enforcement activities that implement the comprehensive enforcement plan, including appropriate development of field officers, improved investigation and

follow-up actions, and cooperative enforcement agreements with federal, state and local partners.

Partners: NMSP, CBNMS, GFNMS, MBNMS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CBNMS	AD-6
	GFNMS	RP-6

TABLE XAO-1: MEASURING PERFORMANCE OF THE CROSS-CUTTING ADMINISTRATION & OPERATIONS ACTION PLAN

Desired Outcome(s) For This Action Plan:	
Improved communication and coordination among Sanctuary staff resulting in more integrated and coordinated resource protection for Sanctuary resources.	
Performance Measures	Explanation
Increase the number of cross-cutting AOP activities that each site includes in their site-specific AOP by 10% each year.	One of the primary purposes of this action plan is to increase the amount of communication and interaction among the three sites. This action plan identifies specific opportunities for staff to interact, resulting in more coordinated planning and implementation of joint activities that address priority issues. The tangible results of these interactions will be formulated within each site's AOP.

TABLE XAO-2: CROSS-CUTTING ADMINISTRATION & OPERATIONS ACTION PLAN TIMELINE

ADMINISTRATION & OPERATIONS ACTION PLAN	Year 1	Year 2	Year 3	Year 4	Year 5
Strategy XAO-1: Improve Internal Communications Among the Three Sanctuaries					
Activity 1.1: Improve communications between the Sanctuary Managers & Superintendents.	→				
Activity 1.2: Sanctuary Managers/Superintendents will plan and schedule one regional Sanctuary update and team building activity per year.	→				
Activity 1.3: Create a new employee orientation program that includes information from the three sanctuaries and the NMSP	→				
Activity 1.4: The program coordinators will meet separately at least once per year to share information and plan joint activities prior to the development of the annual operating plans.	→				
Activity 1.5: Schedule one joint Advisory Council Chair – Sanctuary Manager meeting to determine whether all three advisory councils should meet annually.	→			
Activity 1.6: Encourage and provide opportunities for site staff to give presentations at each other's sanctuary advisory council meetings.	→				
Strategy XAO-2: Improve the Efficiency and Cost-Effectiveness of Program Operations					
Activity 2.1: Develop a list of existing facilities, signage, exhibits, equipment, vessels and resources based on the revised management plans that could be shared between sites.		→			

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ADMINISTRATION & OPERATIONS ACTION PLAN	Year 1	Year 2	Year 3	Year 4	Year 5
Activity 2.2: Develop a list of needed facilities, signage, exhibits, equipment, vessels and resources based on the revised management plans that could be shared between sites.		→			
Activity 2.3: Contact and inform the other sites early in the planning stages of field operations to provide opportunities to plan joint missions and to share information and data.	—————→				
Strategy XAO-3: Improve the Efficiency and Cost-Effectiveness of Program Administration					
Activity 3.1: Review the staffing plans at each Sanctuary to determine if collaborations are possible to create efficiencies, fill gaps, share staff resources and complete specific projects.	→				
Activity 3.2: Based on the review in 3.1, and as opportunities arise, create short-term opportunities for staff exchanges, rotations, details and informal staff loans for specific projects or to fulfill on-going needs across all three sites.		·····→			
Activity 3.3: Participate in each other's interview panels to review candidates for new and vacant positions, where possible.	—————→				
Strategy XAO-4: Improve the Coordination of Sanctuary Resource Protection Activities and Programs					
Activity 4.1: Improve staff awareness and understanding of each site's regulations.	—————→				
Activity 4.2: Improve staff awareness and understanding of each site's permits.	—————→				
Activity 4.3: Coordinate emerging issues among the three sites.	—————→				
Activity 4.4: Develop coordinated strategies to address emerging issues.	—————→				
Activity 4.5: Develop a coordinated Sanctuary emergency response plan.		→			
Activity 4.6: Coordinate with the NMSP Damage Assessment Team on populating and making the Sanctuary Hazardous Incident Emergency Logistics Database System (SHIELDS) functional and operative for the three sanctuaries and integrating it with the existing Sanctuary Integrated Monitoring Network (SIMoN) database.		→			
Activity 4.7: Develop a comprehensive enforcement plan for the three-sanctuary area.	→				
Activity 4.8: Implement a comprehensive enforcement plan for the three-sanctuary area.	—————→				

Legend:

- Planned Activity
- Proposed Activity, based on internal assessment

TABLE XAO-3: ESTIMATED COSTS TO IMPLEMENT THE CROSS-CUTTING ADMINISTRATION & OPERATIONS ACTION PLAN

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy XAO-1: Improve Internal Communications Among the Three Sanctuaries	\$54.00	\$54.00	\$54.00	\$54.00	\$54.00	\$270.00
Strategy XAO-2: Improve the Efficiency and Cost-Effectiveness of Program Operations	\$36.00	\$36.00	\$36.00	\$36.00	\$36.00	\$180.00
Strategy XAO-3: Improve the Efficiency and Cost-Effectiveness of Program Administration	\$12.00	\$12.00	\$12.00	\$12.00	\$12.00	\$60.00
Strategy XAO-4: Improve Coordination of Sanctuary Resource Protection Activities and Programs	\$186.00	\$174.00	\$162.00	\$162.00	\$162.00	\$846.00
Total Estimated Annual Cost	\$288.00	\$276.00	\$264.00	\$264.00	\$264.00	\$1,356.00

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

** Contributions from outside funding sources also anticipated.

For management planning purposes, the individual site cost to implement cross-cutting strategies can be calculated by dividing the estimated annual cost by three (equal cost). The actual cost to each site may vary according to strategy but will be further refined when sites prepare annual operating plans.



COMMUNITY OUTREACH ACTION PLAN

GOAL

A coordinated, collaborative regional community outreach strategy will build awareness throughout north-central California and beyond about (1) the existence and purpose of the three sanctuaries and the national program; (2) the diverse natural resources and ecosystems of each sanctuary and why they need protection; (3) why their existence is relevant to people; (4) the economic and intrinsic value of the three sanctuaries to coastal and inland communities beyond such direct industries as fishing and ecotourism; (5) how these three sanctuaries are working with constituent groups; and (6) how individuals and groups can be engaged in helping the sanctuaries accomplish their resource protection, research, and education goals.

ISSUE DESCRIPTION

Under the National Marine Sanctuary Program (NMSP), each sanctuary in the system conducts education and outreach activities to build broad public awareness about the existence and purpose of our nation's marine sanctuaries. The NMSP recognizes a well-informed local, regional, and national constituency greatly enhances the ability of the sanctuaries to protect their natural and cultural resources. Therefore, outreach activities should provide local and state governments, businesses, non-governmental organizations, constituent groups, and the general public with the information necessary to be effective partners in the stewardship of sanctuary resources.

Because of limited resources generally, each site has primarily focused on a select number of audiences within a limited geographic area. As a result, there are several areas where a broad-based public understanding needs to be enhanced. For example, there appears to be a lack of understanding about:

- The unique situation of having three sanctuaries contiguously located in north-central California,
- How these three sanctuaries together can work with other organizations to enhance regional outreach efforts regarding marine ecosystems,
- How individuals and groups can engage effectively with the sanctuary program and best protect sanctuary resources, and
- How businesses, constituent groups, agencies, elected officials and others can provide informed input into decisions regarding sanctuary management and further enhance community awareness of the sanctuaries.

This action plan identifies appropriate regional audiences and topics, regional outreach strategies, and marketing and media exposure efforts that effectively highlight specific program activities across all three sites as well as the national system. It is also designed to complement each site-specific program and to be flexible enough to incorporate new strategies and topics over time.

Effective community outreach is accomplished through a continuous cycle of ocean and coastal outreach, education, and stewardship. Community outreach expands awareness, knowledge and ultimately changes attitudes and behaviors. By providing information on ocean and coastal resources, and providing stewardship opportunities for people to get involved in the sanctuary, people will begin to have a personal relationship with the sanctuary and may be more likely to become ambassadors helping to protect sanctuary resources. Community outreach involves three strategies tailored to the specific needs and interests of a given audience and may be delivered by members of that audience.

- Outreach provides audiences with sanctuary-related information and materials promoting ocean and coastal stewardship.
- Education provides fundamental scientific understanding, knowledge, training, or professional development on topics relevant to the world's atmosphere, climate, oceans and coastal ecosystems, and resource protection.
- Stewardship is a personal sense of responsibility to take informed action and make caring choices, at home or work, which promote and protect the health of our coasts and oceans.

STRATEGY XCO-1: *Build Upon and Expand Existing Ocean and Coastal Outreach*

This strategy is aimed at raising general awareness of marine ecosystems, individual sanctuaries and the sanctuary program, and inspiring stewardship of ocean and coastal resources. Outreach provides audiences with sanctuary-related information and materials based on National Oceanic and Atmospheric Administration (NOAA) science, products, and services that promote ocean and coastal stewardship. These audiences may be: north-central California coastal residents; people who live and work in inland California communities that regularly visit the ocean, such as divers, kayakers, tidepoolers, etc.; those who make their living within the ocean environment, like fishermen, maritime shipping companies, etc.; or people who live outside California that care about the ocean even though they may never visit. These, and others, are important voices in the protection and stewardship of the oceans. Key target audiences and messages should also be closely coordinated with outreach needs identified in the issue-related action plans.

Activity 1.1 Develop or strengthen coordinated outreach programs and opportunities, such as public service announcements, issue-specific workshops and brochures (e.g., tide pool etiquette), docent programs, signage, learning centers, or exhibits and displays at community events.

Products: Priority list of outreach activities based on the priority issues identified in the management plans. Some of these activities include joint outreach programs, volunteer opportunities, website development, signage and interpretive exhibits.

Partners: Advisory council members from all three sanctuaries/working groups, Farallones Marine Sanctuary Association (FMSA), Monterey Bay Sanctuary Foundation,

National Marine Sanctuary Foundation, Channel Islands National Marine Sanctuary (CINMS), Channel Islands Sanctuary Foundation/Association, NOAA Enforcement

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	CB	, ED-5
	GF	ED-8, ED-9, ED-10, ED-11, ED-12

Activity 1.2 Plan and conduct regional sanctuary outreach events to promote the importance of monitoring, disseminate monitoring data, and improve understanding of marine conservation and management.

Products: Outreach and education materials/curricula to promote awareness of monitoring activities and disseminate monitoring data.

Partners: Cordell Bank National Marine Sanctuary (CBNMS), Gulf of the Farallones National Marine Sanctuary (GFNMS), Monterey Bay National Marine Sanctuary (MBNMS), Sanctuary Integrated Monitoring Program (SIMoN), Community Outreach Working Group, Snapshot Day Water Quality Monitoring Event, Long-term Monitoring Program and Experiential Training for Students (LiMPETS), Beach Watch, Beach Coastal Ocean Mammal/Bird Educational and Research Survey (Beach COMBERS), Farallones Marine Sanctuary Association (FMSA), Global Learning and Observation to Benefit the Environment (GLOBE), JASON Foundation for Education (JASON)

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	CB	ED-1
	GF	CS-3

Activity 1.3 Develop and implement joint media communications plan, e.g., print, radio, TV, Internet.

Products: Joint media communications plan, including site points of contact, and key messages from the management plans.

Partners: Traditional and electronic media, both coastal and inland, including local weekly papers, community access TV stations

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	CB	ED-3
	GF	ED-11

Activity 1.4 Identify and partner with external programs to incorporate sanctuary-related messages.

Products: External partners' outreach plan, including priority partners, key messages based on priority issues identified in the management plans, outreach materials.

Partners: United States Coast Guard (USCG), National Park Service (NPS), Environmental Protection Agency (EPA), other federal agencies, California State Parks, other state agencies, cities, local parks/recreation departments, pollution prevention programs, chambers of commerce, trade associations for shipping, fishing, tourism, etc., dive clubs/shops, kayak clubs/shops, spot abalone divers, other recreational groups, natural history museums, institutions with community service requirements/marine sciences (high schools, colleges)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	GF	ED-10, ED-11

STRATEGY XCO-2: *Enhance and Coordinate Ocean and Coastal Education*

This strategy focuses on building community knowledge and fostering caring actions and attitudes targeting priority issues identified in the management plans. The NMSF’s joint ocean and coastal education efforts provide a fundamental scientific understanding, knowledge, training, or professional development to a particular audience on topics identified as important to protect sanctuary resources. There are many possible audiences such as students, teachers, state and local agencies, community leaders, and the general public. Sanctuary-related educational activities are based on NOAA science, systematic in design with clear goals, objectives and measurable outcomes; aligned, where appropriate, with state or national education standards; and designed to facilitate evaluation by a third party.

Activity 2.1 Collaborate on existing site-specific education programs and products as a means to enhance and expand educational offerings.

Each year, the education staff will jointly meet to identify collaborative projects for inclusion in their respective annual operating plans (AOPs).

Products: Joint education implementation strategy based on priority education issues identified in the management plans, incorporating priority list of educational programs and materials needed, potential lecture/symposia themes. Joint online teachers’ database.

Partners: West Coast Education Liaison, state/local volunteer programs, Bay Area Sea Kayakers (BASK), high school/college classes doing coastal monitoring, National Science Foundation, other federal agencies (especially for funding), local non-governmental organizations (NGO’s)/non-profits, Association of Monterey Bay Area Governments, Association of (SF) Bay Area Governments

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CB	ED-4, ED-6, ED-7, ED-8
	GF	ED-2, ED-3, ED-4

Activity 2.2 Following expansion of the Multicultural Education for Resource Issues Threatening Oceans (MERITO) program, increase multicultural/multilingual efforts based on

needs assessments to determine other multicultural, socioeconomic, or multilingual communities (Vietnamese, Chinese, Portuguese, Italian, etc.) and their interests.

Products: Needs assessments of various multicultural, socioeconomic, and multilingual communities and possible expansion of education efforts.

Partners: Multicultural community leaders, bilingual school programs, local NGO's/non-profits

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CB	CO-10

Activity 2.3 Identify and implement new education programs that can be developed jointly.

Products: Teacher workshops, Volunteer Naturalist Corps program, certification training program for professional naturalists, similar to SBNMS (Stellwagen Bank), natural history guides.

Partners: Other national marine sanctuaries (esp. Channel Islands, Olympic Coast and Stellwagen Bank), Elkhorn Slough National Estuarine Research Reserve, state/local volunteer naturalist programs, Marine Advanced Technology Education (MATE), Monterey Bay Aquarium Research Institute (MBARI), Moss Landing Marine Lab (MLML), universities, and Sea Grant institutions, Eco-tourism businesses such as dive and kayak shops, whale-watching companies, local non-governmental organizations/non-profits

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CB	ED-6, ED-7
	GF	ED-2, ED-7

STRATEGY XCO-3: *Enhance Ocean and Coastal Stewardship*

Marine sanctuary stewardship is a personal sense of responsibility to take informed action and make caring choices, at home or work, which promote and protect the health of our coasts and oceans. A steward develops attitudes, motivations, and commitments that are reflected in informed decisions and responsible actions. Stewards can be individuals, members of groups, or entities that influence others' opinions and actions about the oceans. Stewardship can be demonstrated through a variety of means, including:

- Volunteer for an organized stewardship program,
- Take personal action to protect our ocean sanctuaries,
- Provide informed public input into decisions regarding the sanctuaries, and
- Inform others regarding marine ecosystems and the sanctuary program.

Similar to the audiences for outreach, ocean and coastal stewards may be north-central California coastal residents, people who live and work in inland California communities that regularly visit

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the ocean, those who make their living within the ocean environment, or people who care about the ocean even though they may never visit.

Activity 3.1 Create, maintain and promote sanctuary and partner volunteer programs to provide opportunities for stewardship as well as expanding resource protection, education, and outreach capabilities of the three sanctuaries.

Products: Expanded volunteer programs, volunteer opportunities, and trainings.

Partners: NOAA’s Team Ocean Conservation Education Action Network (OCEAN), Elkhorn Slough National Estuarine Research Reserve, Farallones Marine Sanctuary Association (FMSA), Monterey Bay Sanctuary Foundation, Bay Net, Save Our Shores, other NGOs, California State Parks, other state/local resource agencies, Friends of Fitzgerald Marine Reserve, high school service learning programs

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CB	ED-2

Activity 3.2 Create new ways to inspire coastal and ocean stewardship in local communities.

The three sites will conduct needs assessments with targeted constituents and audiences to identify innovative and creative methods of engaging people in sanctuary activities. Some examples include working with faith-based or cultural organizations, retired citizens or local art groups.

Products: Pilot program or campaign to incorporate non-traditional stewardship activities and partners.

Partners: Faith-based groups, Multicultural groups, bilingual school programs, after school programs, art, dance and music programs, service organizations

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CB	ED-10
	GF	ED-5, ED-6, ED-8

Activity 3.3 Identify partners to incorporate stewardship messages.

Products: Collaborative stewardship campaign.

Partners: United States Coast Guard (USCG), National Parks Service (NPS), other federal agencies, California State Parks, other state agencies, cities, local parks/recreation departments, local agencies mandated to have pollution prevention programs (water pollution control, solid waste control), County Sheriffs’ departments, city police, chambers of commerce, trade associations for shipping, fishing, tourism, etc., dive clubs, kayak clubs, other recreational groups, natural history museums, institutions that have community service requirements (high schools, colleges), service organizations

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

TABLE XCO-1: MEASURING PERFORMANCE OF THE CROSS-CUTTING COMMUNITY OUTREACH ACTION PLAN

Desired Outcome(s) For This Action Plan:	
Expand joint education and outreach efforts in a manner enhancing protection for Sanctuary resources and the delivery of programs and services to local communities.	
Performance Measures	Explanation
Increase the number of joint education and outreach efforts directed at communities from 1,000 individuals in Year 1 to 5,000 individuals in Year 5.	One of the main purposes of this action plan is to expand general awareness of the three sanctuaries, develop joint education products addressing priority issues, and increase involvement of individuals in the stewardship of the resources in the three sanctuaries. Some of the programs directed at local communities include schools and teachers, volunteers, fairs and festivals, visitor centers, public lecture series, etc.

TABLE XCO-2: CROSS-CUTTING COMMUNITY OUTREACH ACTION PLAN TIMELINE

COMMUNITY OUTREACH PLAN	Year 1	Year 2	Year 3	Year 4	Year 5
Cross-cutting Outreach					
Strategy XCO-1: Build Upon and Expand Existing Ocean and Coastal Outreach					
Activity 1.1: Develop or strengthen coordinated outreach programs and opportunities, such as public service announcements, issue-specific workshops and brochures (e.g., tidepool etiquette), docent programs, signage, learning centers, or exhibits and displays at community events.	—————	—————	—————	—————▶
Activity 1.2: Plan and conduct regional Sanctuary outreach events to promote the importance of monitoring, disseminate monitoring data, and improve understanding of marine conservation and management.	—————	—————	—————	—————▶
Activity 1.3: Develop and implement joint media communications plan (print, radio, TV, Internet, etc.).		—————	—————	—————	—————▶
Activity 1.4: Identify and partner with external programs to incorporate Sanctuary-related messages.	—————	—————	—————	—————	—————▶
Cross-cutting Education					
Strategy XCO-2: Enhance and Coordinate Ocean and Coastal Education					
Activity 2.1: Collaborate on existing site-specific education programs and products as a means to enhance and expand educational offerings.	—————	—————	—————	—————▶
Activity 2.2: Increase multicultural/multilingual efforts based on needs assessments to determine other multicultural,			—————	—————	—————▶

COMMUNITY OUTREACH PLAN	Year 1	Year 2	Year 3	Year 4	Year 5
socioeconomic, or multilingual communities (Latino, Vietnamese, Chinese, Portuguese, Italian, etc.) and their interests.					
Activity 2.3: Identify and implement new education programs that can be developed jointly.	—————	—————	—————	—————▶
Cross-cutting Stewardship					
Strategy XCO-3: Enhance Ocean and Coastal Stewardship					
Activity 3.1: Create, maintain, and promote sanctuary and partner volunteer programs to provide opportunities for stewardship as well as expanding resource protection, education, and outreach capabilities of the three sanctuaries.	—————	—————	—————	—————	—————▶
Activity 3.2: Create new ways to inspire coastal and ocean stewardship in local communities.			—————	—————	—————▶
Activity 3.3: Identify partners to incorporate stewardship messages.	—————	—————	—————	—————	—————▶

Legend:

- ▶ Planned Activity
-▶ Proposed Activity, based on internal assessment

TABLE XCO-3: ESTIMATED COSTS TO IMPLEMENT THE CROSS-CUTTING COMMUNITY OUTREACH ACTION PLAN

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy XCO-1: Build Upon and Expand Existing Ocean and Coastal Outreach	\$34.50	\$46.50	\$46.50	\$46.50	\$58.50	\$232.50
Strategy XCO-2: Enhance and Coordinate Ocean and Coastal Education	\$57.00	\$69.00	\$69.00	\$69.00	\$81.00	\$345.00
Strategy XCO-3: Enhance Ocean and Coastal Stewardship	\$52.50	\$64.50	\$64.50	\$64.50	\$76.50	\$322.50
Total Estimated Annual Cost	\$144.00	\$180.00	\$180.00	\$180.00	\$216.00	\$900.00

* Cost estimates are for both “programmatic” and “base” (salaries and overhead) expenses.
 ** Contributions from outside funding sources also anticipated.
 For management planning purposes, the individual site cost to implement cross-cutting strategies can be calculated by dividing the estimated annual cost by three (equal cost). The actual cost to each site may vary according to strategy but will be further refined when sites prepare annual operating plans.



ECOSYSTEM MONITORING ACTION PLAN

GOALS

The goals of ecosystem monitoring for the northern-central California sanctuaries are to (1) determine the current and anticipate the future status of sanctuary resources; (2) understand the limits of variation in resources; (3) detect temporal and spatial changes in resources; (4) identify potential agents of change; and (5) provide scientific information that can guide management decisions on priority issues.

INTRODUCTION

One of the express purposes and policies of the National Marine Sanctuaries Act is that long-term monitoring of sanctuary resources be supported, promoted, and coordinated (16 U.S.C. 1431). Sanctuaries also promote data collection to assess resource or environmental change with respect to implemented management actions. The suite of monitoring information required by sanctuary management includes data from within the sanctuary and from areas outside the boundaries that influence sanctuary waters.

For the most part, individual sanctuaries work independently to develop monitoring programs and partnerships to inform their management concerns. These programs typically rely on substantial support from other government, private, and academic institutions at the federal, state, and local levels. The program designs are often only indirectly influenced by sanctuary management responsibilities.

Undertaking ecosystem monitoring requires long-term comprehensive assessments and broad scale integration of data collected in a wide variety of habitats (e.g., coastal interface, subtidal, continental shelf, shelf break, and deep water) and in areas that directly influence them (e.g., watershed, estuaries, coastal currents). Such assessments and integration can only be achieved through coordination with multiple partners focused on a variety of resources and geographic scales. Because the three sanctuaries of Cordell Bank, Gulf of the Farallones, and Monterey Bay have contiguous boundaries, they protect and manage many of the same habitats types and living resources, some of which range throughout the combined area. As such, the sanctuaries should consider each other as primary partners in monitoring efforts to evaluate the status and trends of these shared resources. Coordination among the three sanctuaries to promote, conduct, integrate, and synthesize data from ecosystem monitoring activities is the most effective and efficient means to improve availability of information for resource conservation and management across the region.

The combined areas of the Cordell Bank National Marine Sanctuary (CBNMS), Gulf of the Farallones National Marine Sanctuary (GFNMS) and Monterey Bay National Marine Sanctuary (MBNMS) also represent a substantial portion of California coastal waters. Regional sanctuary monitoring coordination across this extensive area will help promote sanctuary management concerns as a driver for large-scale monitoring initiatives and partnerships. The data collected from coordinated efforts will be useful at the local and regional scale, with the potential for influencing resource management actions throughout a substantial portion of the West Coast.

ADDRESSING THE ISSUE

With the exception of Cordell Bank, most of the monitoring data that informs sanctuary management are not financed, collected, or analyzed by the sanctuaries. Instead, sanctuaries support and promote these activities indirectly by providing vessel time, staff support, and equipment, and coordinating the interests and information of outside agencies and partners. They also assist to secure outside funding that can be directed toward projects that address sanctuary information needs such as the Sanctuary Integrated Monitoring Network (SIMoN).

Such indirect support is appropriate to the mandate and capacities of the sanctuary program. Sanctuaries do not have the expertise or the personnel resources to collect and analyze the variety of information required for all of their management needs. Such expertise is accessible through partnerships with various research institutions. However, effective resource management requires a holistic view, which sanctuaries are uniquely positioned to achieve. To meet their resource management mandate, sanctuaries must synthesize and integrate information from disparate research and monitoring projects. They have the further responsibility of interpreting and applying available scientific knowledge for resource managers and the public. Thus, coordination of ecosystem monitoring efforts requires strategic action on various sanctuary-specific programmatic levels.

Recommended strategies focus on coordinating existing activities, identifying opportunities for additional coordination, and establishing the administrative infrastructure, advisory panels, and oversight mechanisms required to support, direct, and evaluate coordinated monitoring across the three sanctuaries. Because many of the monitoring requirements common to the three sanctuaries undergoing the Joint Management Plan Review (JMPR) overlap with the interests of Channel Islands National Marine Sanctuary (CINMS) and the Olympic Coast National Marine Sanctuary (OCNMS), the strategies recommended in this proposed action plan should serve as a model for expanded coordination of appropriate monitoring activities across all five of the West Coast sanctuaries. The strategies are also consistent with efforts of the System Wide Monitoring Program (SWiM) to improve collection, evaluation, and interpretation of monitoring information throughout the sanctuaries. Thus, these activities promote system and regional integration across the program as well as improving ecosystem conservation and management in the combined area of the three sanctuaries.

STRATEGY XEM-1: *Coordinate Existing Targeted Monitoring Activities to Promote Greater Efficiency and Effectiveness.*

Priority activities for initiation of joint ecosystem monitoring within the region should be focused on the coordination of existing sanctuary-specific monitoring programs that assess similar ecosystems in at least two of the three sanctuaries. This includes coordinating targeted programs that monitor conditions in the coastal interface and the pelagic/offshore systems.

These priorities are based on the need to establish common ecological monitoring efforts throughout the region and the priority issue areas identified in the management plan review that could best be addressed through a coordinated approach among the sanctuaries. Some of the priority habitats that have been identified for joint monitoring include: rocky intertidal, benthic, and pelagic/open ocean. The coordination channels and activities established to support these targeted efforts could serve as a model for additional monitoring coordination in the future. Other existing or newly emerging monitoring activities, not identified in this action plan, represent potential opportunities for additional coordination. Assessment of such opportunities is addressed in Strategies XEM-2 and XEM-3.

Activity 1.1 Coordinate individual sanctuary rocky intertidal monitoring programs and investigate opportunities to collaborate with other large-scale rocky intertidal monitoring efforts.

Products: Regional sanctuary rocky intertidal monitoring plan.

Partners: MBNMS, GFNMS, Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO), Multi-Agency Rocky Intertidal Network (MARINE), National Park Service (NPS), Southern California Coastal Water Research Project Authority (SCCWRP), Bodega Marine Laboratory (BML), Tenera Inc., Minerals Management Service (MMS), Kinetic Labs, Inc.

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	GF	WD-2, IS-3

Activity 1.2 Conduct a workshop to coordinate data collection protocols for Beach Coastal/Marine Bird Education Research Surveys (Beach COMBERS) and Beach Watch Programs that indirectly assess the health of the pelagic/offshore ecosystem.

Partners: CBNMS, GFNMS, MBNMS, SIMoN, NMSP, Coastal Observation and Seabird Survey Team (COASST)

Products: Coordination document for joint reporting; volunteer training, coordination, and enrichment opportunities; data collection, management and metadata standards; coordinated revision and reprinting of the field guide; plan for shared study skin collection.

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	GF	CS-1

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Activity 1.3 Develop an integrated sanctuary marine mammal, seabird and sea turtle survey monitoring plan for the three sanctuaries to coordinate and supplement the National Oceanic and Atmospheric Administration (NOAA) Fisheries five-year surveys.

Products: Plan to coordinate and supplement ongoing NOAA Fisheries five-year sanctuary marine mammal/seabird monitoring surveys (per recommendations developed during the Marine Mammal/Seabird Workshop in December 2002). Joint ship-time requests or contracts to ensure consistent availability of appropriate survey platforms. Joint NOAA ship McArthur II cruises.

Partners: NOAA Fisheries, CBNMS, GFNMS, MBNMS, CINMS, Olympic Coast National Marine Sanctuary (OCNMS), Center for Integrated Marine Technology (CIMT), NPS, Point Reyes Bird Observatory (PRBO), SIMoN

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CB	CS-7
	GF	FA-1

Activity 1.4 Explore the potential for the expansion of existing fish surveys, such as the California Cooperative Oceanic Fisheries Investigations (CalCOFI) transect lines through Gulf of the Farallones and Cordell Bank, and continuation in Monterey Bay.

Products: Assessment for expansion of CalCOFI transects in Cordell Bank and Gulf of the Farallones.

Partners: CBNMS, GFNMS, MBNMS, California Cooperative Oceanic Fisheries Investigations (CalCOFI), Monterey Bay Aquarium Research Institute (MBARI), NOAA Fisheries, Alliance for California Current Ecosystem Observation (ACCEO), NOAA-National Centers for Coastal Ocean Service (NCCOS), SIMoN, University of California-Santa Cruz (UCSC)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CB	CS-8

Activity 1.5 Jointly developed research cruise plans and standards for sampling and reporting results for benthic habitat survey work.

Products: Research plans such as that developed for the Delta submarine that detail the annual survey work, and a report that summarizes the annual findings and results.

Partners: CBNMS, GFNMS, MBNMS, NOAA Fisheries, California Department of Fish and Game (CDFG), U.S. Geological Survey (USGS)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CB	CS-2, CS-3, CS-4

Activity 1.6 Augment the benthic habitat survey work with new technologies such as ROV surveys.

Products: Additional research cruises that use remotely operated vehicles (ROVs) and other technologies. Cruise reports that summarize the mission’s findings and results.

Partners: CBNMS, MBNMS, NOAA Fisheries, CDFG, USGS

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	CB	CS-2, CS-3, CS-4

STRATEGY XEM-2: *Coordinate and Implement Existing Regional Ecosystem Monitoring Activities.*

Over the last decade, many federal and state agencies have actively participated in collaborative efforts to develop and implement integrated coastal and ocean observing and data management systems. To further these efforts, the NMSP, and many individual sanctuaries, has been working closely with its partners to build upon and integrate existing site monitoring programs into regional ecosystem monitoring programs. The following activities have been identified as pilot programs within the NMSP to test the concept of integrating observation data and making it available to resource managers and the public.

Activity 2.1 Implement the West Coast Observation Project at CBNMS, GFNMS and MBNMS.

The West Coast Observation Project (also known as Sanctuary Ecosystem Assessment Stations) integrates ocean observation data collected at OCNMS, CBNMS, GFNMS, MBNMS, and CINMS. The project will focus on data streams collected at numerous new instrument moorings that will be installed at specific locations within each of the five sanctuaries. Some of these instrument moorings will be maintained and operated by PISCO in the MBNMS and CINMS. The project intends to make the monitoring data accessible via the Internet in an Integrated Ocean Observing System (IOOS) compatible format. The data from this project will be shared with managers and the public through the Sanctuary Integrated Monitoring Network (SIMoN) website.

Products: Data buoys deployed, data management system, on-line access to data.

Partners: CBNMS, GFNMS, MBNMS, CINMS, OCNMS, SIMoN, NMSP, PISCO, NCCOS, NOAA-National Coastal Data Development Center (NCDDC), NOAA-National Oceanographic Data Center (NODC), National Data Buoy Center (NDBC), NOAA National Environmental Satellite Data Information Service (NESDIS), NOAA Fisheries, Central California Ocean Observing System (CenCOOS)

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

Activity 2.2 Develop and implement an integrated NMSP’s System-Wide Monitoring (SWiM) program for CBNMS, GFNMS and MBNMS.

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The primary purpose of the System-Wide Monitoring (SWiM) program is to monitor specific ecological parameters of the sanctuary and ensure the timely flow of data and information to those responsible for managing and protecting resources in the ocean and coastal zone, and to those that use, depend on, and study the ecosystems encompassed by the sanctuaries. It does this by enabling marine sanctuaries to develop effective ecosystem-based monitoring programs that address management information needs. SWiM provides a design process to decide what parameters to sample and how to sample them in a way that can be applied consistently at multiple spatial scales and to multiple resource types. It also provides a reporting strategy to enable the evaluation of status and trends in protected resources and activities that affect them. Finally, SWiM provides a method to share information for broader issues and scales, and contribute to multi-site, regional and national research and monitoring activities. These efforts will be integrated with SIMoN, which implements the monitoring, coordinates with partners, and provides geographic information systems (GIS), Web and other products that allow for local and regional information sharing.

Products: Integrated and tailored SWiM program developed at CBNMS, GFNMS & MBNMS.

Partners: CBNMS, GFNMS, MBNMS, SIMoN, NMSP, PISCO, NCCOS, NDBC, NESDIS, NOAA Fisheries, NOAA National Estuarine Research Reserve System (NERRS), U.S. Environmental Protection Agency (EPA), NPS, U.S. Fish and Wildlife Service (USFWS), Mineral Management Service (MMS), USGS, Ocean-US, State of California

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CB	CS-7, CS-9
	GF	WD-2, IS-3, IS-4, IS-5

Activity 2.3 Conduct a needs assessment and develop a site implementation plan for expanding the Sanctuary Integrated Monitoring Network (SIMoN) to GFNMS and CBNMS.

As part of the process to establish SIMoN, the MBNMS completed a comprehensive assessment of monitoring activities and priorities. Similar assessments have been conducted for CBNMS and GFNMS as part of the management plan review. Collectively, these assessments have identified priority research and monitoring needs for each site based on the issues addressed in the management plan. Some of the common research and monitoring needs include baseline ecosystem characterization and observation; invasive species; water quality; and assessing the various types of human disturbance and impacts from such activities as sound, light, physical disturbance, and fishing. The next step is to compare the assessments, develop a list of shared priorities and data gaps, integrate the existing information into a common database, and implement joint monitoring activities. SIMoN will be the primary mechanism to coordinate data and information among the sites. This network will be expanded from MBNMS to both CBNMS and GFNMS.

Products: CBNMS and GFNMS SIMoN needs assessment and implementation plan(s) that compares research and monitoring needs identified in the management plans.

Partners: NMSP, SIMoN, MBNMS, GFNMS, and CBNMS

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

Activity 2.4 Explore opportunities to integrate SIMoN with other regional monitoring efforts such as West Coast Observations and other IOOS projects.

Products: Updated SIMoN database consistent with IOOS protocols and standards.

Partners: NMSP, SIMoN, MBNMS, GFNMS, CBNMS, National Oceanographic Data Center (NODC), Southeast Area Monitoring and Assessment Program (SEAMAP), IOOS

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	CB	CS-7

Activity 2.5 Evaluate and identify ongoing funding opportunities to support regional and larger scale ongoing monitoring activities.

Products: Identification of new partnerships and funding mechanisms to support regional monitoring efforts.

Partners: CBNMS, GFNMS, MBNMS, SIMoN, NMSP, NCCOS, NMFS, Farallones Marine Sanctuary Association (FMSA), Monterey Bay Sanctuary Foundation (MBSF)

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

STRATEGY XEM-3: *Establish a Joint Internal Monitoring Coordination Team.*

Coordination of monitoring activities among the sanctuaries requires an administrative infrastructure to identify and act on cross-boundary opportunities, collaborate with large-scale initiatives, and interpret the results for resource managers and public audiences across the region.

Activity 3.1 Establish a monitoring coordination team.

The internal monitoring coordination team could be composed of the entire science staff of the three sanctuaries or, at a minimum, the research coordinators.

Products: Integrated Ecosystem Monitoring Team, biannual meetings to develop integrated monitoring plans and proposals, joint reports.

Partners: CBNMS, GFNMS, MBNMS, NMSP, SIMoN

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

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Activity 3.2 Develop a research and monitoring communication plan to improve coordination among the sanctuaries’ research staffs and partners.

Products: Research a communication plan, sanctuary list serve, and development of joint projects, research plans and proposals.

Partners: CBNMS, GFNMS, MBNMS, SIMoN

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 3.3 Evaluate and provide recommendations on the reporting of monitoring activities through periodic “state of the sanctuaries” reports for cross-cutting monitoring activities among the three sanctuaries.

Products: State of the sanctuaries report.

Partners: SIMoN, SWiM, NMSP, NODC

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 3.4 Develop annual ecosystem-based research and monitoring operating plans in collaboration with each other to meet site, regional, and national monitoring needs.

Products: Development and implementation of site-specific monitoring programs for each site that integrate regional ecosystem monitoring requirements and needs.

Partners: CBNMS, GFNMS, MBNMS, NMSP, SIMoN

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

STRATEGY XEM-4: *Consider Establishing a Joint Research Activities Panel to Enhance Research and Monitoring Collaborations.*

Research staff and interests at all three sites should discuss the need to establish a formal or informal joint research advisory panel (JRAP) consisting of representatives from the site research activity panels (RAPs) to assist with ongoing coordination of existing activities and identification of emerging opportunities.

Activity 4.1 Evaluate the need and feasibility of establishing a CBNMS RAP or a GFNMS RAP as a permanent sanctuary advisory council (SAC) working group and the need to create an ad-hoc or standing JRAP to advise and identify opportunities for coordinated monitoring activities.

Products: Evaluation on need to establish a CBNMS RAP, GFNMS RAP and a JRAP.

Partners: CBNMS, GFNMS, MBNMS, NMSP, advisory councils

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 4.2 Based upon the evaluation in 4.1, establish a JRAP.

Products: CBNMS RAP; GFNMS RAP, JRAP formed by advisory councils.

Partners: CBNMS, GFNMS, MBNMS, NMSP, advisory councils, MBNMS RAP

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 4.3 Establish communication protocols among the RAPs for posting agendas and minutes for sanctuary-specific and joint meetings.

Products: RAP list serve.

Partners: CBNMS, GFNMS, MBNMS, SIMoN, advisory councils, MBNMS RAP

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 4.4 Institute annual meetings for a subgroup of (~10) representatives from all three sanctuary RAPs (or research partners if a RAP does not exist) to coordinate research and monitoring activities in the region.

This meeting could be conducted in coordination with an existing annual or biennial science symposium or information transfer meeting. The meeting would be planned and organized by the monitoring coordination team members.

Products: Meeting summaries, recommendations, joint proposals and research plans.

Partners: CBNMS, GFNMS, MBNMS, NMSP, advisory councils, NCCOS

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

TABLE XEM-1: MEASURING PERFORMANCE OF THE CROSS-CUTTING ECOSYSTEM MONITORING ACTION PLAN

Desired Outcome(s) For This Action Plan:	
Increased collaboration among, capacity of, and productivity of the three sanctuary monitoring programs in order to enhance our understanding of the ecosystem(s) in this region and those natural and human factors affecting them.	
Performance Measures	Explanation
<p>1. Increase the number of cooperative research and monitoring activities from two in Year 1 to six in Year 5.</p> <p>2. Extend the geographic range of SIMoN to include Cordell Bank and Gulf of the Farallones and expand its infrastructure so that it can be integrated with other coastal and ocean observation systems along the West Coast by Year 5.</p> <p>3. Design and implement coordinated monitoring programs consistent with the NMSP System Wide Monitoring Framework (SWiM) at each site by 2010.</p>	<p>1. Research staff from the three sanctuaries currently engage in limited joint research and monitoring activities. However, to improve our knowledge and understanding about the broader ecosystem in this region, the three sites need to coordinate and systematically plan and implement joint research and monitoring activities with each other and other partners. These new joint research and monitoring activities will be reflected in each sites' Annual Operating Plan (AOP).</p> <p>2. SIMoN is rapidly evolving into a system-wide tool for organizing and displaying research and monitoring related information. SIMoN was developed as a prototype at the MBNMS and could be expanded to include the neighboring CBNMS and GFNMS. In addition, SIMoN should evolve so that other regional coastal and ocean observation systems could be integrated within SIMoN.</p> <p>3. The NMSP has been working for several years to develop a System Wide Monitoring (SWiM) Program Framework. The prototype of the program is underway, and once evaluated, will be ready to implement at other sites, including the three Jmpr sanctuaries.</p>

TABLE XEM-2: CROSS-CUTTING ECOSYSTEM MONITORING ACTION PLAN TIMELINE

ECOSYSTEM MONITORING ACTION PLAN	Year 1	Year 2	Year 3	Year 4	Year 5
Strategy XEM-1: Coordinate Existing Targeted Monitoring Activities to Promote Greater Efficiency and Effectiveness					
Activity 1.1: Coordinate individual sanctuary rocky intertidal monitoring programs and investigate opportunities to collaborate with other large-scale rocky intertidal monitoring efforts.	—————▶				
Activity 1.2: Conduct a workshop coordinate data collection protocols for Beach COMBERS and Beach Watch Programs that indirectly assess the health of the pelagic/offshore ecosystem.	▶				
Activity 1.3: Develop an integrated sanctuary marine mammal and seabird survey monitoring plan for the three sanctuaries to coordinate and supplement the NOAA Fisheries 5-year surveys.		▶			
Activity 1.4: Explore the potential for the expansion of existing fish surveys, such as the CalCOFI transect lines through Gulf of the Farallones and Cordell Bank, and continuation in Monterey Bay.		▶			
Activity 1.5: Jointly developed research cruise plans and standards for sampling and reporting results for benthic habitat survey work.	—————▶				
Activity 1.6: Augment the benthic habitat survey work with new technologies such as ROV surveys.	—————▶				
Strategy XEM-2: Coordinate and Implement Existing Regional Ecosystem Monitoring Activities					
Activity 2.1: Implement the West Coast Observation Project at CBNMS, GFNMS and MBNMS.	—————▶				
Activity 2.2: Develop and implement an integrated NMSP's System-Wide Monitoring (SWiM) program for CBNMS, GFNMS and MBNMS.		—————▶			
Activity 2.3: Conduct a needs assessment and develop a site implementation plan for expanding SIMoN to the Gulf of the Farallones and Cordell Bank sanctuaries.	▶				
Activity 2.4: Explore opportunities to integrate SIMoN with other regional monitoring efforts such as West Coast Observations and other IOOS projects.	—————▶				
Activity 2.5: Evaluate and identify ongoing funding opportunities to support regional and larger scale ongoing monitoring activities.	—————▶				
Strategy XEM-3: Establish a Joint Internal Monitoring Coordination Team					
Activity 3.1: Establish a Monitoring Coordination Team.	▶				
Activity 3.2: Develop a research and monitoring communication plan to improve coordination among the sanctuaries' research staffs and partners.	▶				
Activity 3.3: Evaluate and provide recommendations on the joint reporting of monitoring activities through periodic "state of the sanctuaries" reports for cross-cutting monitoring activities among the three sanctuaries.			—————▶		
Activity 3.4: Develop annual ecosystem-based research and monitoring operating plans in collaboration with each other to	—————▶				

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ECOSYSTEM MONITORING ACTION PLAN	Year 1	Year 2	Year 3	Year 4	Year 5
meet site, regional, and national monitoring needs.					
Strategy XEM-4: Consider Establishing Additional Site-Specific or a Joint Research Activities Panel to Enhance Research and Monitoring Collaborations					
Activity 4.1: Evaluate the need and feasibility of establishing a CBNMS Research Activity Panel (RAP) or a GFNMS RAP as a permanent SAC working group and the need to create an ad-hoc or standing joint research activities panel (JRAP) to advise and identify opportunities for coordinated monitoring activities.		→→		
Activity 4.2: Based upon the evaluation in 5.1, establish a Cordell Bank RAP, Gulf of the Farallones RAP and/or a Joint RAP.			→		
Activity 4.3: Establish communication protocols among the RAPs for posting agendas and minutes for sanctuary-specific and joint meetings.			→		
Activity 4.4: Institute annual meetings for a subgroup of (~10) representatives from all three sanctuary RAPs (or research partners if a RAP does not exist) to coordinate research and monitoring activities in the region.				→	

Legend:

- Planned Activity
-→ Proposed Activity, based on internal assessment

TABLE XEM-3: ESTIMATED COSTS TO IMPLEMENT THE CROSS-CUTTING ECOSYSTEM MONITORING ACTION PLAN

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy XEM-1: Coordinate Existing Targeted Monitoring Activities to Promote Greater Efficiency and Effectiveness	\$183	\$183	\$183	\$183	\$183	\$915.00
Strategy XEM-2: Coordinate and Implement Existing Regional Ecosystem Monitoring Activities	\$172	\$258	\$294	\$282	\$246	\$1252.00
Strategy XEM-3: Establish a Joint Internal Monitoring Coordination Team	\$24	\$72	\$78	\$51	\$27	\$252.00
Strategy XEM-4: Consider Establishing a Joint Research Activities Panel to Enhance Research and Monitoring Collaborations	\$0	\$12	\$12	\$15	\$15	\$54.00
Total Estimated Annual Cost	\$381	\$525	\$567	\$531	\$471	\$2473.00
* Cost estimates are for both “programmatic” and “base” (salaries and overhead) expenses.						
** Contributions from outside funding sources also anticipated.						
For management planning purposes, the individual site cost to implement cross-cutting strategies can be calculated by dividing the estimated annual cost by three (equal cost). The actual cost to each site may vary according to strategy but will be further refined when sites prepare annual operating plans.						



MARITIME HERITAGE ACTION PLAN

GOALS

The National Marine Sanctuary Program (NMSP) is developing a new program aimed to identify, protect and raise awareness of the cultural and historical resources in the three sanctuaries. Program efforts include conducting paleo-ecological and archaeological studies; inventorying, locating, and monitoring both historic shipwrecks and those that pose an environmental threat to sanctuary marine resources; and characterizing and protecting maritime heritage resources.

This plan provides the framework for a Maritime Heritage Resources Program that addresses historic and cultural underwater sites, as well as traditional heritage resources such as Native American and fishing communities, commercial marine transport of passengers and cargo, and recreational activities like diving, surfing, and boating. Although the NMSP only has authority to protect sanctuary cultural and historic resources, the program recognizes that traditional user and ocean-dependent groups are interconnected with the sanctuaries and are an integral part of their history.

Figure MH-1: The passenger-cargo steamer *Tennessee* runs aground near Point Bonita



ISSUE DESCRIPTION

The National Marine Sanctuaries Act (NMSA) and site regulations mandate the management and protection of sanctuary cultural and historical resources. Cultural resources are defined as any historical or cultural feature, including archaeological sites, historic structures, shipwrecks, and artifacts. *Historical resources* are defined as any resources possessing historical, cultural, archaeological or paleontological significance, including sites, contextual information, structures, districts, and objects significantly associated with or representative of earlier people, cultures, maritime heritage, and human activities and events. Historical resources include “submerged cultural resources,” and also include “historical properties,” as defined in the National Historic Preservation Act (NHPA), as amended, and its implementing regulations, as amended.

The area encompassed by Cordell Bank National Marine Sanctuary (CBNMS), Gulf of the Farallones National Marine Sanctuary (GFNMS), and Monterey Bay National Marine Sanctuary (MBNMS) is rich in cultural and historical resources, and has a long and interesting maritime history. The sea floor preserves remnants of the sites where people lived and of the vessels in which they conducted trade and fought wars. Ships, boats, wharves, lighthouses, lifesaving stations, whaling stations, prehistoric sites, and a myriad of other heritage treasures lie covered by water, sand, and time.

The history of California's central coast is predominantly a maritime one. From the days of the early Ohlone inhabitants to the exploration and settlement of California to the present, coastal waterways remain a main route of travel, subsistence, and supply. Ocean-based commerce and industries (e.g., fisheries, shipping, military, recreation, tourism, extractive industries, exploration, research, and aesthetics) are important to the maritime history, the modern economy, and the social character of this region. These constantly changing human uses define the maritime heritage of these sanctuaries and help interpret our evolving relationship with the sanctuary resources. Ports such as San Francisco and Monterey, and smaller coastal harbor towns, developed through fishing, shipping, and economic exchange. Today these have become major urban areas, bringing millions of people in proximity to national marine sanctuaries. Many of these people are connected to the sanctuaries through commercial and recreational activities such as surfing, boating, and diving.

Records indicate that 430 vessel and aircraft losses were documented between 1595 and 1950 along California's central coast from Cambria north to Bodega Head, including the Farallones Islands. Specifically, 173 in the GFNMS, 257 in the MBNMS, and none documented within the CBNMS. Some sites have been located and inventoried by the National Oceanic and Atmospheric Administration (NOAA) and the National Park Service (NPS) in the GFNMS region. GFNMS and MBNMS have also collaborated with state and federal agencies, and the private sector to gather resource documentation and to create opportunities to locate and record submerged archaeological resources. MBNMS recently completed a shipwreck inventory from established shipwreck databases, and review of primary and secondary source documentation. These studies provide a foundation for an inventory of the historic resources in the sanctuaries.

GFNMS and MBNMS, and possibly CBNMS, are also faced with the challenge of identifying and monitoring historic and non-historic shipwrecks posing environmental threats to sanctuary marine resources. Lurking in the deep are the hazardous cargoes, abandoned fuel, and unexploded ordnance inside sunken vessels that are slowly deteriorating in a corrosive marine environment. Shipwrecks already identified as a concern are the oil tanker USS *Montebello* (near the MBNMS) that may retain over three million gallons of unrefined crude oil and the C-3 freighter *Jacob Luckenbach* (GFNMS), containing Bunker-C fuel oil. In 2002, the U.S. Coast Guard contracted the removal of 85,000 gallons of Bunker-C fuel from the *Jacob Luckenbach*.

Submerged Site Inventory and Assessment Initiative

NMSP regulations mandate that archaeological resources are managed consistently with the Federal Archaeological Program. The NMSP's Marine Heritage Program (MHP) and NOAA Maritime Archeological Center (MAC) were established in 2002 and 2004 respectively to emphasize the need for research, education, outreach, and protection of maritime heritage

resources. Issues to be addressed regarding the protection of submerged archaeological resources include site protection, permitting, and shipwrecks as environmental threats. GFNMS and MBNMS will partner with the Channel Island National Marine Sanctuary (CINMS) on its Shipwreck Reconnaissance Program (SRP) in California waters to record submerged sites using vocational archaeologists, remotely operated vehicles (ROV), and manned submersibles. The SRP develops underwater site maps and archaeological reports, conducts annual site monitoring, and recommends appropriate sites for inclusion in the National Register of Historic Places.

Shipwrecks as Environmental Threats

GFNMS and MBNMS both coordinate with the Damage Assessment Restoration Fund and other relevant agencies. GFNMS and MBNMS will work with CINMS to expand their efforts to identify shipwrecks that may pose environmental threats and will provide pertinent information to NOAA's Hazardous Materials (HAZMAT) division and the NMSP for development of the Sanctuaries Hazardous Incident Emergency Logistics Database System (SHIELDS) and the Resources and Under Sea Threats (RUST) Geographic Information Systems (GIS) database systems.

Site Protection

As submerged shipwreck sites are inventoried in CBNMS, GFNMS, and MBNMS and become more visible to the public, they are also more at risk from divers wishing to remove artifacts. CBNMS, GFNMS, and MBNMS will consider enhancing visitor usage while mitigating damage to heritage resources by providing the sport and commercial diving communities and visitors to shoreline sites with interpretive information about archaeological sites and their protection. Sanctuary and California state regulations prohibit the un-permitted disturbance of submerged archaeological and historical resources. The NMSP and California State Lands Commission (CSLC) have an archaeological resource recovery permit system in place. Protection and monitoring of these sites will become a more pronounced responsibility in the sanctuaries' heritage resources management program. Partnerships will be established with local law enforcement agencies for site monitoring and compliance of public access to submerged sites. The sanctuaries will designate a contact person(s) to coordinate with the California State Historic Preservation Office (SHPO) to ensure that permit guidelines, under the Archaeological Resources Protection Act, are followed.

Traditional User and Ocean-Dependent Groups

There is the potential to cultivate partnerships with local, state, and federal programs (e.g., American Folk Life Center, universities, Department of the Interior) and the identified communities. These partnerships could aid in the design and implementation of studies of living maritime heritage and folk life to help educate the public about traditional cultures and practices including Native Americans, other ethnic residents, fishermen and economic activities reflecting historic human interaction with the ocean.

Education and Outreach

CBNMS, GFNMS, and MBNMS have partnered with CINMS in the development of the West Coast Shipwreck Database online curriculum. The database serves to inform the public about the historical significance of shipwrecks, including those posing environmental threats to sanctuary marine resources, e.g., the *Jacob Luckenbach* story. The database is being expanded to include living journals assisting families searching for information about shipwrecked vessels their relatives may once have served on as crewmembers or passengers. Family members are encouraged to share with the public their living journals associated with the shipwreck histories for dissemination. CBNMS, GFNMS, and MBNMS will identify partners to explore exhibit development at maritime or regional museums and learning centers that focus on the areas’ maritime heritage history; shipwrecks, exploration, fishing, and fisheries; vessel trades, routes and nationalities; and shoreline structures such as lighthouses, lifesaving stations, canneries, whaling facilities, surfing, and boating.

STRATEGY XMHR-1: *Establish Maritime Heritage Resources Program.*

The NMSP is placing increasing emphasis on the development of maritime heritage resources programs to identify and protect submerged archaeological sites, and to increase public awareness about the maritime history associated with individual sanctuaries. A well-coordinated program will be required to identify and assess documented shipwrecks, some of which may pose significant environmental hazards; to protect sites from unauthorized disturbance; and to develop heritage partnerships and education programs.

Activity 1.1 Develop the foundation and infrastructure of a MHR Program.

Products: Maritime Heritage Resource (MHR) program plan and infrastructure to implement it.

Partners: CBNMS, GFNMS, MBNMS, NMSP-MHP, CINMS, Submerged Cultural Resources Program (SCRCP)

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

Activity 1.2 Identify potential maritime heritage partners and sources of funding.

Products: Database of partners and funding sources.

Partners: CBNMS, GFNMS, MBNMS, CINMS

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

STRATEGY XMHR-2: *Inventory and Assess Submerged Sites.*

CBNMS, GFNMS, and MBNMS, in conjunction with the West Coast Cultural Resources Coordinator, will collaborate with state and federal agencies and the private sector to gather resource documentation and to create opportunities to locate and record submerged archaeological resources. MBNMS recently completed such an inventory; GFNMS will pursue funding to update its previous inventory (done jointly with the NPS). This effort will also be coordinated with NOAA’s MHP.

Activity 2.1 Establish external partnerships to inventory potential shipwreck sites with other federal, state, and local agencies as well as vocational archaeologists, commercial divers and fishermen, and recreational divers.

Products: Updated inventory of potential shipwreck sites in the three sanctuaries that includes site characterizations and shipwreck assessments.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, National Park Service (NPS), California State Historic Preservation Office (SHPO)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.2 Conduct systematic research and survey methods for archaeological sites, including the remains of prehistoric, as well as historic sites, representing ship and aircraft losses.

This effort would be focused on geographic regions with a high probability of cultural and historic remains established by conducting remote sensing surveys and/or diver investigations of target sites as part of larger research cruises across the three sanctuaries. Such surveys would include the development of education materials and curriculum, a project website, a site assessment report, corrosion study, and a comparison with previous surveys.

Products: MBNMS survey of the USS Macon and continuing efforts to survey the Lukenbach and Montebello.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 2.3 Establish a shipwreck reconnaissance and site monitoring program.

Use a model similar to CINMS to record and monitor submerged sites and to document new artifact discoveries and evaluation of human site disturbance. Record site positions in NOAA’s ARCH geographic information systems (GIS) database.

Products: Expanded site information in NOAA’s ARCH.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

Activity 2.4 Assess and Nominate Appropriate Submerged Archaeological Sites for Inclusion in the National Register of Historic Places.

Products: Applications for site inclusion in the National Register of Historic Places.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NPS, SHPO

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

STRATEGY XMHR-3: *Assess Shipwrecks and Submerged Structures for Hazards.*

GFNMS and MBNMS, and possibly CBNMS, are faced with the challenge of identifying and monitoring historic and non-historic shipwrecks that may pose environmental threats to sanctuary marine resources. Information pertaining to shipwrecks as environmental threats is provided to NOAA’s HAZMAT division and the Office of National Marine Sanctuaries for the development of the SHIELDS and RUST database systems. The sanctuaries will develop a plan to address this issue since there are many shipwrecks that pose threats in the near future.

Activity 3.1 Establish an inventory of shipwrecks, inside and outside of sanctuary boundaries, posing environmental threats to sanctuary marine resources.

This inventory is based upon primary and secondary source documentation from established shipwreck databases, interviews with commercial divers and fishermen, and recreational divers who frequently visit submerged shipwrecks. The sanctuaries will also collaborate with other organizations doing similar research. As the sanctuaries compile information regarding sites that may pose environmental threats, this information will be coordinated with NOAA’s HAZMAT division and the Office of National Marine Sanctuaries for the development of the SHIELDS and RUST database systems.

Products: Inventory of sites that may pose environmental threats, including a priority listing of shipwreck sites to be located via reconnaissance dives. Evaluation reports on sites submitted to federal and state trustee agencies for potential remediation.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NOAA HAZMAT, NOAA Office of Response and Restoration (ORR), NPS, SHPO

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

Activity 3.2 Establish a monitoring program for shipwreck sites.

Develop protocols for site evaluation, including timelines for long-term monitoring. Direct efforts to monitor sites that have been located and are considered a threat to sanctuary marine resources based on the monitoring work at such sites as the *Jacob Luckenbach* and the *Montebello*.

Products: A shipwreck monitoring plan.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NPS, SHPO

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

Activity 3.3 Coordinate with partners to reduce threats from shipwrecks.

GFNMS and MBNMS will work with NMSP to expand efforts to identify shipwrecks that may pose environmental threats and will provide pertinent information to NOAA’s HAZMAT division and the NMSP for the development of the SHIELDS and RUST GIS database systems. Shipwrecks identified as a potential threat to leak or spill hazardous waste will be regularly monitored, and NMSP will work with other trustee agencies to develop a plan to prevent, reduce, and respond to environmental threats from these vessels.

Products: A threat mitigation plan.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NOAA HAZMAT, NOAA ORR, NPS, SHPO

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

Activity 3.4 For historic shipwrecks, ensure compliance under Section 106 of the National Historic Preservation Act (NHPA) and the National Marine Sanctuary Act (NMSA).

Products: Final Reports of Post Site Disturbance Documentation and/or Archaeological Site Reports submitted to the SHPO.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MAC, NOAA HAZMAT, NOAA ORR, NPS, SHPO

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

STRATEGY XMHR-4: *Protect and Manage Submerged Archaeological Resources.*

The NMSP regulations mandate that archaeological resources be managed consistent with the Federal Archaeological Program. The NMSP’s MHP and MAC were established in 2002 and 2004 respectively to emphasize the need for research, education, outreach, and protection of

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heritage resources. Issues to be addressed by GFNMS, MBNMS, and possibly CBNMS, regarding the protection of submerged archaeological resources include:

- Permitting
- Site protection through enforcement and education
- Shipwrecks as environmental threats

Activity 4.1 Jointly develop uniform protocol to manage, monitor, and protect submerged sites within the three sanctuaries in partnership with appropriate local law enforcement agencies.

Products: Monitoring and permitting protocols, enforcement surveillance and inspection program as appropriate, mooring system plan if needed at dive sites.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MAC, NPS, SHPO, NOAA Office of Law Enforcement (OLE)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 4.2 Provide training to sanctuary staff and facilitate training for partners.

The training will focus on the importance of submerged archaeological resources and the need and tools to manage and protect them.

Products: A comprehensive training program.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP, NPS, SHPO, NOAA Office of Law Enforcement (OLE)

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 4.3 Identify archaeological and historic resources currently outside sanctuary boundaries that may be of significant historic interest or may pose a threat to sanctuary resources.

Explore the appropriateness, feasibility and need to (1) consider expanding existing boundaries to protect site(s) as maritime heritage resources or (2) work with the state to establish a state marine cultural preservation area (e.g., the USS *Montebello*, 1.6 nautical miles south of the MBNMS near Cambria, others to be determined).

Products: Site assessments and recommendations for preservation and/or protection.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

STRATEGY XMHR-5: *Conduct Public Outreach with Traditional User and Ocean-Dependent Groups and Communities.*

A key aspect of the CBNMS, GFNMS, and MBNMS maritime heritage program will be to educate the public about traditional maritime cultures and practices including Native Americans; exploration; settlement; ethnic groups; whalers; historic and present-day fishermen; recreational uses; and traditional shipping, shipbuilding, canneries, and other economic activities reflecting historic human interaction with the ocean. Although sanctuary protection status is given only to cultural and historical resources, the program recognizes that traditional user and ocean-dependent groups are interconnected with the sanctuaries and are an integral part of their history. Therefore, this program will also acknowledge those traditional maritime heritage activities and practices consistent with the NMSA’s primary goal of resource protection.

Activity 5.1 Identify traditional user and ocean-dependent groups.

Solicit and document the range of traditional user and ocean-dependent groups’ ideas, values, etc. Conduct a literature search to gather resource documentation on traditional users and ocean-dependent groups and communities. Use this information to prioritize appropriate aspects of their maritime heritage.

Products: Sanctuary user groups and community historic analysis.

Partners: CBNMS, GFNMS, MBNMS, CINMS, MHP

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CB	EP-6
	GF	FA-2

Activity 5.2 Develop collaborative programs and initiatives.

GFNMS will initiate a partnership with the fishing community at Pillar Point Harbor to enhance relationships and jointly develop ways to educate the public on the interconnections with the three sanctuaries.

Products: Pillar Point maritime heritage community demonstration initiative. Collaborative programs such as sustainable seafood events, adopt-a boat classroom programs (e.g., SEA Grant-Marine program), historic re-enactments at harbors, Native American village sites.

Partners: CBNMS, GFNMS, MBNMS, San Mateo County Harbor District – Pillar Point, Half Moon Bay Fishermen’s Association, CA Sea Grant

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	None	None

Activity 5.3 Create an inventory of historic and present maritime heritage communities.

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Focus on traditionally associated people to support mapping and interpretive programs. Assess and nominate appropriate sites for the National Register of Historic Places.

Products: Database inventory of maritime heritage communities and sites; nominations for the National Register of Historic Places.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	CB	EP-6
	GF	FA-2

Activity 5.4 Map and document traditional communities and sites.

These communities and sites may include fishing and whaling sites; shipping/commercial marine transport of passengers and cargo; lighthouses and life-saving stations; tribes (coastal); and recreational uses such as surfing and diving.

Products: Tri-sanctuary map of traditional communities and sites.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO

	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	GF	FA-2

STRATEGY XMHR-6: *Establish Maritime Heritage Focused Education and Outreach Programs.*

Maritime Heritage provides a unifying theme to educate and inform people along the California coast and throughout the country about the historic human interaction with the ocean. Through websites, museum exhibits, and other tools, the sanctuaries will provide information on:

- Programs by and about traditional cultures and practices including Native Americans, ethnic groups, fishermen, and economic activities
- Shipwrecks, exploration, fishing and fisheries; trade vessels, routes and nationalities
- Shoreline structures such as lighthouses, life-saving stations, canneries, whaling facilities
- Traditional recreational activities such as diving, surfing, and boating
- Stewardship of our cultural and historic maritime resources

Activity 6.1 Improve information sharing and dialogue.

Hold an annual maritime heritage event to highlight specific cultural and historic resources that the sites are mandated to protect, such as archeological sites, shipwrecks, etc., and link to adjacent communities and human uses.

Products: Annual community event focusing on maritime heritage resources.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO, local maritime museums and historic parks

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

Activity 6.2 Create, expand and populate individual sanctuary websites and/or the West Coast Shipwreck Database.

The websites should include specific information about maritime heritage resources, such as living journals of traditional users and ocean-dependent groups as well as shipwreck survivors, archaeological project updates, potential environmental threats, and maps.

Products: Expanded maritime heritage Web-based information.

Partners: CBNMS, GFNMS, MBNMS

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

Activity 6.3 Develop and implement education and outreach programs and materials for the MHP.

Incorporate traditional users/ocean-dependent groups and submerged archaeological resources into existing and new education/outreach programs.

Products: Maritime heritage programs, brochures, posters, etc.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO, local maritime museums and historic parks.

	<u>Sanctuary</u>	<u>Management Plan Strategy Reference</u>
Cross-Reference:	None	None

Activity 6.4 Collaborate on maritime heritage resource exhibits and signage.

GFNMS and MBNMS are currently collaborating on a joint interpretive exhibit at Pigeon Point Lighthouse in San Mateo County. The three sites will incorporate maritime heritage themes and messages as part of the California Statewide Signage, Exhibits, and Facilities plan.

Products: Joint interpretive exhibits at Pigeon Point Lighthouse and other locations, joint signage, and joint public lecture series.

Partners: CBNMS, GFNMS, MBNMS, MHP, NPS, SHPO, local maritime museums and historic parks

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	Sanctuary	Management Plan Strategy Reference
Cross-Reference:	GF	ED-9, ED-12, ED-13

TABLE XMHR-1: MEASURING PERFORMANCE OF THE CROSS-CUTTING MARITIME HERITAGE RESOURCES ACTION PLAN

Desired Outcome(s) For This Action Plan:	
Establish a well-coordinated joint maritime heritage program that identifies and assesses documented shipwrecks and associated environmental hazards; protects sites from unauthorized disturbance; and develops heritage partnerships and education programs.	
Performance Measures	Explanation
By Year 5, the Maritime Heritage program will identify and characterize all historical and cultural resources in these three sanctuaries in a Web database and, when appropriate, develop plans to protect these resources from threats. In the case of ships that pose a threat from oil spills, plans will be developed to mitigate harmful effects on natural resources.	The specific maritime heritage activities identified in this plan build upon existing site efforts and collectively establish a new joint maritime heritage program for this region. The program will allow these sites to be responsive to the NMSA mandate to identify and protect cultural and historic resources. Implementation of these strategies will better streamline and coordinate overall NMSP efforts to protect maritime heritage resources and expand awareness of the importance of these resources to the public.

TABLE XMHR-2: CROSS-CUTTING MARITIME HERITAGE RESOURCES ACTION PLAN TIMELINE

MARITIME HERITAGE RESOURCES	Year 1	Year 2	Year 3	Year 4	Year 5
Program Establishment					
Strategy XMHR-1: Establish Maritime Heritage Resources Program					
Activity 1.1: Develop the foundation and infrastructure of a MHR program.	—————▶			
Activity 1.2: Identify and assist partners doing maritime heritage related work to obtain funding and resources.		—————▶			▶
Resources Assessment and Protection					
Strategy XMHR-2: Inventory and Assess Submerged Sites					
Activity 2.1: Establish external partnerships to inventory potential shipwreck sites with other federal, state, and local agencies as well as vocational archaeologists, commercial divers and fishermen, and recreational divers.			—————▶		▶
Activity 2.2: Conduct systematic research and survey for archaeological sites, including the remains of prehistoric sites, as well as historic sites that represent ship and aircraft losses.	—————▶			▶
Activity 2.3: Establish a Shipwreck Reconnaissance and Site-Monitoring Program.			—————▶		▶
Activity 2.4: Assess and nominate appropriate submerged archaeological sites for inclusion in the National Register of				—————▶	▶

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MARITIME HERITAGE RESOURCES	Year 1	Year 2	Year 3	Year 4	Year 5
Historic Places.					
Strategy XMHR-3: Assess Shipwrecks and Submerged Structures for Hazards					
Activity 3.1: Establish an inventory of shipwrecks, inside and outside of sanctuary boundaries, that may pose environmental threats to sanctuary marine resources.			—————▶		
Activity 3.2: Establish a monitoring program for shipwreck sites.			—————▶	—————▶	
Activity 3.3: Coordinate with partners to reduce threats.			—————▶	—————▶	
Activity 3.4: For historic shipwrecks, ensure compliance under Section 106 of the National Historic Preservation Act (NHPA) and the National Marine Sanctuary Act (NMSA).			—————▶	—————▶	
Strategy XMHR-4: Protect and Manage Submerged Archaeological Resources					
Activity 4.1: Jointly develop uniform protocol to manage, monitor, and protect submerged sites within the three sanctuaries in partnership with appropriate local law enforcement agencies.				—————▶	—————▶
Activity 4.2: Provide training to sanctuary staff and facilitate training for partners.				—————▶	—————▶
Activity 4.3: Identify archaeological and historic resources currently outside sanctuary boundaries that may be of significant historic interest or may pose a threat to sanctuary resources.				—————▶	—————▶
Partnerships, Education and Outreach					
Strategy XMHR-5: Conduct Public Outreach with Traditional User and Ocean-Dependent Groups and Communities					
Activity 5.1: Identify traditional user and ocean-dependent groups.		—————▶	—————▶	—————▶	—————▶
Activity 5.2: Develop collaborative programs and initiatives.		—————▶	—————▶	—————▶	—————▶
Activity 5.3: Create an inventory of historic and present maritime heritage communities.		—————▶	—————▶	—————▶	—————▶
Activity 5.4: Map and document traditional communities and sites.			—————▶	—————▶	—————▶
Strategy XMHR-6: Establish Maritime Heritage Focused Education and Outreach Programs					
Activity 6.1: Improve information sharing and dialogue.▶	—————▶	—————▶	—————▶	—————▶
Activity 6.2: Create, expand and populate individual sanctuary websites and/or the West Coast Shipwreck Database.	▶	—————▶	—————▶	—————▶
Activity 6.3: Develop and implement education and outreach programs and materials for the Maritime Heritage Program.▶	—————▶	—————▶	—————▶	—————▶
Activity 6.4: Collaborate on maritime heritage resource exhibits and signage.▶	—————▶	—————▶	—————▶	—————▶

Legend:

- ▶ Planned Activity
-▶ Proposed Activity, based on internal assessment

TABLE XMHR-3: ESTIMATED COSTS TO IMPLEMENT THE CROSS-CUTTING MARITIME HERITAGE RESOURCES ACTION PLAN

Strategy	Estimated Annual Cost (1000's)*					Total Est. 5-Year Cost (1000's)
	YR 1	YR 2	YR 3	YR 4	YR 5	
Strategy XMHR-1: Establish Maritime Heritage Resources Program	\$55.5	\$55.5	\$0	\$0	\$0	\$111
Strategy XMHR-2: Inventory and Assess Submerged Sites	\$81	\$81	\$72	\$72	\$72	\$378
Strategy XMHR-3: Assess Shipwrecks and Submerged Structures for Hazards	\$0	\$0	\$51	\$51	\$51	\$153
Strategy XMHR-4: Protect and Manage Submerged Archaeological Resources	\$0	\$0	\$0	\$24	\$24	\$48
Strategy XMHR-5: Conduct Public Outreach with Traditional User and Ocean-Dependent Groups and Communities	\$39	\$39	\$58.5	\$58.5	\$58.5	\$253.5
Strategy XMHR-6: Establish Maritime Heritage Focused Education and Outreach Programs	\$61.5	\$61.5	\$64.5	\$64.5	\$64.5	\$316.5
Total Estimated Annual Cost	\$237	\$237	\$246	\$270	\$270	\$1,260
* Cost estimates are for both “programmatic” and “base” (salaries and overhead) expenses.						
** Contributions from outside funding sources also anticipated.						
For management planning purposes, the individual site cost to implement cross-cutting strategies can be calculated by dividing the estimated annual cost by three (equal cost). The actual cost to each site may vary according to strategy but will be further refined when sites prepare annual operating plans.						



**APPENDIX I:
PROGRAM AREA OVERVIEW MATRICES**

CBNMS FINAL MANAGEMENT PLAN

- A. Administration**
- B. Education and Outreach**
- C. Conservation Science**
- D. Resource Protection**

Appendix IA: Administration Overview Matrix

Administration Strategy	Action	Objective(s) Addressed	Complementary Strategies
STRATEGY AD-1 Operations: Develop additional sanctuary facilities through various partnerships with both the public and private sector	Action AD-1.1 Expand current main office space	<p><u>Objective 2</u> Identify appropriate staffing, budget levels and facility needs to support implementation of the management plan.</p> <p><u>Objective 3</u> Continue to build on partnerships, collaborative efforts and coordination with other agencies, institutions and organizations.</p>	
	Action AD-1.2 Satellite office in Bodega Bay		
	Action AD-1.3 Intern/researcher housing with PRNS		
	Action AD-1.4 Expand vessel capabilities		
	Action AD-1.5 Complete facilities plan for visitor centers and outreach venues		
STRATEGY AD-2 Staffing: Basic staffing requirements must provide support for administration and the program areas	Action AD-2.1 Minimum staffing requirements and fulfill staffing plan	<p><u>Objective 2</u> Identify appropriate staffing, budget levels and facility needs to support implementation of the management plan.</p>	
	Action AD-2.2 Professional development for staff		
STRATEGY AD-3 Partnerships: Develop partnerships to assist implementation of the management plan	Action AD-3.1 Develop MOU/ MOAs with regional marine labs to facilitate internship program	<p><u>Objective 3</u> Continue to build on partnerships, collaborative efforts and coordination with other agencies, institutions and organizations</p>	<p><u>CBNMS FMP Partnerships with Community Groups, STRATEGY PC-1</u></p>
	Action AD-3.2 Expand informal working relationship with NMFS and USGS		
STRATEGY AD-4 Support maturing role of sanctuary advisory council in providing advice to sanctuary superintendent	Action AD-4.1 Strengthen structure and function of sanctuary advisory council	<p><u>Objective 3</u> Continue to build on partnerships, collaborative efforts and coordination with other agencies, institutions and organizations</p>	<p><u>CBNMS FMP Partnerships with Community Groups, STRATEGY PC-2</u> <u>MBNMS FMP Sanctuary Advisory Council, STRATEGY SAC-1</u></p>
	Action AD-4.2 Develop format for assisting the building of CBNMS policies and procedures		
	Action AD-4.3 Provide resources and guidance to council to help engage the public		
	Action AD-4.4 Convene issue specific working groups		

**Appendix IA: Administration Overview Matrix
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Administration Strategy	Action	Objective(s) Addressed	Complementary Strategies
STRATEGY AD-5 Interagency coordination: Formalize intra- and interagency efforts	Action AD-5.1 Engage other agencies in reviewing each other's actions; work together to identify resource management issues	<u>Objective 3</u> Continue to build on partnerships, collaborative efforts and coordination with other agencies, institutions and organizations	
	Action AD-5.2 Formalize agreements with state/federal co-trustee managers regarding cooperative and integrated management of the sanctuary		
	Action AD-5.3 Formalize agreements for enforcement and emergency response plan		
STRATEGY AD-6 Protected Resources Enforcement Plan: Develop enforcement plan which includes interpretive and legal enforcement	Action AD-6.1 Ensure sufficient enforcement patrols, including cross-deputization	<u>Objective 1</u> Develop a structured administrative framework to continuously evaluate, maintain and expand, when necessary, administrative operations	<u>CBNMS FMP</u> Administration, Regulations and Permitting, STRATEGY AD-9
	Action AD-6.2 Use interpretive enforcement to inform and encourage voluntary compliance		
	Action AD-6.3 Work regionally on addressing discharges in sanctuaries from cruise ships (see also Regional)		
STRATEGY AD-7 Emergency Response: Develop Emergency Response Plan	Action AD-7.1 Review and revise Emergency Response Plan	<u>Objective 1</u> Develop a structured administrative framework to continuously evaluate, maintain and expand, when necessary, administrative operations	<u>GFNMS FMP</u> Resource Protection, Emergency Response, STRATEGY RP-7 <u>MBNMS FMP</u> Operations and Administration, STRATEGY OA-4
	Action AD-7.2 Train sanctuary staff on an on-going basis to be prepared in an emergency		
STRATEGY AD-8 Regulations and Permitting: Evaluate the effectiveness of current sanctuary regulations and permitting	Action AD-8.1 Continuously evaluate the effectiveness of current sanctuary regulatory language and permitting authority	<u>Objective 1</u> Develop a structured administrative framework to continuously evaluate, maintain and expand, when necessary, administrative operations	
	Action AD-8.2 Maintain and enhance permit program		

Appendix IA: Administration Overview Matrix
CBNMS Final Management Plan

Administration Strategy	Action	Objective(s) Addressed	Complementary Strategies
STRATEGY AD-9 New and Emerging Issues: Track existing, emerging, and potential future issues	Action AD-9.1 Establish a framework for identifying and addressing new and emerging issues	<u>Objective 1</u> Develop a structured administrative framework to continuously evaluate, maintain and expand, when necessary, administrative operations <u>Objective 3</u> Continue to build on partnerships	<u>GFNMS FMP</u> Resource Protection, New and Emerging Issues, STRATEGY RP-1 <u>MBNMS FMP</u> Emerging Issues, STRATEGY EI-1, STRATEGY EI-2
	Action AD-9.2 Establish a dynamic and up-to-date electronic system to inform one another of new and emerging issues		
STRATEGY AD-11 Planning and Evaluation: Conduct evaluations of activities and modify existing programs as needed	Action AD-11.1 Use site report card to measure overall management performance	<u>Objective 1</u> Develop a structured administrative framework to continuously evaluate, maintain and expand, when necessary, administrative operations	
	Action AD-11.2 Develop performance indicators for program areas		
	Action AD-11.3 Manage for the future		
STRATEGY PC-1 Develop and maintain partnerships with research community (see also Research and AD-4)	Action PC-1.1 Collaborate with other research entities to share in-kind resources and services	<u>Objective 1</u> Create partnerships to further research and monitoring to assist in answering resource management questions <u>Objective 2</u> Create partnerships to establish a strong identity for the sanctuary within various interests in the community	<u>CBNMS FMP</u> Education, STRATEGY ED-7 and STRATEGY ED-8; Administration, STRATEGY AD-3
STRATEGY PC-2 Culture the advisory council as a link to the community	Action PC-2.1 Raise the profile of CBNMS by identifying the role of sanctuary advisory council (SAC) members to increase awareness of the sanctuary	<u>Objective 2</u> Create partnerships to establish a strong identity for the sanctuary within various interests in the community <u>Objective 4</u> Build stewardship to support and advocate for the needs of the sanctuary through creating partnerships	<u>CBNMS FMP</u> Administration, STRATEGY AD-4.
STRATEGY PC-4 Identify mechanisms to raise and manage additional sources of revenue	Action PC-4.1 As the need arises, CBNMS will develop partnerships to manage and generate additional sources of revenue	<u>Objective 4</u> Build stewardship to support and advocate for the needs of the sanctuary through creating partnerships	

Appendix IB: Education and Outreach Overview Matrix

Education and Outreach Strategy	Action	Program Area Objective(s) Addressed	Complementary Strategies
STRATEGY ED-1 Targeted outreach efforts	Action ED-1.1 In coordination with GFNMS and MBNMS build community partnerships by engaging and informing the public about the CBNMS and greater CA Current Ecosystem and its neighboring sanctuaries	<u>Objective 1</u> To take a hierarchical educational approach by developing awareness and building a knowledge base to changing behavior and build stewardship <u>Objective 4</u> To develop programs that target diverse audiences including various multicultural, socioeconomic, age, and gender groups	<u>GFNMS FMP</u> Education and Outreach, STRATEGY ED-11; STRATEGY ED-13; <u>MBNMS FMP</u> Operations and Admin, STRATEGY OA-4; Marine Protected Areas, STRATEGY MPA-8; <u>CBNMS FMP</u> Partnerships with Community Groups, STRATEGY PC-2; Education and Outreach, STRATEGY ED-2, STRATEGY ED-3
STRATEGY ED-2 Utilize volunteers to communicate sanctuary messages	Action ED-2.1 Develop volunteer outreach program Action ED-2.2 Train volunteers and employees of existing organizations to deliver CBNMS educational messages through their programs	<u>Objective 1</u> To take a hierarchical educational approach by developing awareness and building a knowledge base to changing behavior and build stewardship <u>Objective 2</u> To increase communication and coordination among sanctuary education and outreach programs and partners	<u>CBNMS FMP</u> Education and Outreach, STRATEGY ED-1; <u>MBNMS FMP</u> Operations and Administration, STRATEGY OA-2, STRATEGY OA-4; Beach Closures, STRATEGY BC-2
STRATEGY ED-3 Leverage local and national media opportunities	Action ED-3.1 Communicate with the media	<u>Objective 1</u> To take a hierarchical educational approach by developing awareness and building a knowledge base to changing behavior and build stewardship <u>Objective 2</u> To increase communication and coordination among sanctuary education and outreach programs and partners	<u>GFNMS FMP</u> Education and Outreach, STRATEGY ED-11; <u>MBNMS FMP</u> Operations and Administration STRATEGY OA-4; <u>CBNMS FMP</u> Education and Outreach, STRATEGY ED-1

Appendix IB: Education and Outreach Overview Matrix
CBNMS Final Management Plan

Education and Outreach Strategy	Action	Program Area Objective(s) Addressed	Complementary Strategies
STRATEGY ED-4 Develop portable education products	Action ED-4.1 Develop portable products as outreach tools to educate a broader audience about the resources and activities of CBNMS and ocean conservation issues	<u>Objective 1</u> To take a hierarchical educational approach by developing awareness and building a knowledge base to changing behavior and build stewardship	CBNMS FMP Education, STRATEGY ED-1, and STRATEGY ED-2
	Action ED-4.2 create curriculum and professional development opportunities for teachers	<u>Objective 3</u> To develop programs to target content builders, user/impact groups, influencers, and decision makers	CBNMS FMP Education and Outreach, STRATEGY ED-1, STRATEGY ED-2, and STRATEGY ED-3
STRATEGY ED-5 Interpretive signage and exhibits	Action ED-5.1 Install interpretive signage	<u>Objective 1</u> To take a hierarchical educational approach by developing awareness and building a knowledge base to changing behavior and building stewardship	CBNMS FMP Education and Outreach, STRATEGY ED-1; GFNMS FMP Education and Outreach, STRATEGY ED-13; MBNMS FMP Interpretive Facilities, STRATEGY IF-2
		<u>Objective 2</u> To increase communication and coordination among sanctuary education and outreach programs and partners	CBNMS FMP Education and Outreach, STRATEGY ED-1, STRATEGY ED-2, and STRATEGY ED-3.
STRATEGY ED-6 Increase awareness and knowledge of CBNMS conservation science program by creating opportunities, programs, and materials for teachers and students.	Action ED-6.1 link conservation science projects into the classroom Action ED-6.2: Create programs that encourage marin engineering skills, remote sensing, GIS skills, monitoring skills, etc	<u>Objective 1</u> To take a hierarchical educational approach by developing awareness and building a knowledge base to changing behavior and building stewardship.	CBNMS FMP Education and Outreach, STRATEGY ED-1; MBNMS FMP SIMoN, STRATEGY SI-3
STRATEGY ED-7 Adult Education programs	Action ED-7.1 offer field opportunities on natural history of CBNMS	<u>Objective 1</u> To take a hierarchical educational approach by developing awareness and building a knowledge base to changing behavior and building stewardship	CBNMS FMP Education and Outreach, STRATEGY ED-1; Partnerships with Community Groups, STRATEGY PC-3
			CBNMS FMP Education and Outreach, STRATEGY ED-1

Appendix IB: Education and Outreach Overview Matrix
CBNMS Final Management Plan

Education and Outreach Strategy	Action	Program Area Objective(s) Addressed	Complementary Strategies
STRATEGY ED-8 Create an advisory group of education experts to advise on development of programs	Action ED-8. Create advisory group of education experts to advise on development of programs and materials	<u>Objective 1</u> To take a hierarchical educational approach by developing awareness and building a knowledge base to changing behavior and build stewardship <u>Objective 2</u> To increase communication and coordination among sanctuary education and outreach programs and partners	<u>CBNMS FMP</u> Education and Outreach, STRATEGY ED-1
STRATEGY ED-9 Develop multicultural education programming plan	Action ED-9.1 Identify communities and populations with growing non-english speaking populations	<u>Objective 2</u> To increase communication and coordination among sanctuary education and outreach programs and partners	
STRATEGY PC-3 Use media opportunities to raise identity of the sanctuary	Action PC-3.1 Use media to raise interest of the sanctuary in the surrounding communities	<u>Objective 2</u> Create partnerships to establish a strong identity for the sanctuary within various interests in the community	<u>CBNMS FMP</u> Education, STRATEGY ED-3; <u>GFNMS FMP</u> Education, STRATEGY ED-11 <u>MBNMS FMP</u> Operations and Administration, STRATEGY OA-4

Appendix IC: Conservation Science Overview Matrix

Conservation Science Strategy	Action	Program Area Objective(s) Addressed	Complementary Strategies
STRATEGY CS-1 Prepare an oceanographic climatology report	Action CS-1.1 Prepare an oceanographic climatology report	<u>Objective 1</u> Characterize the habitats and communities of CBNMS, evaluate and synthesize characterization <u>Objective 3</u> To recommend research and monitoring results for inclusion in CBNMS' outreach and education programs	
STRATEGY CS-2 Map and characterize CBNMS habitats	Action CS-2.1 Conduct sonar surveys to determine habitat types and their spatial extent	<u>Objective 1</u> Characterize the habitats and communities of CBNMS, evaluate and synthesize characterization <u>Objective 3</u> To recommend research and monitoring results for inclusion in CBNMS' outreach and education programs	<u>CBNMS FMP</u> Conservation Science, STRATEGY CS-1 and STRATEGY CS-3
STRATEGY CS-3 Characterize soft-bottom epifaunal communities of CBNMS	Action CS-3.1 Survey the surface biota and sediment characteristics of the soft-sediment portion of the shelf area of CBNMS	<u>Objective 1</u> Characterize the habitats and communities of CBNMS, evaluate and synthesize characterization <u>Objective 3</u> To recommend research and monitoring results for inclusion in CBNMS' outreach and education programs	<u>CBNMS FMP</u> Conservation Science, STRATEGY CS-1, STRATEGY CS-2, STRATEGY CS-4
STRATEGY CS-4 Characterize soft bottom infaunal communities of CBNMS	Action CS-4.1 Characterize the infaunal biota of the soft sediment portion of the shelf and slope of CBNMS	<u>Objective 1</u> Characterize the habitats and communities of CBNMS, evaluate and synthesize characterization <u>Objective 3</u> To recommend research and monitoring results for inclusion in CBNMS' outreach and education programs	<u>CBNMS FMP</u> Conservation Science, STRATEGY CS-2 and STRATEGY CS-3
STRATEGY CS-5 Collect, inventory and catalog new and previously unsorted Cordell Bank benthic invertebrate specimens	Action CS-5.1 Generate a voucher specimen database of the benthic invertebrates of Cordell Bank	<u>Objective 1</u> Characterize the habitats and communities of CBNMS, evaluate and synthesize characterization <u>Objective 3</u> To recommend research and monitoring results for inclusion in CBNMS' outreach and education programs	
	Action CS-5.2 Continue to collaborate with CAS on collection and identification of other Cordell Bank benthic invertebrates		

Appendix IC: Conservation Science Overview Matrix
CBNMS Final Management Plan

Conservation Science Strategy	Action	Program Area Objective(s) Addressed	Complementary Strategies
STRATEGY CS-6 Survey museum collections and literature for information about CBNMS and generate a verified species list	Action CS-6.1 Conduct a literature, specimen, and data search to compile existing knowledge about Cordell Bank	<u>Objective 1</u> Characterize the habitats and communities of CBNMS, evaluate and synthesize characterization <u>Objective 3</u> To recommend research and monitoring results for inclusion in CBNMS' outreach and education programs	
STRATEGY CS-7 Understand the function and variability of the pelagic ecosystem	Action CS-7.1 Assess quantitatively the distribution and abundance of marine birds and mammals relative to ocean conditions, seasons, and biological productivity	<u>Objective 1</u> Characterize the habitats and communities of CBNMS, evaluate and synthesize characterization <u>Objective 2</u> To determine monitoring objectives, identify indicators, and conduct a targeted monitoring program <u>Objective 3</u> To recommend research and monitoring results for inclusion in CBNMS' outreach and education programs	
STRATEGY CS-8 Continue monitoring fish and invertebrate assemblages	Action CS-8.1 Perform submersible field surveys (1 to 3 year intervals) to monitor the distribution and abundance of fishes and invertebrates	<u>Objective 1</u> Characterize the habitats and communities of CBNMS, evaluate and synthesize characterization <u>Objective 2</u> To determine monitoring objectives, identify indicators, and conduct a targeted monitoring program <u>Objective 3</u> To recommend research and monitoring results for inclusion in CBNMS' outreach and education programs	<u>CBNMS FMP</u> Conservation Science STRATEGY CS-1, STRATEGY CS-2, STRATEGY CS-3, STRATEGY CS-4, STRATEGY CS-5, and STRATEGY CS-6
STRATEGY CS-9 Manage and store data in easily accessible and secure formats and locations	Action CS-9.1 Store paper data sheets in two locations in sanctuary office	<u>Objective 1</u> Characterize the habitats and communities of CBNMS, evaluate and synthesize characterization	
	Action CS-9.2 Electronic media will be copied and stored in sanctuary office	<u>Objective 2</u> To determine monitoring objectives, identify indicators, and conduct a targeted monitoring program	

*Appendix IC: Conservation Science Overview Matrix
CBNMS Final Management Plan*

Conservation Science Strategy	Action	Program Area Objective(s) Addressed	Complementary Strategies
	Action CS-9.3 Data obtained from laboratory analysis of video will be stored in a relational database		
STRATEGY CS-10: Assess the role of Cordell Bank in the supply and receipt of fish larvae within the regional marine ecosystem by linking population genetics and oceanography.	Activity 10.1 Determine the genetic make-up of adult, juvenile and larval populations of fish with pelagic larval stages within the Cordell Bank region relative to regional populations to understand levels of mixing and retention of early life history stages.	<u>Objective 1</u> Characterize the habitats and communities of CBNMS, evaluate and synthesize characterization	
	Activity 10.2 Examine larval dispersal through simulations of coupled bio-physical models.	<u>Objective 1</u> Characterize the habitats and communities of CBNMS, evaluate and synthesize characterization	

Appendix ID: Resource Protection Overview Matrix

Resource Protection Strategy	Action	Program Area Objective(s) Addressed	Complementary Strategies
STRATEGY EP-1 Sanctuary representation at PFMC and FGC meetings	Action EP-1.1 Select a west coast sanctuaries' representative to attend PFMC and FGC meetings	<u>Objective 1:</u> Establish a working relationship with state and federal fisheries management agencies <u>Objective 3:</u> Support adaptive management plans that promote ecosystem health	<u>GFNMS FMP</u> Fishing Activities, STRATEGY FA-6; <u>MBNMS FMP</u> Fishing Related Education and Research, STRATEGY FER-1
STRATEGY EP-2 Track human-use activities in and around sanctuary waters	Action EP-2.1 Establish standing Ecosystem Protection Working group of the sanctuary advisory council	<u>Objective 2:</u> Track and evaluate existing, new, and emerging issues for their potential impacts on sanctuary resources	<u>CBNMS FMP</u> New and Emerging Issues, Administration, STRATEGY AD-10; <u>MBNMS FMP</u> Benthic Habitats, STRATEGY BH-1, STRATEGY BH-2; Fishing Related Research, STRATEGY FRER-3
	Action EP-2.2 Develop tracking process		
STRATEGY EP-3 Evaluate impacts of human-use activities on sanctuary resources	Action EP-3.1 Develop definition for "compatible use"	<u>Objective 2:</u> Track and evaluate existing, new, and emerging issues for their potential impacts on sanctuary resources <u>Objective 3:</u> Support adaptive management plans that promote ecosystem health <u>Objective 4:</u> To develop a definition of "compatible use" for activities that complement the sanctuary's primary objective of resource protection	<u>CBNMS FMP</u> Regulations and Permitting, Administration, STRATEGY AD-9; and New and Emerging Issues, STRATEGY AD-10; <u>GFNMS FMP</u> Fishing Activities, STRATEGY FA-3; <u>MBNMS FMP</u> Benthic Habitats, STRATEGY BH-2; STRATEGY FER-3
	Action EP-3.2 Develop "compatibility index"		
STRATEGY EP-4 Address negative impacts from human-use activities using policy or management actions	Action EP-4.1 If significant negative impacts detected, establish stakeholder group to evaluate	<u>Objective 2:</u> Track and evaluate existing, new, and emerging issues for their potential impacts on sanctuary resources	<u>CBNMS FMP</u> Regulations and Permitting, Administration, STRATEGY AD-9; and New and Emerging Issues, STRATEGY AD-10 <u>GFNMS FMP</u> Fishing Activities, STRATEGY FA-4; <u>MBNMS FMP</u> Benthic Habitats, STRATEGY BH-2
	Action EP-4.2 Develop policy response based on relative level of impact as determined by compatibility index		

Appendix ID: Resource Protection Overview Matrix
CBNMS Final Management Plan

Resource Protection Strategy	Action	Program Area Objective(s) Addressed	Complementary Strategies
STRATEGY EP-5 Address impacts from krill harvesting	Action EP-5.1 Work with MBNMS and GFNMS to support NMFS and PFMC actions to prohibit the commercial harvest of krill.	<u>Objective 2:</u> Track and evaluate existing, new, and emerging issues for their potential impacts on sanctuary resources	
STRATEGY EP-6 Profile fishing activities and communities	Action EP-6.1 Increase numbers of observers on fishing vessels in CBNMS	<u>Objective 3:</u> Support adaptive management plans that promote ecosystem health	
	Action EP-6.2 Profile historic and evolution of fishing activities in and adjacent to the sanctuary		
STRATEGY PC-3 Use media opportunities to raise identity of the sanctuary	Action PC-3.1 Use media opportunities to promote sanctuary research programs and raise identity of sanctuary	<u>Objective 2:</u> Create partnerships to establish a strong identity for the sanctuary within various interest in the community	<u>CBNMS FMP Education, STRATEGY ED-3</u>
STRATEGY AD-1 Develop a framework for identifying and analyzing boundary options	Action AD-1.1 Develop a framework for identifying and analyzing boundary options	To develop and implement an analytical process designed to evaluate boundary alternatives relative to CBNMS using the best available information and decision making tools	<u>CBNMS FMP Ecosystem Protection, STRATEGY EP-4 AND EP-6; Research and Monitoring, STRATEGY RE-1, STRATEGY RE-2, AND STRATEGY RE-7</u>



APPENDIX II: ECOSYSTEM PROTECTION IMPLEMENTATION PLANS

CBNMS FINAL MANAGEMENT PLAN

- A. Introduction**
- B. Rocky Substrate**
- C. Pelagic (Open Ocean)**
- D. Soft Bottom Shelf and Slope**

Appendix IIA: Introduction

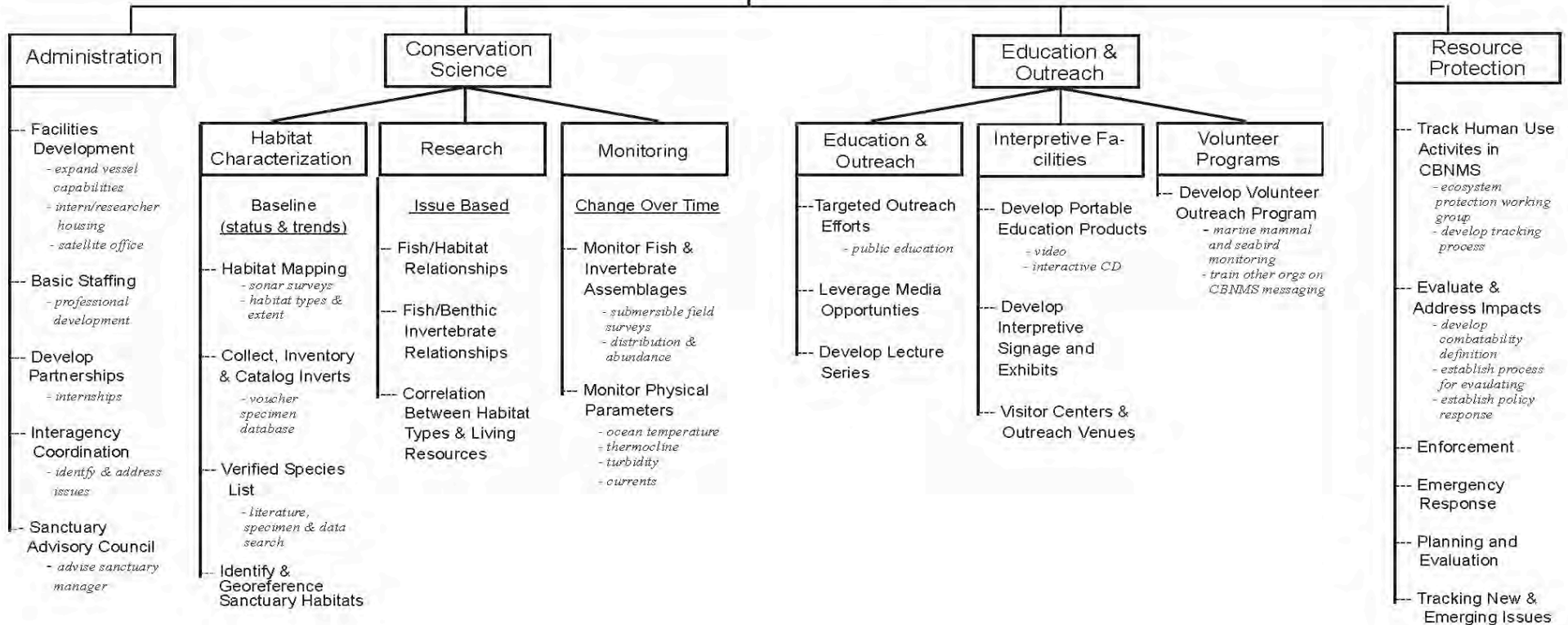
The following Ecosystem Protection Implementation Plan presents the strategies from the Management Plan organized into three key habitats of the sanctuary: rocky substrate, pelagic (open ocean), and soft bottom shelf and slope. The organizational chart prioritizes the implementation of the strategies to ensure that the sanctuary adequately addresses all resource management issues within each key habitat. This chart allows sanctuary staff to identify opportunities to collaborate between program areas focused around priority sanctuary habitats. These charts are organized by the sanctuary's programmatic organizational structure, within the context of the three priority sanctuary habitats. The sanctuary manager will oversee each habitat team to ensure coordination across program areas and protection for each habitat. The purpose of the ecosystem protection implementation plan for Cordell Bank Sanctuary is not necessarily to mitigate or improve the habitats, but rather to research and monitor a rather pristine environment.

Appendix IIB: Rocky Substrate

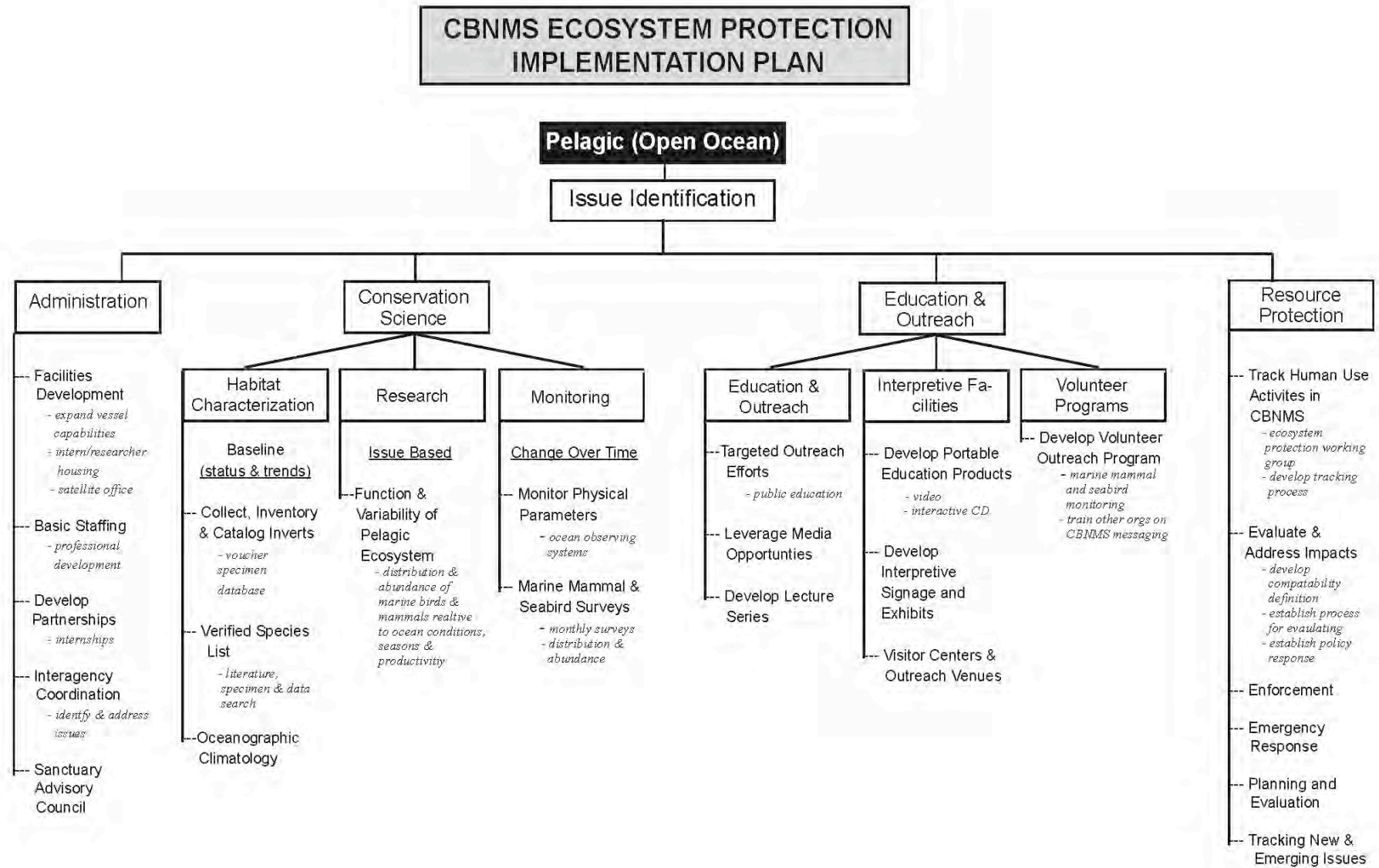
CBNMS ECOSYSTEM PROTECTION IMPLEMENTATION PLAN

Rocky Substrate

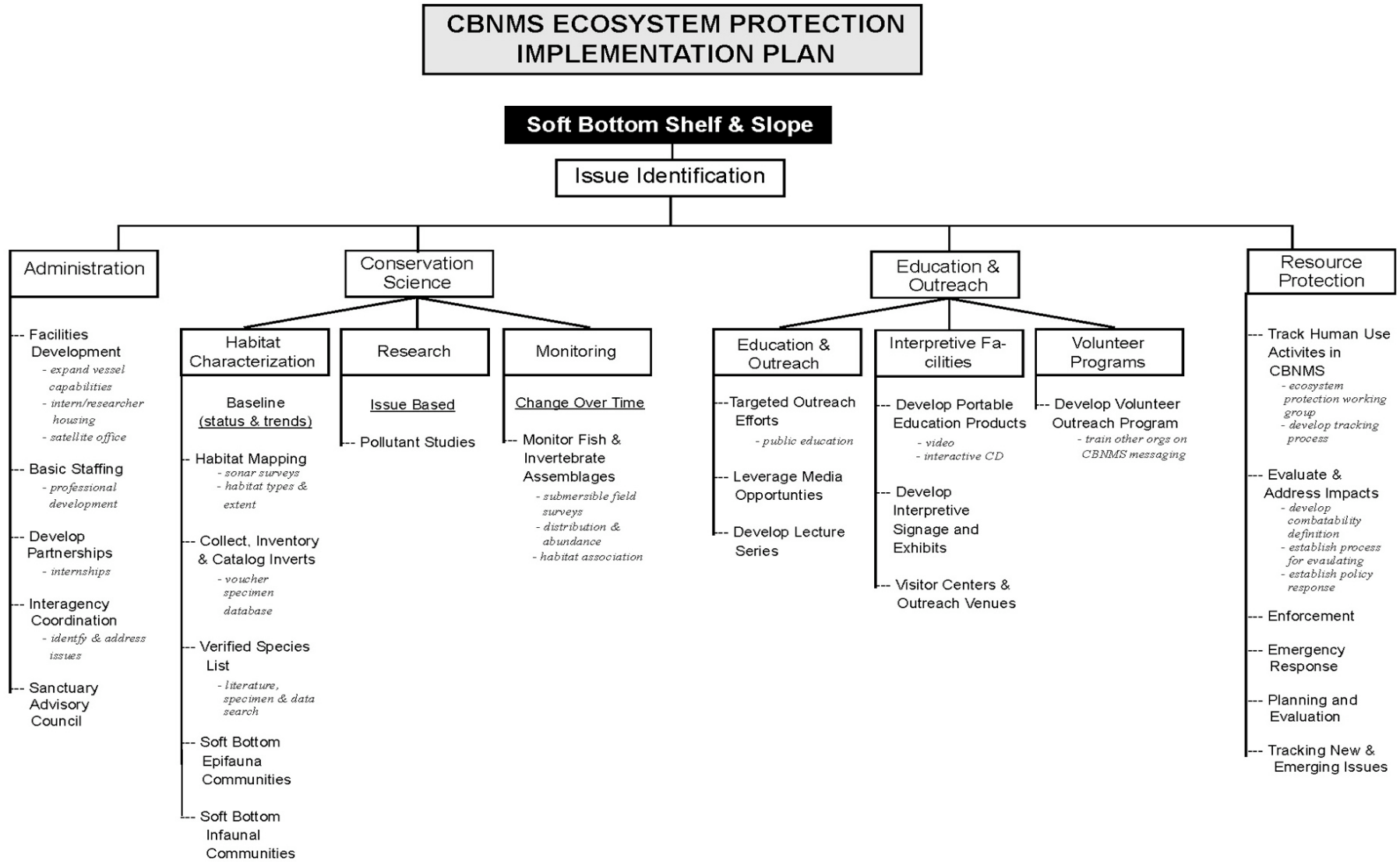
Issue Identification



Appendix IIC: Pelagic (Open Ocean)



Appendix IID: Soft Bottom Shelf and Slope





APPENDIX III: ADDITIONAL APPENDICES

CBNMS FINAL MANAGEMENT PLAN

- A. Jurisdictional Authorities**
- B. Glossary**
- C. Acronyms**
- D. National Marine Sanctuaries Act**
- E. Species List**

Appendix IIIA: Jurisdictional Authorities

CBNMS is located entirely beyond the three-mile territorial sea and is therefore under the jurisdiction of federal statutes with the exception that the California Department of Fish and Game (CDFG) exercises jurisdiction over certain fishing activities in Cordell Bank waters together with the National Marine Fisheries Service (NMFS). The other federal agencies with existing primary responsibilities in the area of Cordell Bank are the U.S. Fish and Wildlife Service (FWS) and the Minerals Management Service (MMS) of the Department of the Interior, and the U.S. Coast Guard (USCG) of the Department of Transportation. This section will briefly review the responsibilities of these agencies.

FEDERAL AUTHORITIES

National Marine Fisheries Service (NMFS)

The NMFS is responsible for enforcing the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), the Marine Mammal Protection Act (MMPA), and the Endangered Species Act (ESA). Under the MSFCMA, NMFS approves and enforces fishery management plans (FMP) prepared by regional fishery management councils. NMFS relies heavily on CDFG and USCG for enforcement operations both within and outside the three-mile territorial sea. Cordell Bank fish populations affected by FMP regulations are lingcod, rockfish, and salmon.

The NMFS shares responsibility with the FWS for implementation of the Marine Mammal Protection Act and the Endangered Species Act (see FWS entry below). NMFS is responsible for protecting cetaceans and pinnipeds and their habitats under both laws, as well as sea turtles and fish that are listed as threatened or endangered.

United States Fish and Wildlife Service (FWS)

Within the waters of CBNMS, the FWS is responsible for protecting all marine mammal species other than cetaceans, and pinnipeds under the MMPA, and for protecting endangered or threatened bird species under the ESA. The Brown Pelican and Short-tailed Albatross are two bird species listed as endangered which forage in the CBNMS.

United States Coast Guard (USCG)

Among its numerous law enforcement responsibilities, the USCG is charged with enforcing regulations under the Clean Water Act (CWA) to prevent pollution caused by discharges from vessels of oil, hazardous substances, or other pollutants.

The USCG has established a Vessel Traffic Separation Scheme (VTSS) according to the Ports and Waterways Safety Act (PWSA) for ship traffic approaching San Francisco Bay from the north and departing in that direction, thus passing through CBNMS. It consists of two mile-wide inbound and outbound vessel traffic lanes with a separation zone between them.

Appendix IIIA: Jurisdictional Authorities
CBNMS Final Management Plan

The USCG is also responsible for enforcing fishing regulations as noted above (under NMFS) and maintaining boater safety, and coordinating search and rescue operations. Numerous regulations have been promulgated relating to vessel design, construction, and operation designed to minimize the likelihood of accidents and to reduce vessel source pollution.

Minerals Management Service (MMS)

The MMS is responsible for managing offshore oil and gas exploration and development operations in accordance with the provisions of the Outer Continental Shelf Lands Act. The Energy Policy Act of 2005, Section 388, granted MMS new authority to regulate alternative energy and alternate use on the OCS. Section 388 authority does not apply to areas within National Marine Sanctuaries.

The Outer Continental Shelf Lands Act establishes federal jurisdiction over the natural resources of the Outer Continental Shelf (OCS) beyond three nautical miles. The MMS has primary responsibility for managing OCS mineral exploration and development.

Environmental Protection Agency (EPA)

The EPA has regulatory responsibilities with regard to ocean dumping. Title I of the Marine Protection, Research and Sanctuaries Act prohibits the transportation of any materials from the United States for the purpose of dumping them into the territorial sea, the contiguous zone, and the ocean beyond without a permit from EPA.

STATE AUTHORITIES

California Department of Fish and Game (CDFG)

The CDFG, under the Fish and Game Code (and Chapter 14 of the Administrative Code), regulates and manages a wide variety of activities affecting the living marine resources found in the territorial sea and in the 200-mile wide exclusive economic zone. The application of this regulatory activity in Cordell Bank waters consists of enforcement of a California law enacted in 1985 that bans gill-net fishing north of a line extending 245° magnetic from Point Reyes. Cordell Bank lies well north of this line. The CDFG also enforces federal regulations established under the MSFCMA.

Appendix IIIB: Glossary of Terms

Action plan: A major section of a management plan containing related strategies and activities designed to address a specific issue or function (NOAA, *National Marine Sanctuary Management Plan Handbook*, 3rd edition, 2002).

Activity: Specific actions that will be taken to carry out a strategy (NOAA, *National Marine Sanctuary Management Plan Handbook*, 3rd edition, 2002).

Bathymetry: Water depth measurement information used to produce depth-contoured charts.

Benthic: The region of the ocean consisting of the seabed and the organisms that live on or in it.

Benthic communities: Bottom-dwelling plants and animals.

Biodiversity: The variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Continental shelf: A generally shallow, flat submerged portion of a continent, extending to the point of step descent to the ocean floor.

Critical habitat: The specific areas within the geographical area occupied by a threatened or endangered species on which are found those physical or biological features essential to the conservation of the species, and which may require special management considerations or protection.

Demersal: Fishes and other aquatic organisms that live near the bottom of the water column.

Depleted: A species is termed depleted when it falls below its optimum sustainable population.

Designation document: A portion of the regulations for a given sanctuary that spells out the terms of its designation, including boundaries, regulations, and those activities potentially subject to future regulation.

Desired outcome: A succinct and concise statement that articulates a desired future for a sanctuary relative to a specific problem statement (NOAA, *National Marine Sanctuary Management Plan Handbook*, 3rd edition, 2002).

Ecology: The science of the relationships between organisms and their environments.

Ecosystem: The sum total of all living and nonliving components of a particular area that interact and exchange materials with each other; sometimes defined as the ecological community of organisms plus the environment with which they interact. Energy flow and nutrient cycling are regulated within a particular ecosystem and are studied as indicators of its overall health.

Endangered species: Any species that is in danger of extinction throughout all or a significant portion of its range.

Epifauna: Animals that live on the ocean bottom, either attached or moving freely over it.

Food chain: A succession of organisms in a community that constitutes a feeding chain in which food energy is transferred from one organism to another as each consumes a lower member and in turn is preyed upon by a higher member.

Indigenous: Living or occurring naturally in a specific area or environment.

Infaunal: Organisms that live buried in sediments, including a variety of polychaetes, burrowing crustaceans, and mollusks.

Infrastructure: Basic installations and facilities, such as roads, power plants, transportation, and communication systems.

Invertebrate: An animal lacking a backbone or spinal column.

Isobath: An imaginary line or one drawn on a map connecting all points of equal depth below the surface of a body of water.

Marine protected area: Any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein. (Executive Order 13158 on Marine Protected Areas). Under this broad definition, a wide variety of sites including fishery management zones, national parks, national marine sanctuaries, national estuarine research reserves, state conservation areas, critical habitats, and state reserves could be considered as marine protected areas.

Marine reserve: A kind of marine protected area generally agreed to have strict regulations regarding the extraction of resources.

Mollusks: Any of various members of the phylum Mollusca, largely marine invertebrates, including the edible shellfish and some 100,000 other species.

Multibeam: A type of sonar that has multiple beams to record water depth.

Organism: Plant or animal.

Pathogens: Any agent, most commonly a micro-organism, capable of causing a disease.

Pelagic: Of, relating to, or living in open seas or oceans rather than waters adjacent to land or inland waters.

Planktonic: Organisms dependent on water movement and currents as their means of transportation, including phytoplankton, zooplankton, and ichthyoplankton.

Program/Issue Statements: A one or two sentence articulation of the specific components of an issue (NOAA, *National Marine Sanctuary Management Plan Handbook*, 3rd edition, 2002).

Salinity: The relative concentration of salts, usually sodium chloride, in a given water sample. It is usually expressed in terms of the number of parts per thousand (ppt) or parts per million (ppm) of chlorine (Cl). As a reference, the salinity of seawater is approximately 35 ppt.

Side-scan sonar: A type of sonar that gathers sound reflections at oblique angles to the sensor.

Socioeconomic: Being both social and economic.

Strategy: The means by which a particular desired outcome can be achieved (NOAA, *National Marine Sanctuary Management Plan Handbook*, 3rd edition, 2002).

Substrate: A surface on which a plant or animal grows or is attached.

Threatened Species: Any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Trawling: To fish using a trawl, a large tapered and flattened or conical net towed along the sea bottom.

Trolling: To fish by running a baited line behind a slowly moving boat.

Trophic: A description related to feeding; it often refers to a feeding level in a food chain.

Trophic level: One of a succession of steps in the movement of energy and matter through a food chain in an ecosystem.

Turbidity: The extent to which there are suspended or stirred up particles or sediments, as in the water column.

Appendix IIIC: Acronyms

ACCEO	Alliance for California Current Ecosystem Observation
ACP	Area Contingency Plan (USCG)
ACR	Audubon Canyon Ranch
ACS	American Cetacean Society
AIS	Automated Identification System
AOP	Annual Operating Plan
APPS	U.S. Act to Prevent Pollution from Ships
ATOC	Acoustic Thermometry of Ocean Climate
BeachCOMBERS	Beach Coastal Ocean/Marine Bird Education Research Surveys
BML	Bodega Marine Laboratory
BMP	best management practices
CalCOFI	California Cooperative Oceanic Fisheries Investigations
CAS	California Academy of Sciences
CBNMS	Cordell Bank National Marine Sanctuary
CDFG	California Department of Fish and Game
CenCOOS	Central California Ocean Observing Systems
CFR	Code of Federal Regulations
CIMT	Center for Integrated Marine Technology
CINMS	Channel Islands National Marine Sanctuary
CMAR	Coastal Maritime Archaeology Resources
COASST	Coastal Observation And Seabird Survey Team
CODAR	Coastal Ocean Dynamics Applications Radar
CSC	Coastal Services Center
CSLC	California State Lands Commission
CSUMB	California State University Monterey Bay
CWA	U.S. Clean Water Act
DARRF	Damage Assessment and Restoration Evolving Fund
FEIS	Final Environmental Impact Statement
DFG	California Department of Fish and Game
FMP	Final Management Plan
DOC	United States Department of Commerce
DOI	United States Department of the Interior
EDS	Ecosystem Dynamics Study
EECOM	Environmental Education Council of Marin
EEZ	U.S. Exclusive Economic Zone
EFH	essential fish habitat
EIR	Environmental Impact Report
FEIS	Final Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEIS/MP	Final Environmental Impact Statement and Management Plan
FGBNMS	Flower Garden Banks National Marine Sanctuary
FGC	Fish and Game Commission
FGDC	Federal Geospatial Data Center
FMP	Fishery Management Plan
FMSA	Farallones Marine Sanctuary Association
FWCPA	Federal Water Pollution Control Act

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GCEL	General Council Enforcement Litigation
GCOS	General Council Ocean Service
GFNMS	Gulf of the Farallones National Marine Sanctuary
GGNRA	Golden Gate National Recreation Area
GIS	geographic information systems
GPS	global positioning system
GRNMS	Gray's Reef National Marine Sanctuary
GSA	General Services Administration
HAB	harmful algal bloom
HAZMAT	Hazardous Materials Response Division
HIHWNMS	Hawaiian Islands Humpback Whale National Marine Sanctuary
HMB	Half Moon Bay Regional Office
IACC	Interagency Coordinating Committee
ICES	International Council for Exploration of the Sea
ICS	Incident Command System
IFQ	individual fishing quota
IGERT	Integrative Graduate Education and Research Traineeship Program
IMO	International Maritime Organization
IOOS	Integrated Ocean Observing System
ITQ	individual transferable quota
IUCN	International Union for Conservation of Nature and Natural Resources
JASON	JASON Foundation for Education Project
JMPR	Joint Management Plan Review
JRAP	Joint Research Advisory Panel
LCV	Large Commercial Vessels
LiMPETS	Long-term Monitoring Program and Experiential Training for Students
MAC	Maritime Archeological Center
MARE	Marine Activities, Resources, and Education
MARINE	Multi-Agency Rocky Intertidal Network (NOAA)
MARPOL	International Convention for the Prevention of Pollution from Ships
MATE	Marine Advanced Technology Education (Center)
MBARI	Monterey Bay Aquarium Research Institute
MBNMS	Monterey Bay National Marine Sanctuary
MBNMSF	Monterey Bay National Marine Sanctuary Foundation (MBSF)
MBTA	Migratory Bird Treaty Act
MCBI	Marine Conservation Biology Institute
MERITO	Multicultural Education for Resource Issues Threatening Oceans
MHP	Marine Heritage Program (NMSP)
MLML	Moss Landing Marine Laboratories
MLPA	Marine Life Protection Act
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
MOA	memorandum of agreement
MOU	memorandum of understanding
MPA	marine protected area
MSD	marine sanitation device
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
NANPCA	Nonindigenous Aquatic Nuisance Prevention and Control Act
NAS	Nautical Archaeology Society
NCCOS	The National Centers for Coastal Ocean Science

NDBC	National Data Buoy Center
NEPA	National Environmental Policy Act
NERRS	National Estuarine Research Reserve System
NESDIS	National Environmental Satellite Data Information Service
NGO	non-governmental organization
NHPA	National Historic Preservation Act
NISA	National Invasive Species Act of 1996
NISAC	Non-native Invasive Species Advisory Committee
NM	nautical mile
NMA	Northern Management Area
NMFS	National Marine Fisheries Service
NMSA	National Marine Sanctuaries Act
NMSF	National Marine Sanctuaries Foundation
NMSP	National Marine Sanctuary Program
NOAA OLE	NOAA Office of Law Enforcement
NOAA	National Oceanic and Atmospheric Administration
NODC	National Oceanographic Data Center
NOS	National Ocean Service
NPDES	National Pollutant Discharge Elimination System
NPR	National Public Radio
NPS	National Park Service
NRDA	National Resource Damage Assessment and Restoration
NURP	National Undersea Research Program (NOAA)
NWFSC	North West Fisheries Science Center
NWS	National Weather Service
OCNMS	Olympic Coast National Marine Sanctuary
OCRM	Office of Coastal Resource Management (NOAA)
OCS	Outer Continental Shelf
OES	Office of Emergency Services
OMS	Office of Marine Sanctuaries
OPA	Oil Spill Prevention Act of 1990
ORR	Office of Response and Restoration
OSPR	(Office of) Oil Spill Prevention and Response (CDFG)
OSRO	Oil Spill Response Organization
PCFFA	Pacific Coast Federation of Fishermen's Associations
PCLC	Pacific Coast Learning Center
PFMC	Pacific Fishery Management Council
PISCO	Partnership for Interdisciplinary Studies of Coastal Oceans
PRBO	PRBO Conservation Science (Point Reyes Bird Observatory)
PRNS	Point Reyes National Seashore
PRNSA	Point Reyes National Seashore Association
PSA	public service announcement
PSMFC	Pacific States Marine Fisheries Commission
PWSA	Ports and Waterways Safety Act
RAP	Research Advisory Panel
ROV	remotely operated vehicle
RRP	Regional Response Plan
RUST	Resources and Under Sea Threats (NMSP database system)
SAC	Sanctuary Advisory Council
SBNMS	Stellwagen Bank National Marine Sanctuary

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SCCWRP	Southern California Coastal Water Research Project Authority
SCRP	Submerged Cultural Resources Program (NMSP)
SEAMAP	Southeast Area Monitoring and Assessment Program
SeaWif	Sea-viewing Wide Field of Vision
SERC	Smithsonian Environmental Research Center
SFNERR	San Francisco National Estuarine Research Reserve
SFSU	San Francisco State University
SHIELDS	Sanctuaries Hazardous Incident Emergency Logistics Database System
SHPO	California State Historic Preservation Office
SIMoN	Sanctuary Integrated Monitoring Network (MBNMS)
SRP	Shipwreck Reconnaissance Program
SWiM	System Wide Monitoring Program (NMSP)
SWMEA	Southwest Marine and Aquatic Educator's Association
TBNMS	Thunder Bay National Marine Sanctuary
Team OCEAN	TEAM Ocean Conservation Education Action Network (NOAA)
TMMC	The Marine Mammal Center
UCD	University of California Davis
UCSC	University of California Santa Cruz
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VTS	Vessel Traffic System
VTSS	Vessel Traffic Separation Schemes
WQPP	Water Quality Protection Program

Appendix IIID: National Marine Sanctuaries Act

16 U.S.C. 1431 ET SEQ., as amended by Public Law 106-513

Sec. 301. FINDINGS, PURPOSES, AND POLICIES; ESTABLISHMENT OF SYSTEM

(a) FINDINGS.--The Congress finds that--

(1) this Nation historically has recognized the importance of protecting special areas of its public domain, but these efforts have been directed almost exclusively to land areas above the high-water mark;

(2) certain areas of the marine environment possess conservation, recreational, ecological, historical, scientific, educational, cultural, archeological, or aesthetic qualities which give them special national, and in some instances, international, significance;

(3) while the need to control the effects of particular activities has led to enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of special areas of the marine environment; and

(4) a Federal program which establishes areas of the marine environment which have special conservation, recreational, ecological, historical, cultural, archeological, scientific, educational, or aesthetic qualities as national marine sanctuaries managed as the National Marine Sanctuary System will-

(A) improve the conservation, understanding, management, and wise and sustainable use of marine resources;

(B) enhance public awareness, understanding, and appreciation of the marine environment; and

(C) maintain for future generations the habitat, and ecological services, of the natural assemblage of living resources that inhabit these areas.

(b) PURPOSES AND POLICIES.--The purposes and policies of this title are--

(1) to identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance and to manage these areas as the National Marine Sanctuary System;

(2) to provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner which complements existing regulatory authorities;

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(3) to maintain the natural biological communities in the national marine sanctuaries, and to protect, and, where appropriate, restore and enhance natural habitats, populations, and ecological processes;

(4) to enhance public awareness, understanding, appreciation, and wise and sustainable use of the marine environment, and the natural, historical, cultural, and archeological resources of the National Marine Sanctuary System;

(5) to support, promote, and coordinate scientific research on, and long-term monitoring of, the resources of these marine areas;

(6) to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;

(7) to develop and implement coordinated plans for the protection and management of these areas with appropriate Federal agencies, State and local governments, Native American tribes and organizations, international organizations, and other public and private interests concerned with the continuing health and resilience of these marine areas;

(8) to create models of, and incentives for, ways to conserve and manage these areas, including the application of innovative management techniques; and

(9) to cooperate with global programs encouraging conservation of marine resources.

(c) ESTABLISHMENT OF SYSTEM.-There is established the National Marine Sanctuary System, which shall consist of national marine sanctuaries designated by the Secretary in accordance with this title.

Sec. 302. DEFINITIONS

As used in this title, the term--

(1) " management plan" means the plan described in section 304(a)(1)(C)(v);

(2) "Magnuson-Stevens Act" means the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.);

(3) "marine environment" means those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands over which the United States exercises jurisdiction, including the exclusive economic zone, consistent with international law;

(4) "Secretary" means the Secretary of Commerce;

(5) "State" means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, the Virgin Islands, Guam, and any other commonwealth, territory, or possession of the United States;

(6) "damages" includes--

(A) compensation for--

(i)(I) the cost of replacing, restoring, or acquiring the equivalent of a sanctuary resource; and (II) the value of the lost use of a sanctuary resource pending its restoration or replacement or the acquisition of an equivalent sanctuary resource; or

(ii) the value of a sanctuary resource if the sanctuary resource cannot be restored or replaced or if the equivalent of such resource cannot be acquired;

(B) the cost of damage assessments under section 312(b)(2);

(C) the reasonable cost of monitoring appropriate to the injured, restored, or replaced resources;

(D) the cost of curation and conservation of archeological, historical, and cultural sanctuary resources; and

(E) the cost of enforcement actions undertaken by the Secretary in response to the destruction or loss of, or injury to, a sanctuary resource;

(7) "response costs" means the costs of actions taken or authorized by the Secretary to minimize destruction or loss of, or injury to, sanctuary resources, or to minimize the imminent risks of such destruction, loss, or injury, including costs related to seizure forfeiture, storage, or disposal arising from liability under section 312;

(8) "sanctuary resource" means any living or nonliving resource of a national marine sanctuary that contributes to the conservation, recreational, ecological, historical, educational, cultural, archeological, scientific, or aesthetic value of the sanctuary;

(9) "exclusive economic zone" means the exclusive economic zone as defined in the Magnuson-Stevens Act; and

(10) 'System' means the National Marine Sanctuary System established by section 301.

Sec. 303. SANCTUARY DESIGNATION STANDARDS

(a) STANDARDS.--The Secretary may designate any discrete area of the marine environment as a national marine sanctuary and promulgate regulations implementing the designation if the Secretary determines that--

(1) the designation will fulfill the purposes and policies of this title;

(2) the area is of special national significance due to-

(A) its conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or aesthetic qualities;

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- (B) the communities of living marine resources it harbors; or
- (C) its resource or human-use values;
- (3) existing State and Federal authorities are inadequate or should be supplemented to ensure coordinated and comprehensive conservation and management of the area, including resource protection, scientific research, and public education;
- (4) designation of the area as a national marine sanctuary will facilitate the objectives in subparagraph (3); and
- (5) the area is of a size and nature that will permit comprehensive and coordinated conservation and management.

(b) FACTORS AND CONSULTATIONS REQUIRED IN MAKING DETERMINATIONS AND FINDINGS.--

(1) Factors.--For purposes of determining if an area of the marine environment meets the standards set forth in subsection (a), the Secretary shall consider--

- (A) the area's natural resource and ecological qualities, including its contribution to biological productivity, maintenance of ecosystem structure, maintenance of ecologically or commercially important or threatened species or species assemblages, maintenance of critical habitat of endangered species, and the biogeographic representation of the site;
- (B) the area's historical, cultural, archaeological, or paleontological significance;
- (C) the present and potential uses of the area that depend on maintenance of the area's resources, including commercial and recreational fishing, subsistence uses other than commercial and recreational activities, and research and education;
- (D) the present and potential activities that may adversely affect the factors identified in subparagraphs (A), (B), (C);
- (E) the existing State and Federal regulatory and management authorities applicable to the area and the adequacy of those authorities to fulfill the purposes and policies of this title;
- (F) the manageability of the area, including such factors as its size, its ability to be identified as a discrete ecological unit with definable boundaries, its accessibility, and its suitability for monitoring and enforcement activities;
- (G) the public benefits to be derived from sanctuary status, with emphasis on the benefits of long-term protection of nationally significant resources, vital habitats, and resources which generate tourism;
- (H) the negative impacts produced by management restrictions on income-generating activities such as living and nonliving resources development;

(I) the socioeconomic effects of sanctuary designation;

(J) the area's scientific value and value for monitoring the resources and natural processes that occur there;

(K) the feasibility, where appropriate, of employing innovative management approaches to protect sanctuary resources or to manage compatible uses; and

(L) the value of the area as an addition to the System.

(2) Consultation.--In making determinations and findings, the Secretary shall consult with--

(A) the Committee on Resources of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate;

(B) the Secretaries of State, Defense, Transportation, and the Interior, the Administrator, and the heads of other interested Federal agencies;

(C) the responsible officials or relevant agency heads of the appropriate State and local government entities, including coastal zone management agencies, that will or are likely to be affected by the establishment of the area as a national marine sanctuary;

(D) the appropriate officials of any Regional Fishery Management Council established by section 302 of the Magnuson-Stevens Act (16 U.S.C. 1852) that may be affected by the proposed designation; and

(E) other interested persons.

Sec. 304. PROCEDURES FOR DESIGNATION AND IMPLEMENTATION

(a) SANCTUARY PROPOSAL.--

(1) Notice.--In proposing to designate a national marine sanctuary, the Secretary shall--

(A) issue, in the Federal Register, a notice of the proposal, proposed regulations that may be necessary and reasonable to implement the proposal, and a summary of the management plan;

(B) provide notice of the proposal in newspapers of general circulation or electronic media in the communities that may be affected by the proposal; and

(C) no later than the day on which the notice required under subparagraph (A) is submitted to Office of the Federal Register, submit a copy of that notice and the sanctuary designation documents prepared pursuant to section 304(a)(2), including an executive summary, to the Committee on Resources of the House of Representatives, the Committee on Commerce, Science, and Transportation of the Senate, and the Governor of each State in which any part of the proposed sanctuary would be located.

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(2) Sanctuary Designation Documents.--The Secretary shall prepare and make available to the public sanctuary designation documents on the proposal that include the following:

(A) A environmental impact statement pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(B) A resource assessment that documents--

(i) present and potential uses of the area, including commercial and recreational fishing, research and education, minerals and energy development, subsistence uses, and other commercial, governmental, or recreational uses;

(ii) after consultation with the Secretary of the Interior, any commercial, governmental, or recreational resource uses in the areas that are subject to the primary jurisdiction of the Department of the Interior; and

(iii) information prepared in consultation with the Secretary of Defense, the Secretary of Energy, and the Administrator of the Environmental Protection Agency, on any past, present, or proposed future disposal or discharge of materials in the vicinity of the proposed sanctuary. Public disclosure by the Secretary of such information shall be consistent with national security regulations.

(C) A management plan for the proposed national marine sanctuary that includes the following:

(i) The terms of the proposed designation.

(ii) Proposed mechanisms to coordinate existing regulatory and management authorities within the area.

(iii) The proposed goals and objectives, management responsibilities, resource studies, and appropriate strategies for managing sanctuary resources of the proposed sanctuary, including interpretation and education, innovative management strategies, research, monitoring and assessment, resource protection, restoration, enforcement, and surveillance activities.

(iv) An evaluation of the advantages of cooperative State and Federal management if all or part of the proposed sanctuary is within the territorial limits of any State or is superjacent to the subsoil and seabed within the seaward boundary of a State, as that boundary is established under the Submerged Lands Act (43 U.S.C. 1301 et seq.).

(v) An estimate of the annual cost to the Federal Government of the proposed designation, including costs of personnel, equipment and facilities, enforcement, research, and public education.

(vi) The proposed regulations referred to in paragraph (1)(A).

(D) Maps depicting the boundaries of the proposed sanctuary.

(E) The basis for the determinations made under section 303(a) with respect to the area.

(F) An assessment of the considerations under section 303(b)(1).

(3) Public Hearing.--No sooner than thirty days after issuing a notice under this subsection, the Secretary shall hold at least one public hearing in the coastal area or areas that will be most affected by the proposed designation of the area as a national marine sanctuary for the purpose of receiving the views of interested parties.

(4) Terms of Designation.--The terms of designation of a sanctuary shall include the geographic area proposed to be included within the sanctuary, the characteristics of the area that give it conservation, recreational, ecological, historical, research, educational, or aesthetic value, and the types of activities that will be subject to regulation by the Secretary to protect those characteristics. The terms of designation may be modified only by the same procedures by which the original designation is made.

(5) Fishing Regulations.--The Secretary shall provide the appropriate Regional Fishery Management Council with the opportunity to prepare regulations for fishing within the Exclusive Economic Zone as the Council may deem necessary to implement the proposed designation. Regulations prepared by the Council, or a Council determination that regulations are not necessary pursuant to this paragraph, shall be accepted and issued as proposed regulations by the Secretary unless the Secretary finds that the Council's action fails to fulfill the purposes and policies of this title and the goals and objectives of the proposed designation. In preparing the regulations, a Regional Fishery Management Council shall use as guidance the national standards of section 301(a) of the Magnuson-Stevens Act (16 U.S.C. 1851) to the extent that the standards are consistent and compatible with the goals and objectives of the proposed designation. The Secretary shall prepare the fishing regulations, if the Council declines to make a determination with respect to the need for regulations, makes a determination which is rejected by the Secretary, or fails to prepare the regulations in a timely manner. Any amendments to the fishing regulations shall be prepared, approved, and issued in the same manner as the original regulations. The Secretary shall also cooperate with other appropriate fishery management authorities with rights or responsibilities within a proposed sanctuary at the earliest practicable stage in issuing any sanctuary fishing regulations.

(6) Committee Action.--After receiving the documents under subsection (a)(1)(C), the Committee on Resources of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate may each hold hearings on the proposed designation and on the matters set forth in the documents. If within the forty-five day period of continuous session of Congress beginning on the date of submission of the documents, either Committee issues a report concerning matters addressed in the documents, the Secretary shall consider this report before publishing a notice to designate the national marine sanctuary.

(b) TAKING EFFECT OF DESIGNATIONS.--

(1) Notice.--In designating a national marine sanctuary, the Secretary shall publish in the Federal Register notice of the designation together with final regulations to implement the designation and any other matters required by law, and submit such notice to the Congress. The Secretary shall advise the public of the availability of the final management plan and the final environmental impact statement with respect to such sanctuary. The Secretary shall issue a

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notice of designation with respect to a proposed national marine sanctuary site not later than 30 months after the date a notice declaring the site to be an active candidate for sanctuary designation is published in the Federal Register under regulations issued under this Act, or shall publish not later than such date in the Federal Register findings regarding why such notice has not been published. No notice of designation may occur until the expiration of the period for Committee action under subsection (a)(6). The designation (and any of its terms not disapproved under this subsection) and regulations shall take effect and become final after the close of a review period of forty-five days of continuous session of Congress beginning on the day on which such notice is published unless in the case of a natural [sic] marine sanctuary that is located partially or entirely within the seaward boundary of any State, the Governor affected certifies to the Secretary that the designation or any of its terms is unacceptable, in which case the designation or the unacceptable term shall not take effect in the area of the sanctuary lying within the seaward boundary of the State.

(2) **Withdrawal of Designation.**-- If the Secretary considers that actions taken under paragraph (1) will affect the designation of a national marine sanctuary in a manner that the goals and objectives of the sanctuary or System cannot be fulfilled, the Secretary may withdraw the entire designation. If the Secretary does not withdraw the designation, only those terms of the designation or not certified under paragraph (1) shall take effect.

(3) **Procedures.**-- In computing the forty-five-day periods of continuous session of Congress pursuant to subsection (a)(6) and paragraph (1) of this subsection--

(A) continuity of session is broken only by an adjournment of Congress sine die; and

(B) the days on which either House of Congress is not in session because of an adjournment of more than three days to a day certain are excluded.

(c) **ACCESS AND VALID RIGHTS.**--

(1) Nothing in this title shall be construed as terminating or granting to the Secretary the right to terminate any valid lease, permit, license, or right of subsistence use or of access that is in existence on the date of designation of any national marine sanctuary.

(2) The exercise of a lease, permit, license, or right is subject to regulation by the Secretary consistent with the purposes for which the sanctuary is designated.

(d) **INTERAGENCY COOPERATION.**--

(1) **Review of Agency Actions.**--

(A) **In General.**--Federal agency actions internal or external to a national marine sanctuary, including private activities authorized by licenses, leases, or permits, that are likely to destroy, cause the loss of, or injure any sanctuary resource are subject to consultation with the Secretary.

(B) **Agency Statements Required.**-- Subject to any regulations the Secretary may establish each Federal agency proposing an action described in subparagraph (A) shall provide the Secretary with a written statement describing the action and its potential effects on sanctuary resources at

the earliest practicable time, but in no case later than 45 days before the final approval of the action unless such Federal agency and the Secretary agree to a different schedule.

(2) Secretary's Recommended Alternatives.--If the Secretary finds that a Federal agency action is likely to destroy, cause the loss of, or injure a sanctuary resource, the Secretary shall (within 45 days of receipt of complete information on the proposed agency action) recommend reasonable and prudent alternatives, which may include conduct of the action elsewhere, which can be taken by the Federal agency in implementing the agency action that will protect sanctuary resources.

(3) Response to Recommendations.--The agency head who receives the Secretary's recommended alternatives under paragraph (2) shall promptly consult with the Secretary on the alternatives. If the agency head decides not to follow the alternatives, the agency head shall provide the Secretary with a written statement explaining the reasons for that decision.

(4) FAILURE TO FOLLOW ALTERNATIVE.--If the head of a Federal agency takes an action other than an alternative recommended by the Secretary and such action results in the destruction of, loss of, or injury to a sanctuary resource, the head of the agency shall promptly prevent and mitigate further damage and restore or replace the sanctuary resource in a manner approved by the Secretary.

(e) REVIEW OF MANAGEMENT PLANS.--Not more than 5 years after the date of designation of any national marine sanctuary, and thereafter at intervals not exceeding 5 years, the Secretary shall evaluate the substantive progress toward implementing the management plan and goals for the sanctuary, especially the effectiveness of site-specific management techniques and strategies, and shall revise the management plan and regulations as necessary to fulfill the purposes and policies of this title. This review shall include a prioritization of management objectives.

(f) LIMITATION ON DESIGNATION OF NEW SANCTUARIES.--

(1) FINDING REQUIRED.--The Secretary may not publish in the Federal Register any sanctuary designation notice or regulations proposing to designate a new sanctuary, unless the Secretary has published a finding that--

(A) the addition of a new sanctuary will not have a negative impact on the System; and

(B) sufficient resources were available in the fiscal year in which the finding is made to--

(i) effectively implement sanctuary management plans for each sanctuary in the System; and

(ii) complete site characterization studies and inventory known sanctuary resources, including cultural resources, for each sanctuary in the System within 10 years after the date that the finding is made if the resources available for those activities are maintained at the same level for each fiscal year in that 10 year period.

(2) DEADLINE.--If the Secretary does not submit the findings required by paragraph (1) before February 1, 2004, the Secretary shall submit to the Congress before October 1, 2004, a finding with respect to whether the requirements of subparagraphs (A) and (B) of paragraph 1 have been met by all existing sanctuaries.

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(3) LIMITATION ON APPLICATION.--Paragraph (1) does not apply to any sanctuary designation documents for--

(A) a Thunder Bay National Marine Sanctuary; or

(B) a Northwestern Hawaiian Islands National Marine Sanctuary.

(g) NORTHWESTERN HAWAIIAN ISLANDS CORAL REEF RESERVE.--

(1) PRESIDENTIAL DESIGNATION.--The President, after consultation with the Governor of the State of Hawaii, may designate any Northwestern Hawaiian Islands coral reef or coral reef ecosystem as a coral reef reserve to be managed by the Secretary of Commerce.

(2) SECRETARIAL ACTION.--Upon the designation of a reserve under paragraph (1) by the President, the Secretary shall--

(A) take action to initiate the designation of the reserve as a National Marine Sanctuary under sections 303 and 304 of the National Marine Sanctuaries Act (16 U.S.C. 1433);

(B) establish a Northwestern Hawaiian Islands Reserve Advisory Council under section 315 of that Act (16 U.S.C. 1445a), the membership of which shall include at least 1 representative from Native Hawaiian groups; and

(C) until the reserve is designated as a National Marine Sanctuary, manage the reserve in a manner consistent with the purposes and policies of that Act.

(3) PUBLIC COMMENT.--Notwithstanding any other provision of law, no closure areas around the Northwestern Hawaiian Islands shall become permanent without adequate review and comment.

(4) COORDINATION.--The Secretary shall work with other Federal agencies and the Director of the National Science Foundation, to develop a coordinated plan to make vessels and other resources available for conservation or research activities for the reserve.

(5) REVIEW.--If the Secretary has not designated a national marine sanctuary in the Northwestern Hawaiian Islands under sections 303 and 304 of the National Marine Sanctuaries Act (16 U.S.C. 1433, 1434) before October 1, 2005, the Secretary shall conduct a review of the management of the reserve under section 304(e) of that Act (16 U.S.C. 1434(e)).

(6) REPORT.--No later than 6 months after the date of enactment of this Act, the Secretary shall submit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Resources, describing actions taken to implement this subsection, including costs of monitoring, enforcing, and addressing marine debris, and the extent to which the fiscal or other resources necessary to carry out this subsection are reflected in the Budget of the United States Government submitted by the President under section 1104 of title 31, United States Code.

(7) AUTHORIZATION OF APPROPRIATIONS.--There are authorized to be appropriated to the Secretary of Commerce to carry out the provisions of this subsection such sums, not exceeding \$4,000,000 for each of fiscal years 2001, 2002, 2003, 2004, and 2005, as are reported under paragraph (6) to be reflected in the Budget of the United States Government.

Sec. 305. APPLICATION OF REGULATIONS AND INTERNATIONAL NEGOTIATIONS

(a) REGULATIONS.--This title and the regulations issued under section 304 shall be applied in accordance with generally recognized principles of international law, and in accordance with the treaties, conventions, and other agreements to which the United States is a party. No regulation shall apply to or be enforced against a person who is not a citizen, national, or resident alien of the United States, unless in accordance with--

- (1) generally recognized principles of international law;
- (2) an agreement between the United States and the foreign state of which the person is a citizen; or
- (3) an agreement between the United States and the flag state of a foreign vessel, if the person is a crewmember of the vessel.

(b) NEGOTIATIONS.--The Secretary of State, in consultation with the Secretary, shall take appropriate action to enter into negotiations with other governments to make necessary arrangements for the protection of any national marine sanctuary and to promote the purposes for which the sanctuary is established.

(c) INTERNATIONAL COOPERATION.--The Secretary, in consultation with the Secretary of State and other appropriate Federal agencies, shall cooperate with other governments and international organizations in the furtherance of the purposes and policies of this title and consistent with applicable regional and multilateral arrangements for the protection and management of special marine areas.

Sec. 306. PROHIBITED ACTIVITIES

It is unlawful for any person to--

- (1) destroy, cause the loss of, or injure any sanctuary resource managed under law or regulations for that sanctuary;
- (2) possess, sell, offer for sale, purchase, import, export, deliver, carry, transport, or ship by any means any sanctuary resource taken in violation of this section;
- (3) interfere with the enforcement of this title by--
 - (A) refusing to permit any officer authorized to enforce this title to board a vessel, other than a vessel operated by the Department of Defense or United States Coast Guard, subject to such person's control for the purposes of conducting any search or inspection in connection with the enforcement of this title;

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(B) resisting, opposing, impeding, intimidating, harassing, bribing, interfering with, or forcibly assaulting any person authorized by the Secretary to implement this title or any such authorized officer in the conduct of any search or inspection performed under this title; or

(C) knowingly and willfully submitting false information to the Secretary or any officer authorized to enforce this title in connection with any search or inspection conducted under this title; or

(4) violate any provision of this title or any regulation or permit issued pursuant to this title.

Sec. 307. ENFORCEMENT

(a) IN GENERAL.--The Secretary shall conduct such enforcement activities as are necessary and reasonable to carry out this title.

(b) POWERS OF AUTHORIZED OFFICERS.--Any person who is authorized to enforce this title may--

(1) board, search, inspect, and seize any vessel suspected of being used to violate this title or any regulation or permit issued under this title and any equipment, stores, and cargo of such vessel;

(2) seize wherever found any sanctuary resource taken or retained in violation of this title or any regulation or permit issued under this title;

(3) seize any evidence of a violation of this title or of any regulation or permit issued under this title;

(4) execute any warrant or other process issued by any court of competent jurisdiction;

(5) exercise any other lawful authority; and

(6) arrest any person, if there is reasonable cause to believe that such a person has committed an act prohibited by section 306(3).

(c) CRIMINAL OFFENSES.--

(1) OFFENSES.--A person is guilty of an offense under this subsection if the person commits any act prohibited by section 306(3).

(2) PUNISHMENT.--Any person that is guilty of an offense under this subsection--

(A) except as provided in subparagraph (B), shall be fined under title 18, United States Code, imprisoned for not more than 6 months, or both; or

(B) in the case of a person who in the commission of such an offense uses a dangerous weapon, engages in conduct that causes bodily injury to any person authorized to enforce this title or any person authorized to implement the provisions of this title, or places any such person in fear of

imminent bodily injury, shall be fined under title 18, United States Code, imprisoned for not more than 10 years, or both.

(d) CIVIL PENALTIES.--

(1) Civil penalty.--Any person subject to the jurisdiction of the United States who violates this title or any regulation or permit issued under this title shall be liable to the United States for a civil penalty of not more than \$100,000 for each such violation, to be assessed by the Secretary. Each day of a continuing violation shall constitute a separate violation.

(2) Notice.--No penalty shall be assessed under this subsection until after the person charged has been given notice and an opportunity for a hearing.

(3) In Rem Jurisdiction.--A vessel used in violating this title or any regulation or permit issued under this title shall be liable in rem for any civil penalty assessed for such violation. Such penalty shall constitute a maritime lien on the vessel and may be recovered in an action in rem in the district court of the United States having jurisdiction over the vessel.

(4) Review of Civil Penalty.--Any person against whom a civil penalty is assessed under this subsection may obtain review in the United States district court for the appropriate district by filing a complaint in such court not later than 30 days after the date of such order.

(5) Collection of Penalties.--If any person fails to pay an assessment of a civil penalty under this section after it has become a final and unappealable order, or after the appropriate court has entered final judgment in favor of the Secretary, the Secretary shall refer the matter to the Attorney General, who shall recover the amount assessed in any appropriate district court of the United States. In such action, the validity and appropriateness of the final order imposing the civil penalty shall not be subject to review.

(6) Compromise or Other Action by Secretary.--The Secretary may compromise, modify, or remit, with or without conditions, any civil penalty which is or may be imposed under this section.

(e) FORFEITURE.--

(1) In General.--Any vessel (including the vessel's equipment, stores, and cargo) and other item used, and any sanctuary resource taken or retained, in any manner, in connection with or as a result of any violation of this title or of any regulation or permit issued under this title shall be subject to forfeiture to the United States pursuant to a civil proceeding under this subsection. The proceeds from forfeiture actions under this subsection shall constitute a separate recovery in addition to any amounts recovered as civil penalties under this section or as civil damages under section 312. None of those proceeds shall be subject to set-off.

(2) Application of the Customs Laws.--The Secretary may exercise the authority of any United States official granted by any relevant customs law relating to the seizure, forfeiture, condemnation, disposition, remission, and mitigation of property in enforcing this title.

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(3) Disposal of Sanctuary Resources.--Any sanctuary resource seized pursuant to this title may be disposed of pursuant to an order of the appropriate court or, if perishable, in a manner prescribed by regulations promulgated by the Secretary. Any proceeds from the sale of such sanctuary resource shall for all purposes represent the sanctuary resource so disposed of in any subsequent legal proceedings.

(4) Presumption.--For the purposes of this section there is a rebuttable presumption that all sanctuary resources found on board a vessel that is used or seized in connection with a violation of this title or of any regulation or permit issued under this title were taken or retained in violation of this title or of a regulation or permit issued under this title.

(f) PAYMENT OF STORAGE, CARE, AND OTHER COSTS.--

(1) Expenditures.--

(A) Notwithstanding any other law, amounts received by the United States as civil penalties, forfeitures of property, and costs imposed under paragraph (2) shall be retained by the Secretary in the manner provided for in section 107(f)(1) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980.

(B) Amounts received under this section for forfeitures and costs imposed under paragraph (2) shall be used to pay the reasonable and necessary costs incurred by the Secretary to provide temporary storage, care, maintenance, and disposal of any sanctuary resource or other property seized in connection with a violation of this title or any regulation or permit issued under this title.

(C) Amounts received under this section as civil penalties and any amounts remaining after the operation of subparagraph (B) shall be used, in order of priority, to--

(i) manage and improve the national marine sanctuary with respect to which the violation occurred that resulted in the penalty or forfeiture;

(ii) pay a reward to any person who furnishes information leading to an assessment of a civil penalty, or to a forfeiture of property, for a violation of this title or any regulation or permit issued under this title; and

(iii) manage and improve any other national marine sanctuary.

(2) Liability for Costs.--Any person assessed a civil penalty for a violation of this title or of any regulation or permit issued under this title, and any claimant in a forfeiture action brought for such a violation, shall be liable for the reasonable costs incurred by the Secretary in storage, care, and maintenance of any sanctuary resource or other property seized in connection with the violation.

(g) SUBPOENAS.--In the case of any hearing under this section which is determined on the record in accordance with the procedures provided for under section 554 of title 5, United States Code, the Secretary may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, electronic files, and documents, and may administer oaths.

(h) USE OF RESOURCES OF STATE AND OTHER FEDERAL AGENCIES.—The Secretary shall, whenever appropriate, use by agreement the personnel, services, and facilities of State and other Federal departments, agencies, and instrumentalities, on a reimbursable or nonreimbursable basis, to carry out the Secretary's responsibilities under this section.

(i) COAST GUARD AUTHORITY NOT LIMITED.--Nothing in this section shall be considered to limit the authority of the Coast Guard to enforce this or any other Federal law under section 89 of title 14, United States Code.

(j) INJUNCTIVE RELIEF.--If the Secretary determines that there is an imminent risk of destruction or loss of or injury to a sanctuary resource, or that there has been actual destruction or loss of, or injury to, a sanctuary resource which may give rise to liability under section 312, the Attorney General, upon request of the Secretary, shall seek to obtain such relief as may be necessary to abate such risk or actual destruction, loss, or injury, or to restore or replace the sanctuary resource, or both. The district courts of the United States shall have jurisdiction in such a case to order such relief as the public interest and the equities of the case may require.

(k) AREA OF APPLICATION AND ENFORCEABILITY.--The area of application and enforceability of this title includes the territorial sea of the United States, as described in Presidential Proclamation 5928 of December 27, 1988, which is subject to the sovereignty of the United States, and the United States exclusive economic zone, consistent with international law.

(l) NATIONWIDE SERVICE OF PROCESS.- In any action by the United States under this title, process may be served in any district where the defendant is found, resides, transacts business, or has appointed an agent for the service of process.

Sec. 308. REGULATIONS

The Secretary may issue such regulations as may be necessary to carry out this title.

Sec. 309. RESEARCH, MONITORING, AND EDUCATION

(a) IN GENERAL- The Secretary shall conduct, support, or coordinate research, monitoring, evaluation, and education programs consistent with subsections (b) and (c) and the purposes and policies of this title.

(b) RESEARCH AND MONITORING.-

(1) IN GENERAL.- The Secretary may--

(A) support, promote, and coordinate research on, and long-term monitoring of, sanctuary resources and natural processes that occur in national marine sanctuaries, including exploration, mapping, and environmental and socioeconomic assessment;

(B) develop and test methods to enhance degraded habitats or restore damaged, injured, or lost sanctuary resources; and

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(C) support, promote, and coordinate research on, and the conservation, curation, and public display of, the cultural, archeological, and historical resources of national marine sanctuaries.

(2) AVAILABILITY OF RESULTS.- The results of research and monitoring conducted, supported, or permitted by the Secretary under this subsection shall be made available to the public.

(c) EDUCATION-

(1) IN GENERAL.- The Secretary may support, promote, and coordinate efforts to enhance public awareness, understanding, and appreciation of national marine sanctuaries and the System. Efforts supported, promoted, or coordinated under this subsection must emphasize the conservation goals and sustainable public uses of national marine sanctuaries and the System.

(2) EDUCATIONAL ACTIVITIES.- Activities under this subsection may include education of the general public, teachers, students, national marine sanctuary users, and ocean and coastal resource managers.

(d) INTERPRETIVE FACILITIES.-

(1) IN GENERAL.- The Secretary may develop interpretive facilities near any national marine sanctuary.

(2) FACILITY REQUIREMENT.- Any facility developed under this subsection must emphasize the conservation goals and sustainable public uses of national marine sanctuaries by providing the public with information about the conservation, recreational, ecological, historical, cultural, archeological, scientific, educational, or aesthetic qualities of the national marine sanctuary.

(e) CONSULTATION AND COORDINATION.- In conducting, supporting, and coordinating research, monitoring, evaluation, and education programs under subsection (a) and developing interpretive facilities under subsection (d), the Secretary may consult or coordinate with Federal, interstate, or regional agencies, States or local governments.

Sec. 310. SPECIAL USE PERMITS

(a) ISSUANCE OF PERMITS.--The Secretary may issue special use permits which authorize the conduct of specific activities in a national marine sanctuary if the Secretary determines such authorization is necessary--

(1) to establish conditions of access to and use of any sanctuary resource; or

(2) to promote public use and understanding of a sanctuary resource.

(b) PUBLIC NOTICE REQUIRED.- The Secretary shall provide appropriate public notice before identifying any category of activity subject to a special use permit under subsection (a).

(c) PERMIT TERMS.--A permit issued under this section--

- (1) shall authorize the conduct of an activity only if that activity is compatible with the purposes for which the sanctuary is designated and with protection of sanctuary resources;
 - (2) shall not authorize the conduct of any activity for a period of more than 5 years unless renewed by the Secretary;
 - (3) shall require that activities carried out under the permit be conducted in a manner that does not destroy, cause the loss of, or injure sanctuary resources; and
 - (4) shall require the permittee to purchase and maintain comprehensive general liability insurance, or post an equivalent bond, against claims arising out of activities conducted under the permit and to agree to hold the United States harmless against such claims.
- (d) FEES.--
- (1) Assessment and Collection.--The Secretary may assess and collect fees for the conduct of any activity under a permit issued under this section.
 - (2) Amount.--The amount of a fee under this subsection shall be equal to the sum of--
 - (A) costs incurred, or expected to be incurred, by the Secretary in issuing the permit;
 - (B) costs incurred, or expected to be incurred, by the Secretary as a direct result of the conduct of the activity for which the permit is issued, including costs of monitoring the conduct of the activity; and
 - (C) an amount which represents the fair market value of the use of the sanctuary resource.
 - (3) Use of Fees.--Amounts collected by the Secretary in the form of fees under this section may be used by the Secretary--
 - (A) for issuing and administering permits under this section; and
 - (B) for expenses of managing national marine sanctuaries.
 - (4) WAIVER OR REDUCTION OF FEES.- The Secretary may accept in-kind contributions in lieu of a fee under paragraph (2)(C), or waive or reduce any fee assessed under this subsection for any activity that does not derive a profit from the access to or use of sanctuary resources.
- (e) VIOLATIONS.--Upon violation of a term or condition of a permit issued under this section, the Secretary may--
- (1) suspend or revoke the permit without compensation to the permittee and without liability to the United States;
 - (2) assess a civil penalty in accordance with section 307; or
 - (3) both.

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(f) REPORTS.--Each person issued a permit under this section shall submit an annual report to the Secretary not later than December 31 of each year which describes activities conducted under that permit and revenues derived from such activities during the year.

(g) FISHING.--Nothing in this section shall be considered to require a person to obtain a permit under this section for the conduct of any fishing activities in a national marine sanctuary.

Sec. 311. COOPERATIVE AGREEMENTS, DONATIONS, AND ACQUISITIONS

(a) AGREEMENTS AND GRANTS- The Secretary may enter into cooperative agreements, contracts, or other agreements with, or make grants to, States, local governments, regional agencies, interstate agencies, or other persons to carry out the purposes and policies of this title.

(b) AUTHORIZATION TO SOLICIT DONATIONS.--The Secretary may enter into such agreements with any nonprofit organization authorizing the organization to solicit private donations to carry out the purposes and policies of this title.

(c) DONATIONS.--The Secretary may accept donations of funds, property, and services for use in designating and administering national marine sanctuaries under this title. Donations accepted under this section shall be considered as a gift or bequest to or for the use of the United States.

(d) ACQUISITIONS.--The Secretary may acquire by purchase, lease, or exchange, any land, facilities, or other property necessary and appropriate to carry out the purposes and policies of this title

(e) USE OF RESOURCES OF OTHER GOVERNMENT AGENCIES.- The Secretary may, whenever appropriate, enter into an agreement with a State or other Federal agency to use the personnel, services, or facilities of such agency on a reimbursable or nonreimbursable basis, to assist in carrying out the purposes and policies of this title.

(f) AUTHORITY TO OBTAIN GRANTS.- Notwithstanding any other provision of law that prohibits a Federal agency from receiving assistance, the Secretary may apply for, accept, and use grants from other Federal agencies, States, local governments, regional agencies, interstate agencies, foundations, or other persons, to carry out the purposes and policies of this title.

Sec. 312. DESTRUCTION OR LOSS OF, OR INJURY TO, SANCTUARY RESOURCES

(a) LIABILITY FOR INTEREST.--

(1) Liability to UNITED STATES.--Any person who destroys, causes the loss of, or injures any sanctuary resource is liable to the United States for an amount equal to the sum of--

(A) the amount of response costs and damages resulting from the destruction, loss, or injury; and

(B) interests on that amount calculated in the manner described under section 1005 of the Oil Pollution Act of 1990.

(2) Liability In Rem.--Any vessel used to destroy, cause the loss of, or injure any sanctuary resource shall be liable in rem to the United States for response costs and damages resulting from such destruction, loss, or injury. The amount of that liability shall constitute a maritime lien on the vessel and may be recovered in an action in rem in the district court of the United States having jurisdiction over the vessel.

(3) Defenses.--A person is not liable under this subsection if that person establishes that--

(A) the destruction or loss of, or injury to, the sanctuary resource was caused solely by an act of God, an act of war, or an act or omission of a third party, and the person acted with due care;

(B) the destruction, loss, or injury was caused by an activity authorized by Federal or State law;
or

(C) the destruction, loss, or injury was negligible.

(4) Limits to Liability.--Nothing in sections 4281-4289 of the Revised Statutes of the United States or section 3 of the Act of February 13, 1893, shall limit the liability of any person under this title.

(b) RESPONSE ACTIONS AND DAMAGE ASSESSMENT.--

(1) Response Actions.--The Secretary may undertake or authorize all necessary actions to prevent or minimize the destruction or loss of, or injury to, sanctuary resources, or to minimize the imminent risk of such destruction, loss, or injury.

(2) Damage Assessment.--The Secretary shall assess damages to sanctuary resources in accordance with section 302(6).

(c) CIVIL ACTIONS FOR RESPONSE COSTS AND DAMAGES.--

(1) The Attorney General, upon request of the Secretary, may commence a civil action against any person or vessel who may be liable under subsection (a) for response costs and damages. The Secretary, acting as trustee for sanctuary resources for the United States, shall submit a request for such an action to the Attorney General whenever a person may be liable for such costs or damages.

(2) An action under this subsection may be brought in the United States district court for any district in which--

(A) the defendant is located, resides, or is doing business, in the case of an action against a person;

(B) the vessel is located, in the case of an action against a vessel; or

(C) the destruction of, loss of, or injury to a sanctuary resource occurred.

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(d) USE OF RECOVERED AMOUNTS.--Response costs and damages recovered by the Secretary under this section shall be retained by the Secretary in the manner provided for in section 107(f)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. 9607(f)(1)), and used as follows:

(1) RESPONSE COSTS.--Amounts recovered by the United States for costs of response actions and damage assessments under this section shall be used, as the Secretary considers appropriate--

(A) to reimburse the Secretary or any other Federal or State agency that conducted those activities; and

(B) after reimbursement of such costs, to restore, replace, or acquire the equivalent of any sanctuary resource.

(2) OTHER AMOUNTS.--All other amounts recovered shall be used, in order of priority--

(A) to restore, replace, or acquire the equivalent of the sanctuary resources that were the subject of the action, including for costs of monitoring and the costs of curation and conservation of archeological, historical, and cultural sanctuary resources;

(B) to restore degraded sanctuary resources of the national marine sanctuary that was the subject of the action, giving priority to sanctuary resources and habitats that are comparable to the sanctuary resources that were the subject of the action; and

(C) to restore degraded sanctuary resources of other national marine sanctuaries.

(3) Federal-State Coordination.--Amounts recovered under this section with respect to sanctuary resources lying within the jurisdiction of a State shall be used under paragraphs (2)(A) and (B) in accordance with the court decree or settlement agreement and an agreement entered into by the Secretary and the Governor of that State.

(e) STATUTE OF LIMITATIONS.--An action for response costs or damages under subsection (c) shall be barred unless the complaint is filed within 3 years after the date on which the Secretary completes a damage assessment and restoration plan for the sanctuary resources to which the action relates.

SEC. 313. AUTHORIZATION OF APPROPRIATIONS

There are authorized to be appropriated to the Secretary--

(1) to carry out this title--

(A) \$32,000,000 for fiscal year 2001;

(B) \$34,000,000 for fiscal year 2002;

(C) \$36,000,000 for fiscal year 2003;

(D) \$38,000,000 for fiscal year 2004;

(E) \$40,000,000 for fiscal year 2005; and

(2) for construction projects at national marine sanctuaries, \$6,000,000 for each of fiscal years 2001, 2002, 2003, 2004, and 2005.

Sec. 314. U.S.S. MONITOR ARTIFACTS AND MATERIALS

(a) CONGRESSIONAL POLICY.--In recognition of the historical significance of the wreck of the United States ship Monitor to coastal North Carolina and to the area off the coast of North Carolina known as the Graveyard of the Atlantic, the Congress directs that a suitable display of artifacts and materials from the United States ship Monitor be maintained permanently at an appropriate site in coastal North Carolina. [P.L. 102-587 authorized a grant for the acquisition of space in Hatteras Village, NC, for display of artifacts and administration and operations of the Monitor National Marine Sanctuary.

(b) DISCLAIMER.--This section shall not affect the following:

(1) Responsibilities Of Secretary.--The responsibilities of the Secretary to provide for the protection, conservation, and display of artifacts and materials from the United States ship Monitor.

(2) Authority Of Secretary.--The authority of the Secretary to designate the Mariner's Museum, located at Newport News, Virginia, as the principal museum for coordination of activities referred to in paragraph (1).

Sec. 315. ADVISORY COUNCILS

(a) ESTABLISHMENT.--The Secretary may establish one or more advisory councils (in this section referred to as an 'Advisory Council') to advise and make recommendations to the Secretary regarding the designation and management of national marine sanctuaries. The Advisory Councils shall be exempt from the Federal Advisory Committee Act.

(b) MEMBERSHIP.--Members of the Advisory Councils may be appointed from among--

(1) persons employed by Federal or State agencies with expertise in management of natural resources;

(2) members of relevant Regional Fishery Management Councils established under section 302 of the Magnuson-Stevens Act; and

(3) representatives of local user groups, conservation and other public interest organizations, scientific organizations, educational organizations, or others interested in the protection and multiple use management of sanctuary resources.

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(c) LIMITS ON MEMBERSHIP.--For sanctuaries designated after the date of enactment of the National Marine Sanctuaries Program Amendments Act of 1992, the membership of Advisory Councils shall be limited to no more than 15 members.

(d) STAFFING AND ASSISTANCE.--The Secretary may make available to an Advisory Council any staff, information, administrative services, or assistance the Secretary determines are reasonably required to enable the Advisory Council to carry out its functions.

(e) PUBLIC PARTICIPATION AND PROCEDURAL MATTERS.--The following guidelines apply with respect to the conduct of business meetings of an Advisory Council:

(1) Each meeting shall be open to the public, and interested persons shall be permitted to present oral or written statements on items on the agenda.

(2) Emergency meetings may be held at the call of the chairman or presiding officer.

(3) Timely notice of each meeting, including the time, place, and agenda of the meeting, shall be published locally and in the Federal Register, except that in the case of a meeting of an Advisory Council established to provide assistance regarding any individual national marine sanctuary the notice is not required to be published in the Federal Register.

(4) Minutes of each meeting shall be kept and contain a summary of the attendees and matters discussed.

Sec. 316. ENHANCING SUPPORT FOR NATIONAL MARINE SANCTUARIES

(a) AUTHORITY.--The Secretary may establish a program consisting of--

(1) the creation, adoption, and publication in the Federal Register by the Secretary of a symbol for the national marine sanctuary program, or for individual national marine sanctuaries or the System;

(2) the solicitation of persons to be designated as official sponsors of the national marine sanctuary program or of individual national marine sanctuaries;

(3) the designation of persons by the Secretary as official sponsors of the national marine sanctuary program or of individual sanctuaries;

(4) the authorization by the Secretary of the manufacture, reproduction, or other use of any symbol published under paragraph (1), including the sale of items bearing such a symbol, by official sponsors of the national marine sanctuary program or of individual national marine sanctuaries;

(5) the creation, marketing, and selling of products to promote the national marine sanctuary program, and entering into exclusive or nonexclusive agreements authorizing entities to create, market or sell on the Secretary's behalf;

(6) the solicitation and collection by the Secretary of monetary or in-kind contributions from official sponsors for the manufacture, reproduction or use of the symbols published under paragraph (1);

(7) the retention of any monetary or in-kind contributions collected under paragraphs (5) and (6) by the Secretary; and

(8) the expenditure and use of any monetary and in-kind contributions, without appropriation, by the Secretary to designate and manage national marine sanctuaries.

Monetary and in-kind contributions raised through the sale, marketing, or use of symbols and products related to an individual national marine sanctuary shall be used to support that sanctuary.

(b) **CONTRACT AUTHORITY.**--The Secretary may contract with any person for the creation of symbols or the solicitation of official sponsors under subsection (a).

(c) **RESTRICTIONS.**--The Secretary may restrict the use of the symbols published under subsection (a), and the designation of official sponsors of the national marine sanctuary program or of individual national marine sanctuaries to ensure compatibility with the goals of the national marine sanctuary program.

(d) **PROPERTY OF UNITED STATES.**-- Any symbol which is adopted by the Secretary and published in the Federal Register under subsection (a) is deemed to be the property of the United States.

(e) **PROHIBITED ACTIVITIES.**--It is unlawful for any person--

(1) designated as an official sponsor to influence or seek to influence any decision by the Secretary or any other Federal official related to the designation or management of a national marine sanctuary, except to the extent that a person who is not so designated may do so;

(2) to represent himself or herself to be an official sponsor absent a designation by the Secretary;

(3) to manufacture, reproduce, or otherwise use any symbol adopted by the Secretary under subsection (a)(1), including to sell any item bearing such a symbol, unless authorized by the Secretary under subsection (a)(4) or subsection (f); or

(4) to violate any regulation promulgated by the Secretary under this section.

(f) **COLLABORATIONS.**--The Secretary may authorize the use of a symbol adopted by the Secretary under subsection (a)(1) by any person engaged in a collaborative effort with the Secretary to carry out the purposes and policies of this title and to benefit a national marine sanctuary or the System.

(g) **AUTHORIZATION FOR NON-PROFIT PARTNER ORGANIZATION TO SOLICIT SPONSORS.**--

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(1) IN GENERAL.--The Secretary may enter into an agreement with a non-profit partner organization authorizing it to assist in the administration of the sponsorship program established under this section. Under an agreement entered into under this paragraph, the Secretary may authorize the non-profit partner organization to solicit persons to be official sponsors of the national marine sanctuary system or of individual national marine sanctuaries, upon such terms as the Secretary deems reasonable and will contribute to the successful administration of the sanctuary system. The Secretary may also authorize the non-profit partner organization to collect the statutory contribution from the sponsor, and, subject to paragraph (2), transfer the contribution to the Secretary.

(2) REIMBURSEMENT FOR ADMINISTRATIVE COSTS.--Under the agreement entered into under paragraph (1), the Secretary may authorize the non-profit partner organization to retain not more than 5 percent of the amount of monetary contributions it receives from official sponsors under the agreement to offset the administrative costs of the organization in soliciting sponsors.

(3) PARTNER ORGANIZATION DEFINED.--In this subsection, the term 'partner organization' means an organization that--

(A) draws its membership from individuals, private organizations, corporation, academic institutions, or State and local governments; and

(B) is established to promote the understanding of, education relating to, and the conservation of the resources of a particular sanctuary or 2 or more related sanctuaries.

Sec. 318. DR. NANCY FOSTER SCHOLARSHIP PROGRAM

(a) ESTABLISHMENT.--The Secretary shall establish and administer through the National Ocean Service the Dr. Nancy Foster Scholarship Program. Under the program, the Secretary shall award graduate education scholarships in oceanography, marine biology or maritime archeology, to be known as Dr. Nancy Foster Scholarships.

(b) PURPOSES.--The purposes of the Dr. Nancy Foster Scholarship Program are--

(1) to recognize outstanding scholarship in oceanography, marine biology, or maritime archeology, particularly by women and members of minority groups; and

(2) to encourage independent graduate level research in oceanography, marine biology, or maritime archeology.

(c) AWARD.--Each Dr. Nancy Foster Scholarship--

(1) shall be used to support graduate studies in oceanography, marine biology, or maritime archeology at a graduate level institution of higher education; and

(2) shall be awarded in accordance with guidelines issued by the Secretary.

(d) DISTRIBUTION OF FUNDS.--The amount of each Dr. Nancy Foster Scholarship shall be provided directly to a recipient selected by the Secretary upon receipt of certification that the

recipient will adhere to a specific and detailed plan of study and research approved by a graduate level institution of higher education.

(e) FUNDING.--Of the amount available each fiscal year to carry out this title, the Secretary shall award 1 percent as Dr. Nancy Foster Scholarships.

(f) SCHOLARSHIP REPAYMENT REQUIREMENT.--The Secretary shall require an individual receiving a scholarship under this section to repay the full amount of the scholarship to the Secretary if the Secretary determines that the individual, in obtaining or using the scholarship, engaged in fraudulent conduct or failed to comply with any term or condition of the scholarship.

(g) MARITIME ARCHEOLOGY DEFINED.--In this section the term 'maritime archeology' includes the curation, preservation, and display of maritime artifacts.

Appendix III E: Species List

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The following lists of vertebrate species occurring in Cordell Bank National Marine Sanctuary (CBNMS) have been compiled from species lists created for Gulf of the Farallones National Marine Sanctuary (GFNMS). In addition to common and scientific names of each specific taxon, the lists include information or data on federal listed status, estimated population size, population trend, seasonal and geographical distribution, longevity, and age of first breeding. A "Habitat Importance" designation is also given which reflects the importance of the sanctuary to that particular species. This designation is based on (1) the abundance of the species within the sanctuary, (2) the proportion of the overall range or population that occurs in the sanctuary, and (3) the importance of the sanctuary to breeding individuals.

Taxonomic classification, phylogenetic order, and all other information are according to references used for each class of vertebrates listed below. Each class has slightly differing criteria for acceptance to the list. For mammals the list includes all marine species, including vagrants that have been recorded within sanctuary waters. For birds the list includes all marine species, including vagrants that have been recorded in sanctuary waters. For reptiles and fish the lists include those species recorded in the sanctuary plus others suspected of occurring based on records both north and south of the sanctuary, but for which no definite records are currently known. Species just suspected of occurring in sanctuary waters are marked with a "?" in the GC column (see abbreviation codes below).

The headings of the vertebrate lists include the following categories:

GC – Which sanctuary has the species been recorded

B - Both Gulf of the Farallones and Cordell Bank NMS

? - Suspected of occurring based on range but lacking documented records

COMMON NAME - The common (English) name of the species.

SCIENTIFIC NAME - The scientific (Latin) name of the species.

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FS – The Federal listed status as of January 2004 (as found at //ecos.fws.gov/webpage/webpage_vip_listed.html). These designations are given if any population or subspecies occurring in the sanctuary is so listed.

- E – Endangered
- T – Threatened
- SC – Species of Concern: may be endangered or threatened; not enough information has been gathered to support listing at this time.
- C – Candidate: to become a proposed species for listing as endangered or threatened.
- D – Delisted; to be monitored for 5 years.

POPEST – The estimated population size in a given location (LOCA, see below). When numbers are given they represent 1000's of individuals. When no population estimates are available the terms "Common," "Uncommon," and "Rare" are used as general indicators of the worldwide population size.

LOCA - The geographic location (area) for which the population estimate applies, as follows:

- World – World
- N.Am – North America
- Pacif – Pacific Ocean or Pacific North American Coast
- Calif – California

HI – The "Habitat Importance" of the NMS to the species (see introduction). Codes are as follows:

- E – Extremely Important
 - V – Very Important
 - S – Somewhat Important
- No designation indicates the NMS is of little importance.

VERTEBRATES

Birds					
COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP. ESTIMATE	LOCATION OF POP EST	HI
Red-throated Loon	<i>Gavia stellata</i>		25	N.Am	V
Pacific Loon	<i>Gavia pacifica</i>		50	World	E
Common Loon	<i>Gavia immer</i>	SC	500	N.Am	V
Red-necked Grebe	<i>Podiceps grisegena</i>		45	N.Am	V
Laysan Albatross	<i>Phoebastria immutabilis</i>		2600	World	S
Black-footed Albatross	<i>Phoebastria nigripes</i>		200	World	E
Short-tailed Albatross	<i>Phoebastria albatrus</i>	E	1	World	S

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Birds					
COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP. ESTIMATE	LOCATION OF POP EST	HI
Northern Fulmar	<i>Fulmarus glacialis</i>		1400	Pacif	E
Murphy's Petrel	<i>Pterodroma ultima</i>		Uncommon		S
Mottled Petrel	<i>Pterodroma inexpectata</i>		Uncommon		S
Dark-rumped Petrel	<i>Pterodroma phaeopygia</i>	E	70	World	
Pink-footed Shearwater	<i>Puffinus creatopus</i>		Common		E
Flesh-footed Shearwater	<i>Puffinus carneipes</i>		Uncommon		V
Buller's Shearwater	<i>Puffinus bulleri</i>		Uncommon		E
Sooty Shearwater	<i>Puffinus griseus</i>		Common		E
Short-tailed Shearwater	<i>Puffinus tenuirostris</i>		Common		E
Manx Shearwater	<i>Puffinus puffinus</i>		1000	World	
Black-vented Shearwater	<i>Puffinus opisthomelas</i>		30	World	V
Wilson's Storm-Petrel	<i>Oceanites oceanicus</i>		Common		
Fork-tailed Storm-Petrel	<i>Oceanodroma furcata</i>		1	Calif	V
Leach's Storm-Petrel	<i>Oceanodroma leucorhoa</i>		20	Calif	V
Ashy Storm-Petrel	<i>Oceanodroma homochroa</i>	SC	7.5	Calif	E
Black Storm-Petrel	<i>Oceanodroma melania</i>		Uncommon		
Brown Pelican	<i>Pelecanus occidentalis</i>	E	150	Pacif	E
Brandt's Cormorant	<i>Phalacrocorax penicillatus</i>		125	Calif	E
Double-crested Cormorant	<i>Phalacrocorax auritus</i>		10	Calif	V
Pelagic Cormorant	<i>Phalacrocorax pelagicus</i>		25	Calif	E
Magnificent Frigatebird	<i>Fregata magnificens</i>		Common		
Brant	<i>Branta bernicla</i>		50	Pacif	E
Surf Scoter	<i>Melanitta perspicillata</i>		536	Pacif	E
Red-necked Phalarope	<i>Phalaropus lobatus</i>		2500	N.Am	E
Red Phalarope	<i>Phalaropus fulicaria</i>		1000	N.Am	E
South Polar Skua	<i>Catharacta maccormicki</i>		Uncommon		V
Pomarine Jaeger	<i>Stercorarius pomarinus</i>		Common		E
Parasitic Jaeger	<i>Stercorarius parasiticus</i>		Common		E
Long-tailed Jaeger	<i>Stercorarius longicaudus</i>		250	World	V
Bonaparte's Gull	<i>Larus philadelphia</i>		Uncommon		V
Heermann's Gull	<i>Larus heermanni</i>		1500	World	E
Mew Gull	<i>Larus canus</i>		Uncommon		E
California Gull	<i>Larus californicus</i>		Common		E
Herring Gull	<i>Larus argentatus</i>		500	N.Am	V
Thayer's Gull	<i>Larus thayeri</i>		Uncommon		V
Western Gull	<i>Larus occidentalis</i>		60	Calif	E
Glaucous-winged Gull	<i>Larus glaucescens</i>		200	N.Am	E
Glaucous Gull	<i>Larus hyperboreus</i>		Uncommon		S
Sabine's Gull	<i>Xema sabini</i>		Uncommon		V
Black-legged Kittiwake	<i>Rissa tridactyla</i>		2600	Pacif	V

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Birds					
COMMON NAME	SCIENTIFIC NAME	FED STATUS	POP. ESTIMATE	LOCATION OF POP EST	HI
Caspian Tern	<i>Sterna caspia</i>		35	N.Am	E
Elegant Tern	<i>Sterna elegans</i>		29	World	E
Common Tern	<i>Sterna hirundo</i>		100	N.Am	V
Arctic Tern	<i>Sterna paradisaea</i>		Common		V
Forster's Tern	<i>Sterna forsteri</i>		400	World	E
Common Murre	<i>Uria aalge</i>		800	Calif	E
Pigeon Guillemot	<i>Cepphus columba</i>		30	Calif	E
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	T	6.5	Calif	E
Xantus's Murrelet	<i>Synthliboramphus hypoleucus</i>	SC	8	World	S
Craveri's Murrelet	<i>Synthliboramphus craveri</i>		Rare		S
Ancient Murrelet	<i>Synthliboramphus antiquus</i>		1200	World	V
Cassin's Auklet	<i>Ptychoramphus aleuticus</i>	SC	75	Calif	E
Parakeet Auklet	<i>Aethia psittacula</i>		3000	World	
Rhinoceros Auklet	<i>Cerorhinca monocerata</i>		5	Calif	E
Horned Puffin	<i>Fratercula corniculata</i>		Common		S
Tufted Puffin	<i>Fratercula cirrhata</i>		0.7	Calif	E

Mammals					
COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	POPEST	LOCA	HI
Blue Whale	<i>Balaenoptera musculus</i>	E	2	Pacif	E
Fin Whale	<i>Balaenoptera physalus</i>	E	1.2	C,O,W	S
Sei Whale	<i>Balaenoptera borealis</i>	E	rare	Pacif	S
Minke Whale	<i>Balaenoptera acutorostrata</i>		0.6	Calif	V
Humpback Whale	<i>Megaptera novaeangliae</i>	E	6	Pacif	E
Gray Whale	<i>Eschrichtius robustus</i>	D	26	World	V
Northern Right Whale	<i>Eubalaena glacialis</i>	E	Rare	Pacif	S
Harbor Porpoise	<i>Phocoena phocoena</i>		16.7	Cent-No. Ca	E
Dall's Porpoise	<i>Phocoenoides dalli</i>		117.5	C,O,W	E
Pacific White-sided Dolphin	<i>Lagenorhynchus obliquidens</i>		25.8	C,O,W	E
Northern Right Whale Dolphin	<i>Lissodelphis borealis</i>		13.7	C,O,W	E
Long-beaked Common Dolphin	<i>Delphinus capensis</i>		Common	C,O,W	S
Striped Dolphin	<i>Stenella coeruleoalba</i>		20.2	C,O,W	
Risso's Dolphin	<i>Grampus griseus</i>		16.5	C,O,W	V

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Mammals					
COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	POPEST	LOCA	HI
Killer Whale	<i>Orcinus orca</i>		1	C,O,W	V
Short-finned Pilot Whale	<i>Globicephala macrorhynchus</i>		60	World	
Sperm Whale	<i>Physeter macrocephalus</i>	E	1800	World	S
Pigmy Sperm Whale	<i>Kogia breviceps</i>		Uncommon		S
Dwarf Sperm Whale	<i>Kogia simus</i>		Rare		S
Cuvier's Beaked Whale	<i>Ziphius cavirostris</i>		Uncommon		V
Baird's Beaked Whale	<i>Berardius bairdii</i>		Rare		V
Hubb's Beaked Whale	<i>Mesoplodon calrhubbisi</i>		Rare		S
Blainsville's Beaked Whale	<i>Mesoplodon densirostris</i>		Rare		S
Steller Sea Lion	<i>Eumetopius jubatus</i>	T	0.4	Calif	E
California Sea Lion	<i>Zalophus californianus</i>		214	C,O,W	V
Northern Fur Seal	<i>Callorhinus ursinus</i>		4.3	Calif	V
Northern Elephant Seal	<i>Mirounga angustirostris</i>		84	Calif	E
Harbor Seal	<i>Phoca vitulina</i>		28	Calif	E

Fish						
GC	COMMON NAME	SCIENTIFIC NAME	FED STATU S	POPEST	LOCA	HI
C	Black Hagfish	<i>Eptatretus deani</i>				
?	Western River Lamprey	<i>Lampetra ayersii</i>		Uncommon	Pacif	
C	Lamprey unid.	Petromyzontidae		Common	Pacif	
?	Prickly Shark	<i>Echinorhinus cookei</i>		Uncommon	Pacif	
?	Broad skate	<i>Amblyraja badia</i>				
?	Diamond Stingray	<i>Dasyatis dipterura</i>		Common	Pacif	
?	Round Stingray	<i>Urolophus halleri</i>		Common	Pacif	
?	Pacific Snake Eel	<i>Ophichthus triserialis</i>		Rare	Pacif	
?	Yellow Snake Eel	<i>Ophichthus zaphochir</i>		Rare	Pacif	
B	Pacific Herring	<i>Clupea pallasii</i>		Common	Pacif	E
B	Pacific Argentine	<i>Argentina sialis</i>		Uncommon	Pacif	E
?	Popeye Blacksmelt	<i>Lipolagus ochotensis</i>		Uncommon	Pacif	
?	Robust Blacksmelt	<i>Pseudobathylagus milleri</i>		Uncommon	Pacif	E
B	Surf Smelt	<i>Hypomesus pretiosus</i>		Common	Pacif	E
C	Eulachon	<i>Thaleichthys pacificus</i>		Common	Pacif	
?	Pink Salmon	<i>Oncorhynchus gorbuscha</i>		Uncommon	Pacif	
?	Sockeye Salmon	<i>Oncorhynchus nerka</i>		Rare	Pacif	
B	Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	E & T regional	Common	Pacif	E
?	Spurred Hatchetfish	<i>Argyropelecus hemigymnus</i>		Uncommon	Pacif	
?	Silvery Hatchetfish	<i>Argyropelecus sladeni</i>		Uncommon	Pacif	V

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	Fish					
GC	COMMON NAME	SCIENTIFIC NAME	FED STATU S	POPEST	LOCA	HI
?	Highfin Dragonfish	<i>Bathophilus flemingi</i>		Uncommon	Pacif	
C	Longfin Dragonfish	<i>Tactostoma macropus</i>		Uncommon	Pacif	E
?	California Lizardfish	<i>Synodus lucioceps</i>		Uncommon	Pacif	S
?	Slender Barricudina	<i>Lestidium ringens</i>		Uncommon	Pacif	E
?	California Flashlightfish	<i>Protomyctophum crockeri</i>		Uncommon	Pacif	V
C	California Grenadier	<i>Nezumia stelgidolepis</i>		Uncommon	Pacif	E
?	Finescale Codling	<i>Antimora microlepis</i>		Uncommon	Pacif	E
?	Crested Bigscale	<i>Poromitra crassiceps</i>		Uncommon	Pacif	
?	Longjaw Bigscale	<i>Scopeloberyx robustus</i>				
?	Twospine Bigscale	<i>Scopelogadus mizolepis</i>		Uncommon	Pacif	V
?	Oxeye oreo	<i>Allocyttus folletti</i>				
F?	Tubesnout	<i>Aulorhynchus flavidus</i>		Uncommon	Pacif	
?	Threespine Stickleback	<i>Gasterosteus aculeatus</i>		Common	Pacif	E
?	Bay Pipefish	<i>Syngnathus leptorhynchus</i>		Common	Pacif	V
C	Rougeye Rockfish	<i>Sebastes aleutianus</i>				
C	Gopher Rockfish	<i>Sebastes carnatus</i>		Common	Pacif	
B	Greenspotted Rockfish	<i>Sebastes chlorostictus</i>		Common	Pacif	
?	Calico Rockfish	<i>Sebastes dallii</i>		Common	Pacif	V
C	Greenstriped Rockfish	<i>Sebastes elongates</i>		Common	Pacif	
C	Tiger Rockfish	<i>Sebastes nigrocinctus</i>				
?	Chameleon Rockfish	<i>Sebastes phillipsi</i>				
C	Greenblotched Rockfish	<i>Sebastes rosenblatti</i>		Common	Pacif	
C	Sablefish	<i>Anoplopoma fimbria</i>		Common	Pacif	E
?	Shortspine Combfish	<i>Zaniolepis frenata</i>		Uncommon	Pacif	V
?	Saddleback Sculpin	<i>Oligocottus rimensis</i>		Common	Pacif	V
?	Northern Spearnose Poacher	<i>Agonopsis vulsa</i>		Uncommon	Pacif	V
C	Blackfin Poacher	<i>Bathyagonus nigripinnis</i>		Rare	Pacif	
?	Warty Poacher	<i>Chesnonia verrucosa</i>		Common	Pacif	V
?	Tubenose Poacher	<i>Pallasina barbata</i>				
C	Smootheye Poacher	<i>Xeneretmus leiops</i>		Rare	Pacif	
?	White Suckerfish	<i>Remora albescens</i>		Rare	Pacif	
?	Remora	<i>Remora remora</i>		Uncommon	Pacif	V
?	Señorita	<i>Oxyjulis californica</i>		Common	Pacif	S
C	Snakehead Eelpout	<i>Embryx crotalinus</i>		Rare	Pacif	
?	Blackmouth Eelpout	<i>Lycodapus fierasfer</i>		Rare	Pacif	
?	Pallid Eelpout	<i>Lycodapus mandibularis</i>		Rare	Pacif	E
C	Bigfin Eelpout	<i>Lycodes corteziianus</i>		Common	Pacif	E
C	Black Eelpout	<i>Lycodes diapterus</i>		Common	Pacif	E
?	Sixspot Prickleback	<i>Kasatkia seigeli</i>				
?	Pacific Sand Lance	<i>Ammodytes hexapterus</i>		Common	Pacif	V
?	Ragfish	<i>Icosteus aenigmaticus</i>		Uncommon	Pacif	V

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	Fish					
GC	COMMON NAME	SCIENTIFIC NAME	FED STATU S	POPEST	LOCA	HI
C	Lingcod	<i>Ophiodon elongates</i>		Common	Pacif	
?	Louvar	<i>Luvarus imperialis</i>		Uncommon	Pacif	V
C	Pacific Chub Mackerel	<i>Scomber japonicus</i>		Common	Pacif	E
C	Pacific Pompano	<i>Peprilus simillimus</i>		Common	Pacif	E
C	Jack Mackerel	<i>Trachurus symmetricus</i>		Common	Pacif	
?	Roughscale Sole	<i>Clidoderma asperrimum</i>				
C	Flathead Sole	<i>Hippoglossoides elassodon</i>				
C	Southern Rock Sole	<i>Lepidopsetta bilineata</i>		Common	Pacif	
?	Oceanic Pufferfish	<i>Lagocephalus lagocephalus</i>		Rare	Pacif	V
F	Pacific Hagfish	<i>Eptatretus stoutii</i>		Common	Pacif	V
B	Pacific Lamprey	<i>Lampreta tridentata</i>	SC	Common	Pacif	E
B	Spotted Ratfish	<i>Hydrolagus colliei</i>		Common	Pacif	E
B	Bluntnose Sixgill Shark	<i>Hexanchus griseus</i>		Common	Pacif	E
?	Broadnose Sevengill Shark	<i>Notorynchus cepedianus</i>		Common	Pacif	V
B	Spiny Dogfish	<i>Squalus acanthias</i>		Common	Pacif	E
?	Pacific Sleeper Shark	<i>Somniosus pacificus</i>		Uncommon	Pacif	V
?	White Shark	<i>Carcharodon carcharias</i>		Uncommon	Pacif	E
B	Shortfin Mako	<i>Isurus oxyrinchus</i>		Uncommon	Pacif	V
B	Salmon Shark	<i>Lamna ditropis</i>		Uncommon	Pacif	E
C	Brown Catshark	<i>Apristurus brunneus</i>		Uncommon	Pacif	E
C	Longnose Catshark	<i>Apristurus kampae</i>		Rare	Pacif	E
C	Filetail Catshark	<i>Parmaturus xaniurus</i>		Uncommon	Pacif	E
B	Brown Smoothhound	<i>Mustelus henlei</i>		Common	Pacif	E
B	Pacific Electric Ray	<i>Torpedo californica</i>		Common	Pacif	E
C	Deepsea Skate	<i>Bathyraja abyssicola</i>		Rare	Pacif	E
C	Sandpaper Skate	<i>Bathyraja interrupta</i>		Rare	Pacif	E
?	White Skate	<i>Bathyraja spinosissima</i>		Rare	Pacif	V
C	Black Skate	<i>Bathyraja trachura</i>		Uncommon	Pacif	E
B	Big Skate	<i>Raja binoculata</i>		Common	Pacif	E
B	California Skate	<i>Raja inornata</i>		Uncommon	Pacif	E
B	Longnose Skate	<i>Raja rhina</i>		Common	Pacif	E
C	Starry Skate	<i>Raja stellulata</i>		Uncommon	Pacif	E
?	Green Sturgeon	<i>Acipenser medirostris</i>	T	Common	Pacif	S
?	White Sturgeon	<i>Acipenser transmontanus</i>	E	Common	Pacif	S
?	Bonefish	<i>Albula vulpes</i>		Uncommon	Pacif	
?	Slender Snipe Eel	<i>Nemichthys scolopaceus</i>		Uncommon	Pacif	V
?	Sawtooth Snipe Eel	<i>Serrivomer sector</i>		Rare	Pacif	E
B	Northern Anchovy	<i>Engraulis mordax</i>		Common	Pacif	E
B	American Shad	<i>Alosa sapidissima</i>		Common	Pacif	E
B	Pacific Sardine	<i>Sardinops sagax</i>		Common	Pacif	E

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	Fish					
GC	COMMON NAME	SCIENTIFIC NAME	FED STATU S	POPEST	LOCA	HI
?	California Smoothtongue	<i>Leuroglossus stilbius</i>		Common	Pacif	E
?	Pacific Barreleye	<i>Macropinna microstoma</i>		Uncommon	Pacif	
C	California Slickhead	<i>Alepocephalus tenebrosus</i>		Uncommon	Pacif	E
C	Threadfin Slickhead	<i>Talismania bifurcata</i>		Rare	Pacif	E
C	Whitebait Smelt	<i>Allosmerus elongatus</i>		Uncommon	Pacif	E
?	Night Smelt	<i>Spirinchus starksi</i>		Common	Pacif	V
?	Longfin Smelt	<i>Spirinchus thaleichthys</i>	SC	Common	Pacif	V
?	Chum Salmon	<i>Oncorhynchus keta</i>	T	Uncommon	Pacif	
B	Coho Salmon [Silver Salmon]	<i>Oncorhynchus kisutch</i>	T	Common	Pacif	E
B	Rainbow Trout [Steelhead]	<i>Oncorhynchus mykiss</i>	E & T regional	Common	Pacif	E
?	Bigeye Lightfish	<i>Daphnos oculatus</i>		Uncommon	Pacif	
?	Silver Hatchetfish	<i>Argyropelecus lychnus</i>		Uncommon	Pacif	V
?	Dollar Hatchetfishes	<i>Sternoptyx spp.</i>		Uncommon	Pacif	
C	Pacific Viperfish	<i>Chauliodus macouni</i>		Uncommon	Pacif	E
?	Daggertooth	<i>Anotopterus pharao</i>		Uncommon	Pacif	
?	Longnose Lancetfish	<i>Alepisaurus ferax</i>		Uncommon	Pacif	
C	California Lanternfish	<i>Symbolophorus californiensis</i>			Pacif	
?	Blue Lanternfish	<i>Tarletonbaenia crenularis</i>		Uncommon	Pacif	E
C	California Headlightfish	<i>Diaphus theta</i>			Pacif	
?	Northern Lampfish	<i>Stenobranchius leucopsaurus</i>		Uncommon	Pacif	V
?	Mexican Lampfish	<i>Triphoturus mexicanus</i>		Uncommon	Pacif	S
B	Spotted Cusk Eel	<i>Chilara taylora</i>		Common	Pacif	E
?	Red Brotula	<i>Brosomphycis marginata</i>		Common	Pacif	V
C	Giant Grenadier	<i>Albatrossia pectoralis</i>		Rare	Pacif	E
C	Shoulderspot Grenadier	<i>Coelorinchus scaphopsis</i>		Rare	Pacif	E
C	Pacific Grenadier	<i>Coryphaenoides acrolepis</i>		Uncommon	Pacif	E
?	Hundred-Fathom Codling	<i>Physiculus rastrelliger</i>		Uncommon	Pacif	
B	Pacific Hake	<i>Merluccius productus</i>		Common	Pacif	E
?	Pacific Cod	<i>Gadus microcephalus</i>		Uncommon	Pacif	V
C	Pacific Tomcod	<i>Microgadus proximus</i>		Common	Pacif	E
?	Walleye Pollock	<i>Theragra chalcogramma</i>		Rare	Pacif	V
B	Plainfin Midshipman	<i>Porichthys notatus</i>		Common	Pacif	E
G	California Grunion	<i>Leuresthes tenuis</i>		Common	Pacif	S
C	Pacific saury	<i>Cololabis saira</i>		Common	Pacif	
?	Highsnout Bigscale	<i>Melamphaes lugubris</i>		Rare	Pacif	E
C	Fangtooth	<i>Anoplogaster cornuta</i>		Rare	Pacif	E
?	Snubnose Pipefish	<i>Cosmocampus arctus</i>		Uncommon	Pacif	V
C	Shiner Perch	<i>Cymatogaster aggregate</i>		Common	Pacif	
C	Pacific Ocean Perch	<i>Sebastes alutus</i>		Common	Pacif	E
C	Brown Rockfish	<i>Sebastes auriculatus</i>		Common	Pacif	E

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	Fish					
GC	COMMON NAME	SCIENTIFIC NAME	FED STATU S	POPEST	LOCA	HI
C	Aurora Rockfish	<i>Sebastes aurora</i>		Common	Pacif	E
B	Redbanded Rockfish	<i>Sebastes babcocki</i>		Common	Pacif	E
?	Silvergray Rockfish	<i>Sebastes brevispinis</i>		Rare	Pacif	V
B	Copper Rockfish	<i>Sebastes caurinus</i>		Common	Pacif	E
?	Black-and-Yellow Rockfish	<i>Sebastes chrysomelas</i>		Common	Pacif	V
B	Starry Rockfish	<i>Sebastes constellatus</i>		Common	Pacif	E
B	Darkblotched Rockfish	<i>Sebastes crameri</i>		Uncommon	Pacif	E
B	Splitnose Rockfish	<i>Sebastes diploproa</i>		Common	Pacif	E
B	Greenstriped Rockfish	<i>Sebastes elongatus</i>		Common	Pacif	E
B	Swordspine Rockfish	<i>Sebastes ensifer</i>		Uncommon	Pacif	V
B	Widow Rockfish	<i>Sebastes entomelas</i>		Common	Pacif	E
C	Pink Rockfish	<i>Sebastes eos</i>		Common	Pacif	E
B	Yellowtail rockfish	<i>Sebastes flavidus</i>				
B	Chilipepper	<i>Sebastes goodei</i>		Common	Pacif	E
C	Rosethorn Rockfish	<i>Sebastes helvomaculatus</i>		Uncommon	Pacif	
B	Shortbelly Rockfish	<i>Sebastes jordani</i>		Common	Pacif	E
B	Cowcod	<i>Sebastes levis</i>		Common	Pacif	E
B	Quillback Rockfish	<i>Sebastes maliger</i>		Uncommon	Pacif	E
C	Blackgill Rockfish	<i>Sebastes melanostomus</i>		Common	Pacif	E
B	Vermilion Rockfish	<i>Sebastes miniatus</i>		Common	Pacif	E
B	Blue Rockfish	<i>Sebastes mystinus</i>		Common	Pacif	E
B	Speckled Rockfish	<i>Sebastes ovalis</i>		Common	Pacif	E
B	Bocaccio	<i>Sebastes paucispinis</i>		Common	Pacif	E
B	Canary Rockfish	<i>Sebastes pinniger</i>		Common	Pacif	E
B	Redstripe Rockfish	<i>Sebastes proriger</i>		Uncommon	Pacif	E
G	Grass Rockfish	<i>Sebastes rastrelliger</i>		Common	Pacif	V
B	Rosy Rockfish	<i>Sebastes rosaceus</i>		Common	Pacif	V
B	Greenblotched Rockfish	<i>Sebastes rosenblatti</i>		Common	Pacif	E
B	Yelloweye Rockfish	<i>Sebastes ruberrimus</i>		Common	Pacif	E
B	Flag Rockfish	<i>Sebastes rubrivinctus</i>		Common	Pacif	E
B	Bank Rockfish	<i>Sebastes rufus</i>		Common	Pacif	E
B	Stripetail Rockfish	<i>Sebastes saxicola</i>		Common	Pacif	E
B	Halfbanded Rockfish	<i>Sebastes semicinctus</i>		Common	Pacif	E
B	Olive Rockfish	<i>Sebastes serranoides</i>		Common	Pacif	E
?	Treefish	<i>Sebastes serriiceps</i>		Common	Pacif	V
B	Pygmy Rockfish	<i>Sebastes wilsoni</i>		Rare	Pacif	E
B	Sharpchin Rockfish	<i>Sebastes zacentrus</i>		Uncommon	Pacif	E
C	Shortspine Thornyhead	<i>Sebastolobus alascanus</i>		Common	Pacif	
B	Longspine Thornyhead	<i>Sebastolobus altivelis</i>		Uncommon	Pacif	E
B	Skilfish	<i>Erilepis zonifer</i>		Rare	Pacif	
B	Kelp Greenling	<i>Hexagrammos</i>		Common	Pacif	E

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	Fish					
GC	COMMON NAME	SCIENTIFIC NAME	FED STATU S	POPEST	LOCA	HI
		<i>decagrammus</i>				
B	Painted Greenling	<i>Oxylebius pictus</i>		Common	Pacif	E
B	Longspine Combfish	<i>Zaniolepis latipinnis</i>		Uncommon	Pacif	E
?	Rosylip Sculpin	<i>Ascelichthys rhodorus</i>		Uncommon	Pacif	V
?	Roughback Sculpin	<i>Chitonotus pugetensis</i>		Uncommon	Pacif	E
?	Buffalo Sculpin	<i>Enophrys bison</i>		Common	Pacif	V
?	Dusky Sculpin	<i>Icelinus burchami</i>		Rare	Pacif	V
C	Threadfin Sculpin	<i>Icelinus filamentosus</i>		Uncommon	Pacif	E
?	Frogmouth Sculpin	<i>Icelinus oculatus</i>		Rare	Pacif	V
	Spotfin Sculpin	<i>Icelinus tenuis</i>		Uncommon	Pacif	V
B	Longfin Sculpin	<i>Jordania zonope</i>		Uncommon	Pacif	V
B	Staghorn Sculpin	<i>Leptocottus armatus</i>		Common	Pacif	V
?	Silverspotted Sculpin	<i>Belpsius cirrhosus</i>		Uncommon	Pacif	V
?	Sailfin Sculpin	<i>Nautichthys oculofasciatus</i>		Uncommon	Pacif	V
C	Slim Sculpin	<i>Radulinus asprellus</i>		Uncommon	Pacif	
C	Sturgeon Poacher	<i>Agonus acipenserinus</i>		Common	Pacif	
?	Pygmy Poacher	<i>Odontopyxis trispinosa</i>		Common	Pacif	E
?	Pricklebreast Poacher	<i>Stellerina xyosterna</i>		Uncommon	Pacif	V
C	Blackedge Poacher	<i>Xeneretmus latifrons</i>		Uncommon	Pacif	E
?	Bluespotted Poacher	<i>Xeneretmus triacanthus</i>		Common	Pacif	V
C	Blacktail Snailfish	<i>Careproctus melanurus</i>		Uncommon	Pacif	E
	Humpback Snailfish	<i>Elassodiscus caudatus</i>				
?	Tidepool Snailfish	<i>Liparis florae</i>		Common	Pacif	V
?	Slipskin Snailfish	<i>Liparis fuscensis</i>		Uncommon	Pacif	V
?	Southern Ringtail Snailfish	<i>Liparis adiaastolus</i>		Uncommon	Pacif	V
?	Showy Snailfish	<i>Lipris pulchellus</i>		Uncommon	Pacif	V
?	Whalesucker	<i>Remora australis</i>		Rare	Pacif	
?	Veilfin	<i>Caristius macropus</i>		Rare	Pacif	
B	White Croaker	<i>Genyonemus lineatus</i>		Common	Pacif	E
?	Queenfish	<i>Seriphus politus</i>		Common	Pacif	V
?	Opaleye	<i>Girella nigricans</i>		Common	Pacif	V
G	Shiner Perch	<i>Cymatogaster aggregata</i>		Common	Pacif	E
G	Walleye Surfperch	<i>Hyperprosopon argenteum</i>		Common	Pacif	V
G	Rainbow Seaperch	<i>Hypsurus caryi</i>		Common	Pacif	V
G	Rubberlip Seaperch	<i>Rhacochilus toxotes</i>		Common	Pacif	V
B	Pink Seaperch	<i>Zalembius rosaceus</i>		Uncommon	Pacif	E
?	Northern Ronquil	<i>Ronquilus jordani</i>		Rare	Pacif	V
?	Soft Eelpout	<i>Bothrocara molle</i>		Uncommon	Pacif	
?	Flatcheek Eelpout	<i>Embryx crotalina</i>		Rare	Pacif	
C	Blackbelly Eelpout	<i>Lycodopsis pacifica</i>		Common	Pacif	E
?	Bearded Eelpout	<i>Lyconema barbatus</i>		Uncommon	Pacif	
C	Twoline Eelpout	<i>Bothrocara brunneum</i>		Common	Pacif	

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	Fish					
GC	COMMON NAME	SCIENTIFIC NAME	FED STATU S	POPEST	LOCA	HI
?	Midwater Eelpout	<i>Melanostigma pammelas</i>		Uncommon	Pacif	E
B	Monkeyface Prickleback	<i>Cebidichthys violaceus</i>		Common	Pacif	V
?	Bluebarred Prickleback	<i>Plectrobranchus evides</i>		Uncommon	Pacif	V
?	Whitebarred Prickleback	<i>Poroclinus rothrocki</i>		Uncommon	Pacif	V
?	Penpoint Gunnel	<i>Apodichthys flavidus</i>		Common	Pacif	V
B	Wolf-Eel	<i>Anarrhichthys ocellatus</i>		Common	Pacif	E
?	Onespot Fringehead	<i>Neoclinus uniornatus</i>		Uncommon	Pacif	S
B	Blackeye Goby	<i>Coryphopterus nicholsii</i>		Common	Pacif	V
?	Pacific Barracuda	<i>Sphyræna argentea</i>		Common	Pacif	V
?	Escolar	<i>Lepidocybrium flavobrunneum</i>		Rare	Pacif	
?	Skipjack Tuna	<i>Katsuwonus pelamis</i>		Common	Pacif	V
?	Pacific Bonito	<i>Sarda chiliensis</i>		Common	Pacif	V
?	Bigeye Tuna	<i>Thunnus obesus</i>		Rare	Pacif	
B	Swordfish	<i>Xiphias gladius</i>		Common	Pacif	
C	Medusafish	<i>Icichthys lockingtoni</i>		Common	Pacif	E
?	Smalleye Squaretail	<i>Tetragonurus cuvieri</i>		Rare	Pacif	
B	Pacific Sanddab	<i>Citharichthys sordidus</i>		Common	Pacif	E
B	Speckled Sanddab	<i>Citharichthys stigmaeus</i>		Common	Pacif	E
B	California Halibut	<i>Paralichthys californicus</i>		Common	Pacif	E
C	Pacific Halibut	<i>Hippoglossus stenolepis</i>		Uncommon	Pacif	
B	Arrowtooth Flounder	<i>Atheresthes stomias</i>		Uncommon	Pacif	E
C	Deepsea Sole	<i>Embassichthys bathybius</i>		Uncommon	Pacif	E
B	Petræ Sole	<i>Eopsetta jordani</i>		Common	Pacif	E
B	Rex Sole	<i>Glyptocephalus zachirus</i>		Common	Pacif	E
B	Butter Sole	<i>Isopsetta isolepis</i>		Common	Pacif	E
FF						
F	Rock Sole	<i>Lepidopsetta bilineata</i>		Common	Pacif	E
B	Slender Sole	<i>Lyopsetta exilis</i>		Uncommon	Pacif	E
C	Sand Sole	<i>Psettichthys melanostictus</i>		Common	Pacif	
B	Dover Sole	<i>Microstomus pacificus</i>		Common	Pacif	E
C	English Sole	<i>Parophrys vetulus</i>		Common	Pacif	V
B	Starry Flounder	<i>Platichthys stellatus</i>		Common	Pacif	E
?	C-O Sole	<i>Pleuronichthys coenosus</i>		Common	Pacif	V
B	Curlfin Sole	<i>Pleuronichthys decurrens</i>		Common	Pacif	E
B	Diamond Turbot	<i>Pleuronichthys guttulatus</i>		Common	Pacif	V
B	Hornyhead Turbot	<i>Pleuronichthys verticalis</i>		Common	Pacif	E
?	Greenland Halibut	<i>Reinhardtius hippoglossoides</i>		Uncommon	Pacif	V
	California Tonguefish	<i>Symphurus atricauda</i>		Common	Pacif	V
	Finescale Triggerfish	<i>Balistes polylepis</i>		Rare	Pacif	
B	Ocean Sunfish	<i>Mola mola</i>		Common	Pacif	E

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	Reptiles					
GC	COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	POPEST	LOCA	HI
?	Loggerhead Turtle	<i>Caretta caretta</i>	T	Uncommon	World	
B	Leatherback Turtle	<i>Dermochelys coriacea</i>	E	Rare	World	E

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Invertebrates		
CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	SOURCE
Monera		
Bacterial Mat	<i>Beggiotoa spp.</i>	
Porifera		
white sponge	<i>Stelletta clarella</i>	<i>Cordell Expeditions (CE)</i>
Gray moon sponge	<i>Spheciospongia confoederata</i>	<i>CE</i>
aggregate vase sponge	<i>Polymastia pachymastia</i>	<i>CE</i>
Red volcano sponge	<i>Acarnus erithacus</i>	<i>CE</i>
	<i>Lissodendoryx firma</i>	<i>CE</i>
bread crumb sponge	<i>Halichondria panicea</i>	<i>CE</i>
	<i>Geodia mesotriaena</i>	<i>CE</i>
foliose sponge		Pirtle/Delta
	<i>Guitarra abbotti</i>	<i>Lee</i>
Cnidaria		
Yellow hydroid	<i>Garveia annulata</i>	<i>CE</i>
California hydrocoral	<i>Stylaster californicus</i>	<i>CE</i>
Red gorgonian coral	<i>Swiftia sp.</i>	<i>Pirtle/Delta</i>
Sea pen	<i>Ptilosarcus sp.</i>	<i>Pirtle/Delta</i>
Strawberry anemone	<i>Corynactis californica</i>	<i>CE</i>
White plumed anemone	<i>Metridium giganteum</i>	<i>CE</i>
white anemone	<i>Metridium senile</i>	<i>CE</i>
fish eating anemone	<i>Urticina piscivora</i>	<i>Delta</i>
Yellow zoanthid	<i>Epizoanthus scotinus</i>	<i>CE</i>
Orange cup coral	<i>Balanophyllia elegans</i>	<i>CE</i>
Solitary cup coral	<i>Caryophyllia sp.</i>	<i>CE</i>
clear anemone	<i>Caryophyllidae</i>	
dog toy	<i>Anthomastus ritteri</i>	
Annelids		
polychaete worm	<i>Ophioneries annulata</i>	<i>CE</i>
polychaete worm	<i>Neries eakini</i>	<i>CE</i>
Mollusca		
giant pacific octopus	<i>Octopus dofleini</i>	<i>Delta</i>
sea hare	<i>Lipomena</i>	
red octopus	<i>Octopus rubescens</i>	
jumbo squid	<i>Dosidicus gigas</i>	<i>Delta</i>
Triton shell	<i>Fusitriton organensis</i>	<i>CE</i>
blue ring top snail	<i>Calliostoma annulatum</i>	<i>CE</i>
top snail	<i>Calliostoma ligatum</i>	<i>CE</i>
	<i>Pedicularia californica</i>	<i>CE</i>
	<i>Homalopoma luridum</i>	<i>CE</i>
Dorid nudibranch	<i>Anisodoris nobilis</i>	<i>CE</i>

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Invertebrates		
CLASSIFICATION & COMMON NAME	SCIENTIFIC NAME	SOURCE
nudibranch	<i>Armina cordellensis</i>	<i>Gosliner</i>
nudibranch	<i>Aeolidia farallonensis</i>	<i>Gosliner</i>
lined chiton	<i>Tonicella lineata</i>	<i>CE</i>
Arthropoda		
barnacle	<i>Balanus nubilus</i>	<i>CE</i>
barnacle	<i>Megabalanus californicus</i>	<i>CE</i>
spider crab	<i>Scyra acutifrons</i>	<i>CE</i>
masking crab	<i>Loxorhynchus crispatus</i>	<i>CE</i>
box crab	<i>Lopholithodes foraminatus</i>	
shrimp/ prawn	<i>Pandalus spp.</i>	
spot prawn	<i>Pandalas platyceros</i>	<i>Delta</i>
rock crab	<i>Cancer sp.</i>	<i>Delta</i>
Dungeness crab	<i>Cancer magister</i>	<i>Delta</i>
Echinoderm		
sea star	<i>Crossaster papposus</i>	
sun star	<i>Rathbunaster californicus</i>	
sun star	<i>Solaster sp.</i>	
spiny star	<i>Poraniopsis inflata</i>	
sunflower star	<i>Pycnopodia sp.</i>	
rainbow star	<i>Orthasterias spp.</i>	
leather star	<i>Dermasterias imbricata</i>	<i>CE</i>
basketstar	<i>Gorgonocephalus eucinemis</i>	
brittlestar	<i>Ophiacantha sp.</i>	
red star	<i>Mediaster aequalis</i>	<i>CE</i>
blood star	<i>Henricia sp.</i>	
sea star	<i>Pteraster militaris</i>	
sunflower star	<i>Pycnopodia helianthoides</i>	
cushion star	<i>Pteraster tesselatus</i>	
sand star	<i>Luidia foliata</i>	
bat star	<i>Asterina miniata</i>	
sea cucumber	<i>Parastichopus spp.</i>	
sea cucumber	<i>Psolus spp.</i>	
sea cucumber	<i>Parastichopus californicus</i>	<i>CE</i>
sea cucumber	<i>Parastichopus johnsoni</i>	
sea cucumber	<i>Parastichopus leukothele</i>	
cookie cutter star	<i>Ceramaster patagonicus</i>	
brittlestar	<i>Asteronyx sp.</i>	
red sea urchin	<i>Strongylocentrotus franciscanus</i>	<i>CE</i>
sea urchin	<i>Alloccentrotus fragilis</i>	<i>Delta</i>
common crinoid	<i>Florometra serratissima</i>	<i>Delta</i>
Tunicates		
Lobed tunicate	<i>Cystodytes lobatus</i>	<i>CE</i>