

A C T I O N P L A N

Since designation of the site in 1981, the Marine and Estuarine Management Division has initiated programs for marine education and interpretation, selected scientific research relevant to sanctuary management, and coordinated surveillance and enforcement. The Division has also resolved through the management planning process numerous issues, including the best location for the headquarters. The action plan included here uses this experience as a starting point for sanctuary management to develop new directions and expand existing programs. It is a blueprint for what will be accomplished by the Marine and Estuarine Management Division and other collaborating agencies over the next five to ten years.



Context for Sanctuary Management

Goals and Objectives
for the Sanctuary

Policies, Guidelines
Regulations

Current
Issues



Program Activities

Research
Program

Baseline
Development
+
Critical Habitats and
Ecological Relationships
+
Special Impact
Studies
+
Design of Monitoring
Programs

Resource Protection
Program

Surveillance,
Enforcement
+
Emergency Response/
Contingency Planning
+
Information
Dissemination
+
Agency
Coordination
+
Monitoring

Education
Program

Identity
Program
+
On-site Programs
(Seminars, Demos)
+
Support for Other
Local Programs



Program Evaluation

Evaluate Process and Outcome
of Program Activities

OVERALL MANAGEMENT FRAMEWORK

As detailed in the last section, long-term protection of significant marine resources in the Gulf of the Farallones is the highest priority for the sanctuary's management. In many ways, the current capability for managing and protecting marine resources is limited compared to the capability for managing terrestrial or estuarine parks. However, improved approaches and techniques are being developed (Salm and Clark 1984; Dobbin and Lemay 1985). The objective is to apply these to the sanctuary and gradually build a capability for improved management of the marine environment.

The two additional components of the action plan — "Research" and "Education" — are designed to support the resource protection program for the sanctuary. The broad management framework where resource protection represents the core responsibility of the program and education and research are designed to support the marine resource protection focus is illustrated in figure 13.

In this sanctuary, perhaps more than in others, marine resource protection will encompass an unusually wide variety of living resources and habitats. The latter include coastal wetlands, shallow bays, the Gulf of the Farallones, and the edge of the continental shelf. The

plan therefore prescribes actions tailored to the specific parts of the sanctuary. The focus is on practical measures for protection, rather than rigorous zoning schemes or large-scale facility development which would be clearly inappropriate in this setting.

Assigning priorities according to critical issues in different areas will be mandatory for cost-effective use of limited funds and staff. In all such tasks, the need for coordination among Federal and state agencies which share responsibilities plays an important role. Coordination will avoid costly duplication of effort, develop increased cooperation with other key agencies, and move toward the management of the Gulf as an integrated marine unit.

Following approval of this plan, activities can be phased over the years ahead. The focus in the early years will be to continue to establish the sanctuary's identity, formalize collaborative arrangements with other agencies, and build a resource management capability. In subsequent years, as funding becomes available, the program could be expanded to include more staff, a stronger on-site presence, and possibly long-term research and monitoring programs. Some adjustments to the program will be required to accommodate the potential designation of the Cordell Bank site immediately north of the Gulf of the Farallones National Marine Sanctuary.



GUIDELINES FOR DETERMINING MANAGEMENT ACTIONS

There are several ways of analyzing the existing status of the sanctuary to determine management actions that are required now and over the next few years. An effective approach, and the one used here, is the issue analysis process (Dobbin and Lemay 1985; NOAA 1983a, 1983b). This process identifies potential issues, defines why these represent a problem or concern for sanctuary management, provides evidence that the issues are in fact ones that should be resolved, and develops a series of actions that accomplish this. The resulting actions, when taken together, form the overall program (for a prescribed period of time) for improved management and protection of sanctuary resources. Such management is the main objective of the Marine and Estuarine Management Division. The following summarizes the basic steps of the issue analysis process:

- Step 1:* Identify and describe each issue.
- Step 2:* Develop evidence or facts that verify that each issue is real and relevant to sanctuary management.
- Step 3:* Relate each issue to the National Marine Sanctuary Program; if it is not relevant to the Program, it is not an issue to be addressed within the management plan.
- Step 4:* Define action(s) that resolve each issue.
- Step 5:* Combine the various actions and develop an overall program of activities over a specific period of time.

This analysis produced a broad array of issues for this management plan. These were evaluated during a research workshop for the sanctuary, ongoing discussions with sanctuary staff and other agencies such as the California Department of Fish and Game, the California Coastal Commission, the National Park Service, and the U.S. Coast Guard. The complete analysis is presented in Table 1. Issues that were generally agreed upon have been organized as follows:

- Issues that relate directly to marine resource protection or management (resources at risk)
- Issues that relate to scientific research and the information needed to effectively manage marine resources (inability to do anything until more is known)
- Issues that relate to public awareness and understanding of sanctuary resources and management
- Issues that relate to the administration of the sanctuary and implementation of its management program

By means of a comparison with program objectives and a screening process, the individual actions aimed at single issues were consolidated into program areas (see Table 2 under the topics of Resource Protection, Research, Education and Interpretation).

The remainder of the action plan provides additional information for each of the following program areas.

TABLE 1
MANAGEMENT ISSUE/ACTION ANALYSIS

Issues Relating Directly to Resource Protection and Management

MANAGEMENT ISSUE	EVIDENCE	RELATION TO THE NATIONAL MARINE SANCTUARY	ACTIONS
<p>1. Potential Accidental Spills and their Effects on Sanctuary Resources</p> <p>There is a probability of an accidental spill occurring in the area over the next decade given the amount of tanker and other merchant vessel traffic passing through the sanctuary and immediately south. Traffic is also likely to increase over the next decade. Depending on the volumes and products discharged, currents and other weather conditions, an accidental spill could affect sanctuary resources. The immediate and long-term effects of spills of various types of products are not well understood and the capability for effectively controlling the effects of a major spill is limited.</p>	<p>1971 Collision of two tankers (840,000 gallons).</p> <p>1984 T/V <i>Puerto Rican</i> spill (1.7 million gallons)</p> <p>1973-84 numerous small vessel spills in SFB and north of the sanctuary.</p> <p>In calendar year 1981, an average of 3 tankers plus 7 other types of vessels per day entered the Bay [compared to an average of about 8 tankers and 16 other merchant vessels passing through the Santa Barbara Channel each day] (NOAA 1980).</p>	<p>Relates to the sanctuary discharge regulation.</p> <p>Relates to sanctuary objective of reducing threats to and protection of sanctuary resources.</p>	<p>Compile information on resources at risk from accidental discharges.</p> <p>Evaluate current response capability within the sanctuary and investigate alternatives for increasing capability.</p> <p>Prepare and implement an emergency response and contingency plan.</p>
<p>2. Chronic Pollution of Sanctuary Waters</p> <p>There are offshore and land-based sources of pollution that could be affecting sanctuary waters. The location and volumes of chronic discharges have not been well documented. The long-term effects of these discharges on sanctuary resources are not known.</p>	<p>Chronic releases from the T/V <i>Puerto Rican</i>.</p> <p>CF&G violation reports of vessels illegally discharging pollutants in the sanctuary.</p> <p>PRBO Farallon logs reporting incidents of oiled birds and small diesel fuel spills from unknown sources on Southeast Farallon Island since 1970.</p> <p>Historic radioactive waste disposal sites 4-14 mi (6-23 km) from Southeast Farallon Island.</p>	<p>Relates to the sanctuary discharge regulation.</p> <p>Relates to the sanctuary objective of reducing threats to resources.</p>	<p>Access historical patterns in oiled birds at the Farallons.</p> <p>Continue to monitor chronic incidence of oiled birds within the sanctuary.</p> <p>Review and if needed revise discharge regulations to facilitate enforcement.</p> <p>Assess trends in discharge violations to determine the need for increased patrolling on the water.</p> <p>Develop agreements to provide for increased enforcement of regulations.</p>

Issues Relating Directly to Resource Protection and Management, Cont.

MANAGEMENT ISSUE	EVIDENCE	RELATION TO THE NATIONAL MARINE SANCTUARY	ACTIONS
<p>3. Marine Mammal and Seabird/Fishery Interactions</p> <p>Efforts to determine the nature and extent of marine mammal and seabird/fishery interactions have been underway since 1979. From 1979-1982, the amount of gill and trammel net fishing and the number of fishermen using entangling type nets increased dramatically in central and northern California; and incidental take increased accordingly (NOAA 1980; Marine Mammal Commission 1984). Gill netting was prohibited in Monterey Bay for a limited period in 1982. This caused gill net boats to shift north and incidental take of harbor porpoise and seabirds increased substantially in Marin County.</p> <p>In July 1984, the State of California enacted legislation restricting the use of gill nets in a number of areas from Point Reyes to Monterey Bay. Fishery observations and marine mammal stranding data indicate that the restrictions did not eliminate, and may not have reduced the incidental take of harbor porpoise, harbor seals, and other marine mammals in these areas (Marine Mammal Commission 1984; Allen 1984).</p> <p>In September 1987, state legislation further restricted the use of gill nets south of Point Reyes and prohibited gill and trammel net use north of Point Reyes. The legislations also provided assistance to fishermen in converting to other fishing gear.</p> <p>A related issue seems to be the entanglement of marine mammals and other organisms in lost or discarded fishing gear and other marine debris (Marine Mammal Commission 1984).</p>	<p>Commercial gill net fisheries in the sanctuary incidentally killed many small marine mammals in 1982, 1983, and 1984 (Allen and Huber 1984).</p> <p>Entanglement in gill nets was determined to be the cause of death in 50% of necropsies performed on marine mammals collected in the sanctuary between 1982-1984 (mainly harbor porpoise, harbor seal, C. seal lion) (Dieter 1984).</p>	<p>Relates to the sanctuary objective of reducing threats to resources.</p> <p>Relates to the MMPA-a federal act considered part of the resource protection program.</p> <p>Discarded fishing gear may relate to the sanctuary discharge regulation.</p>	<p>Continue to monitor the incidence of marine mammal mortalities caused by gill-netting.</p> <p>Provide regulatory agencies scientific information for the development of improved regulations and possible mitigating actions.</p> <p>Collaborate with NMFS, CF&G and other agencies to prepare and disseminate information to the fishing industry on the extent of the gill-netting problem and entanglement in lost gear, including effects on marine species and threat to human safety.</p> <p>Coordinate with state and Federal agencies in monitoring effects of new closures.</p> <p>Support recommendations made at the 1984 Workshop on the Fate and Impact of Marine Debris.</p>

Issues Relating Directly to Resource Protection and Management, Cont.

MANAGEMENT ISSUE	EVIDENCE	RELATION TO THE NATIONAL MARINE SANCTUARY	ACTIONS
<p>4. Visitor Use Impacts on Marine Mammals, Intertidal Invertebrates, and Other Sensitive Resources</p> <p>In areas where there is good coastal access, current levels of visitor use have caused disturbances to sanctuary resources. Harbor seals that haul-out on mainland beaches and intertidal species such as abalone, limpets, and mussels have been particularly affected. There is evidence that human-related disturbances of harbor seals may be affecting pup production and that some invertebrate populations are heavily depleted in the sanctuary. Future increases in visitor use could lead to even more pronounced impacts on sanctuary resources.</p>	<p>Chan (1984) reports that populations of some species of intertidal and subtidal organisms in areas of the sanctuary are depleted due to collecting.</p> <p>CF&G violation reports of under-size abalones or exceeded limits.</p> <p>Allen and Huber (1984) report a variety of human-related disturbances to harbor seals.</p>	<p>Relates to the sanctuary objectives of reducing threats to resources and sensitizing visitors to the vulnerability of specific resources.</p> <p>Relates to MMPA and State of California living marine resources regulations that are considered part of the sanctuary resource protection program.</p>	<p>Continue monitoring and/or encourage other agencies to monitor intertidal and subtidal sites within the sanctuary that are heavily harvested.</p> <p>Continue to monitor periodically (1-2 year intervals) human-related levels of disturbance on harbor seals and support research to assess potential effects on population.</p> <p>Assess trends in illegal take violations to determine the need for increased patrolling on the water.</p> <p>Provide to regulatory agencies scientific information for the development of improved regulations including the designation of additional special protected areas within the sanctuary if warranted.</p> <p>Develop and disseminate public information on the vulnerability of affected resources (invertebrates, seabirds, and marine mammals).</p> <p>Enforce existing regulations prohibiting collection.</p>

Issues Relating Directly to Resource Protection and Management, Cont.

MANAGEMENT ISSUE	EVIDENCE	RELATION TO THE NATIONAL MARINE SANCTUARY	ACTIONS
<p>5. <i>Maintaining the Quality of Sensitive and/or Critical Habitats within the Sanctuary</i></p>	<p>CF&G Mussel Watch program.</p> <p>Comments received at the sanctuary research workshop on Tomales Bay, and Bolinas Lagoon.</p> <p>California Regional Water Quality Control Board Reconnaissance reports on ASBS within or adjacent to the sanctuary.</p> <p>USGS Port Access Route Study and consideration of a revised TSS for SFB entrance.</p> <p>Proposal for exploratory drilling (Minerals Management Service 1983).</p>	<p>Relates to the sanctuary objective of implementing an ecosystem approach to marine resource protection and encouraging other agencies to consider the relationships between sensitive marine resources and coastal land use in the review and approval of development proposals.</p>	<p>Participate in the review of major coastal (and offshore) development proposals or new activity proposals that could affect sanctuary resources.</p> <p>Provide scientific information on the sensitivity of sanctuary resources for potential developments to land use regulatory agencies.</p>
<p>The sanctuary contains some of California's most pristine estuaries and saltmarshes, unique intertidal pools, subtidal reefs, and eel grass beds. The roles of these areas as critical spawning or nursery habitats for sanctuary resources such as the Pacific herring, salmon, rockfish, and Dungeness crab need to be confirmed. These habitats are exposed to a variety of on-shore land-use related impacts including agricultural run-off (fertilizers, sediments), municipal wastes discharges (nutrients, public health hazard, contamination of organisms), coastal construction activities (sediments), water diversion (increased salinity in estuaries), and physical trampling.</p>			

**Issues Relating to Scientific Research and the Information Needed
To Effectively Manage Marine Resources in the Sanctuary**

MANAGEMENT ISSUE	EVIDENCE	RELATION TO THE NATIONAL MARINE SANCTUARY	ACTIONS
<p>1. <i>Incomplete Baseline Information about the (Seasonal) Distribution, Abundance, and Status of Marine Resources Particularly within the Gulf of the Farallones</i></p> <p>Data are available on the Gulf's distribution of seabirds and the coastal distribution of aquatic birds for example, but there are still significant gaps about the distribution and abundance of cetaceans, some of the pinnipeds and the lower parts of the food chain. In some cases, baseline data may be available, but a sanctuary-wide assessment has not been carried out to determine whether they are adequate.</p> <p>2. <i>Incomplete Information On the Dependence of the Population of the Gulf of the Farallones on Food Resources and Critical Habitats</i></p> <p>Information is available on some critical ecological relationships within the Gulf of the Farallones (Page et al. 1984). The evidence now available suggests that there is a variety of habitats within the Gulf of the Farallones and some of the bays which are playing a critical role in the life history of some species. There is very little information available on the dependence of cetaceans and pinnipeds on these habitats.</p>	<p>Recognition of data gaps in Ainley et al., 1981, in information about seabirds and marine mammals in the sanctuary.</p> <p>Conclusions reached by regional scientific experts at the sanctuary research workshop, 1983, pointed out the need for more complete information on a variety of species, habitats, and processes in the sanctuary.</p> <p>White shark and humpback whale research has been undertaken to investigate these important animals and their use of the sanctuary, about which very little is known.</p> <p>PRBO, 1985</p> <p>Current questions about humpback whale ecology which have led to the development of a research project.</p> <p>Conclusions reached at the sanctuary research workshop, 1983.</p> <p>Report on sanctuary research priorities and needs.</p>	<p>Relates directly to the effective implementation of a resource protection program.</p> <p>Relates to sanctuary objective of moving towards a comprehensive assessment of the sanctuary's marine resource information base to identify gaps in our ability to manage the site.</p> <p>Relates directly to the effective implementation of a resource protection program.</p> <p>Relates to sanctuary objective of identifying those resources most in need of management attention.</p>	<p>Assess adequacy of baseline information for fish and invertebrates, cetaceans and possibly seabirds and pinnipeds in the Gulf (i.e., summary of knowledge).</p> <p>Support research projects that address confirmed baseline data gaps affecting marine resource management within the sanctuary.</p> <p>Prepare a data atlas of resources and uses in the sanctuary.</p> <p>Continue to support and implement selected investigations that clarify key ecological relationships within the Gulf of the Farallones.</p> <p>Feeding and movement studies.</p>

**Issues Relating to Scientific Research and the Information Needed
To Effectively Manage Marine Resources in the Sanctuary, Cont.**

MANAGEMENT ISSUE	EVIDENCE	RELATION TO THE NATIONAL MARINE SANCTUARY	ACTIONS
<p>3. <i>Information on the Effects of Natural Events and Human-Related Activities on Populations Within the Sanctuary</i></p> <p>There is evidence that oceanographic events and human-related activities are having an effect on populations of marine mammals and seabirds. Some of these effects could cause a long-term change in the status of some populations but that is not known. It also has been difficult to isolate changes due to natural population fluctuations, natural events, and human activity.</p>	<p>Observations on the El Nino effect on seabird populations and fish and invertebrates within the Gulf of the Farallones.</p> <p>Observations on the effects of gillnetting on seabird and marine mammals within the Gulf.</p> <p>Questions about the effects of chronic discharges from the sunken stern of the T/V <i>Puerto Rican</i>.</p>	<p>Relates directly to the effective implementation of the resource protection program.</p> <p>Relates to sanctuary objective of encouraging management-oriented research.</p>	<p>Continue to support and implement investigations on the effects of human-related disturbances on populations.</p> <p>Selected population monitoring to detect sudden or gradual changes.</p>

**Issues That Relate to Public Awareness
And Understanding of Sanctuary Resources and Management**

MANAGEMENT ISSUE	EVIDENCE	RELATION TO THE NATIONAL MARINE SANCTUARY	ACTIONS
<p>1. Basic Public Awareness of the Gulf of the Farallones National Marine Sanctuary as a Distinct Marine Protected Area</p> <p>Although several programs have been initiated to address this concern, the sanctuary still lacks identity as a <i>marine</i> protected area in many ways distinct and complementary to existing coastal protected areas such as the Point Reyes National Seashore. Many visitors and the San Francisco Bay public need to be made aware of the sanctuary, its location, what it stands for, and the mission of the program.</p>	<p>Results of the surveys conducted for the Education Plan (NOAA 1984). Public and agency response during the T/V <i>Puerto Rican</i> incident, indicating ignorance of the sanctuary's existence. Response from the general public at special events continues to be confused and misinformed.</p>	<p>Relates directly to the effective implementation of the resource protection program. Relates to sanctuary objective of providing information and increasing awareness.</p>	<p>Implement a well-planned identity program (brochures, posters, etc. - see text for description) that stresses the sanctuary as the Gulf of the Farallones and the program playing an active role in marine resource management. Maintain the sanctuary as a priority on the public agenda.</p>
<p>2. Obtaining Public and Agency Support for and Commitment to the Sanctuary, and its Management Program</p> <p>Getting people more informed may not be enough to have an affect on resource protection. Getting the public and other agencies involved (including having them provide input into decisions) can make a more substantial difference. The fact that there are so many other related programs and agencies in the SFB area also means that there's a need to define the kind of impact the sanctuary wants to have on its public.</p>	<p>Related experience in other agencies moving away from interpretation as entertainment towards education aimed at specific resource protection objectives. Results of the survey conducted for the <i>Education Plan</i> (NOAA 1984c).</p>	<p>Relates directly to the effective implementation of the resource protection program. Relates to the mission of the national program.</p>	<p>Workshops reporting research results or discussing resource protection issues. Workshops, seminars, field volunteer programs.</p>

**Issues that Relate to the Administration of the Sanctuary
And Implementation of its Management Program**

MANAGEMENT ISSUE	EVIDENCE	RELATION TO THE NATIONAL MARINE SANCTUARY	ACTIONS
<p>1. Establishment of Priorities and Balance among Priorities for Sanctuary Management over the Next 5-10 Years</p> <p>The administration of the site and coordination of a marine resource protection program with other federal and state agencies is a relatively complex task. The exact nature of the NMS program's involvement in day-to-day marine resource protection issues and decisions is developing gradually and this needs to be the focus for the next few years. There is a need during this "start-up" phase not to overextend limited operational resources (both staff and funds). This dictates a careful selection of priorities for implementation on an annual or bi-annual basis (particularly among Resource Protection/Education/Research activities).</p>	<p>Key operational decisions made since designation have significantly effected improved conditions for implementation.</p> <p>Comments received from other federal agencies on the need to define the focus of the sanctuary's resource protection program.</p>	<p>Relates directly to the effective implementation of the program.</p>	<p>Develop clear short-term objectives for the overall sanctuary management program that reflect priorities assigned to Resource Protection, Research, Education.</p> <p>Establish priorities both functionally and geographically.</p> <p>Undertake an "outcome" evaluation of the program.</p> <p>Make day-to-day work with other marine resource management agencies among the highest priorities.</p> <p>Work toward the development of clear marine resource protection policies (for internal use) for sanctuary management.</p>

**Issues that Relate to the Administration of the Sanctuary
And Implementation of its Management Program, Cont.**

MANAGEMENT ISSUE	EVIDENCE	RELATION TO THE NATIONAL MARINE SANCTUARY	ACTIONS
<p>2. <i>Developing Alternative Mechanisms for Implementation of Research, Education, and Resource Management Projects</i></p> <p>In addition to dictating clear priorities, limited operational funds call for the development of new mechanisms for a wide variety of projects. These include, for example, the production of documents, promotional materials, educational services, maintaining a reference library and possibly a Gulf of the Farallones resource information system. Several ongoing projects are helping to define these varied requirements.</p>	<p>Comments received during the plan preparations process.</p>	<p>Relates directly to the effective implementation of the program.</p>	<p>Investigate the need for additional cooperative agreements.</p> <p>Investigate alternative arrangements for the creation of a sanctuary cooperative association.</p>

TABLE 2
SUMMARY OF ACTIONS

The following table lists the major actions derived from the issue analysis as presented on Table 1, but reorganized according to the three main program areas: resource protection, research, and education and interpretation.

RESOURCE PROTECTION	RESEARCH	EDUCATION AND INTERPRETATION
Identify resources at risk	Assess adequacy of baseline for management	Implement identity program
Emergency response and contingency planning	Fund scientific investigations that address baseline gaps for cetaceans, fish, intertidal invertebrates, seabirds, marine mammals	Develop publications
Initiate assessment of capability	Investigate ecological relationships such as feeding and movement patterns	Develop media program
Monitor oiling incidence	Undertake impact studies	Implement educational activities (lecture series)
Assess regulations and discharge violation patterns	Establish procedures for emergency research	Establish a cooperating association
Provide technical advice on gill-netting impacts		
Monitor use impact on invertebrates and harbor seals		
Disseminate information on human disturbance		
Review coastal and offshore development proposals		
Develop inter-agency network to maximize use of the sanctuary as a site for management oriented research and monitoring		
Collect and organize all existing data and studies relevant to sanctuary resources and prepare data atlas.		

RESOURCE PROTECTION

(A) General Context for Management

Designation of the Gulf of the Farallones National Marine Sanctuary has focused attention both regionally and nationally on the value of the marine resources of the area. Improved resource protection is an integral responsibility of the designation.

Presented in this section is a multi-faceted resource protection program that takes the form of:

- A set of marine resource regulations and policies including applicable laws and regulations administered by other agencies;
- Regular patrolling of highly sensitive areas within the sanctuary and enforcement “on the water” of applicable regulations;
- Emergency response and contingency planning procedures in the event of accidents that could affect sanctuary resources;
- Coordinated review and evaluation of proposed revisions to existing policies and regulations, proposed new activities, and new developments that could affect sanctuary resources;
- Information and monitoring network; and
- Dissemination of resource information to the public and other agencies.

This approach is consistent with the objectives for resource protection stated in Section 1 of the plan.

The resource protection program applies to the entire area of the sanctuary as described earlier. Sensitive habitats, concentration of resources, and heavily used nearshore areas will be given special attention for patrolling and monitoring. Preliminary priority areas have been identified in figure 14 by overlaying maps that illustrate areas of concentrations of seabirds and marine mammals, areas where there have been reports of visitor use disturbance, and heavily used areas.

(B) Regulations and Policies

The protective regulations that are now in effect within the sanctuary (15 CFR, Part 936) apply to the following:

Hydrocarbon operations: Hydrocarbon exploration, development, and production are prohibited except that pipelines related to operations outside the sanctuary may be placed at a distance greater than two nautical miles from the Farallon Islands, Bolinas Lagoon, and Areas of Special Biological Significance where certified to have no significant effect on sanctuary resources.

Discharges: Discharges are prohibited within the sanctuary with the exception of fish wastes and bait; water (including cooling water) and other biodegradable effluents incidental to vessel use in the sanctuary (generated by marine sanitation devices, routine vessel maintenance, etc.); and dredge material disposed at the dumpsite (ten nautical miles south of the southeast Farallon Island) and municipal sewage.

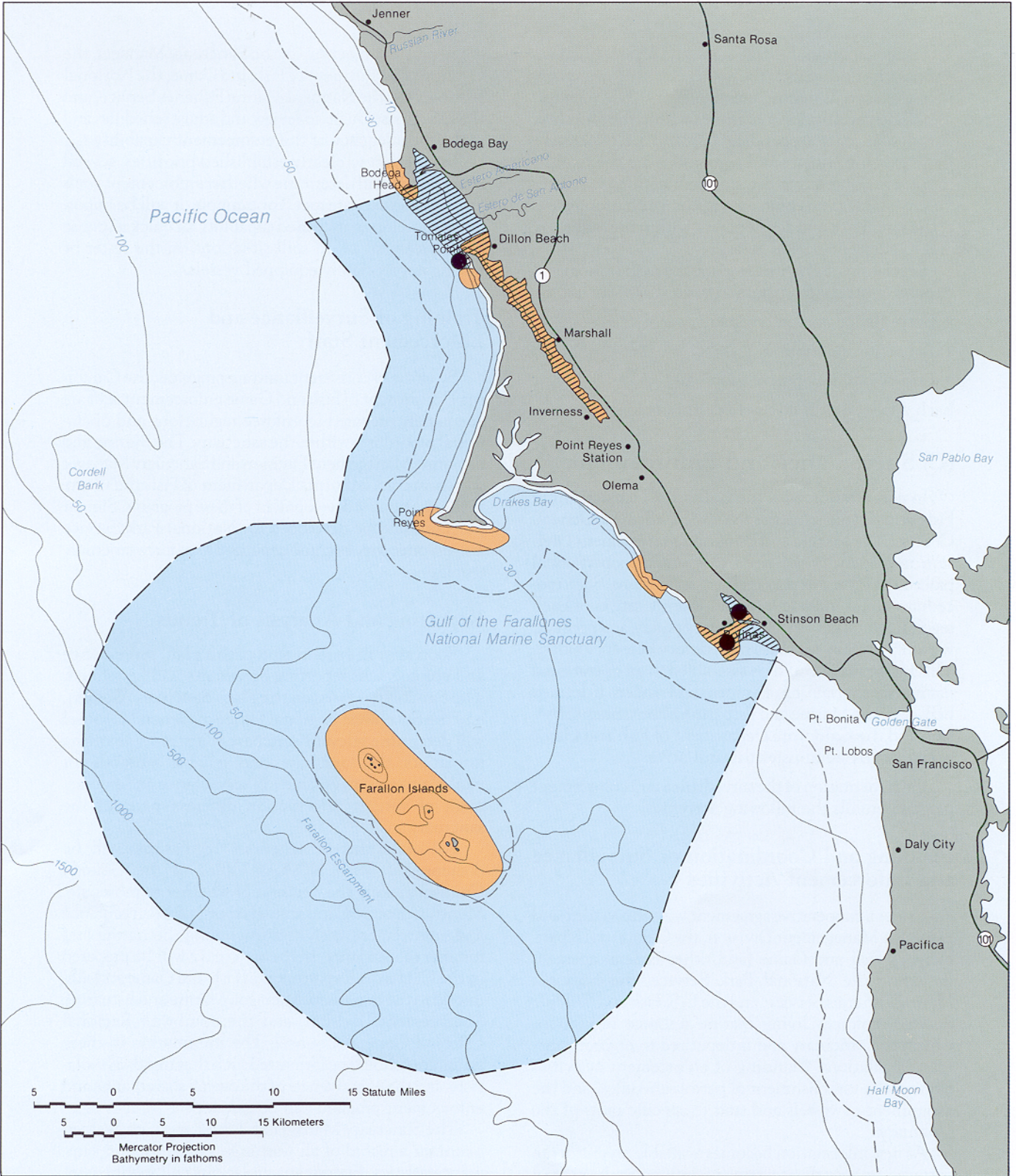
Alteration of, or construction on the seabed: Seabed alteration or construction is prohibited within the sanctuary except in connection with the laying of pipelines; construction of an outfall; anchoring vessels or bottom trawling from a commercial fishing vessel, except routine maintenance and navigation; ecological maintenance; mariculture; and the construction of docks and piers in Tomales Bay.

Commercial vessel operations: Access for fishing, recreational, and research vessels is not restricted within the sanctuary. Other vessels such as those engaged in carrying cargo or servicing offshore installations are prohibited within two nautical miles of the Farallon Islands, Bolinas Lagoon, or any Area of Biological Significance, except to transport persons or supplies to or from an island or mainland areas adjacent to sanctuary waters.

Overflights: Aircraft are not permitted below 1,000 feet within one nautical mile of the Farallon Islands, Bolinas Lagoon, or any Area of Biological Significance. This restriction will minimize disturbance to marine mammals or seabirds. Exceptions to this restriction are provided for enforcement purposes.

Removing or damaging historical or cultural resources: Removal of and/or damage to any historical or cultural resources of the sanctuary are prohibited.

NOAA General Counsel's Southwest Regional Office and Marine and Estuarine Management Division on-site managers have identified the need to revise and refine these regulations to facilitate on-site enforcement (Stone, pers. comm.). Changes are being considered to clarify the marine mammal/overflight regulation, dumping of fish and fish parts, and a better definition of historical and cultural resources. Additional revisions to the regulations may be required as on-scene experience is gained in reporting violations and writing citations. In addition to these sanctuary regulations, there are several regulatory programs administered by other agencies that apply to the National Marine Sanctuary. An objective of the sanctuary resource protection program is to encourage recognition and compliance with these regulations.



- Gulf of the Farallones National Marine Sanctuary Boundary
- Areas of Overlapping Concentrations of Marine Resources
- Heavily Used Areas
- Impacted Areas

Figure 14

Priority Areas for Resource Protection

Other important Federal, state, and local regulations and policies that apply to the management of a sanctuary resource (such as marine mammals) or to the management of a specially designated area within the sanctuary are summarized in Appendices 6, 7, and 8. Collectively, these existing policies and regulations are the foundation for making future decisions concerning priorities for surveillance and enforcement, compatible future uses of the sanctuary, and development within the sanctuary and in adjacent coastal areas.

Regulations and policies are applied to the sanctuary's resource protection program in various ways including:

- Surveillance and enforcement
- Public information
- Review of development proposals

Each application is discussed further below.

(C) Surveillance and Enforcement

In consultation with the California Department of Fish and Game and the NOAA Office of General Counsel, the Marine and Estuarine Management Division may identify the need to formulate operational procedures for enforcing sanctuary regulations. Such procedures could include a formal interpretation of each regulation and governing matters of policy, and contact, warning, citation, and legal procedures where appropriate. This information could be assembled in an operational manual for the training of wardens and rangers. If deemed necessary the Marine and Estuarine Management Division and the California Department of Fish and Game would jointly administer this initiative.

Implementation of the surveillance and enforcement program entails the following activities:

Planning and Coordination of Surveillance and Enforcement Activities

Under a cooperative agreement with the Marine and Estuarine Management Division, the California Department of Fish and Game (and other Federal agencies including the National Park Service, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service) enforces living marine resource regulations within the sanctuary and is deputized to enforce sanctuary regulations. Planning of enforcement activities requires the establishment of patrol schedules, and the assignment of vessels and staff to specific parts of the sanctuary.

As new information becomes available on visitor use patterns, frequently occurring violations, and potential conflicts with sensitive resources, surveillance operations will need to be adjusted to respond to priorities. This will

entail periodic meetings of the Sanctuary Manager, the California Department of Fish and Game, the National Park Service, the National Marine Fisheries Service, and the U.S. Coast Guard to review and adjust schedules and assess the adequacy of the enforcement capability.

In addition to clearly established priorities, several other factors will determine whether enforcement goals for the sanctuary are met. For example, it will be important to develop an increased capability for quick response to enforcement of oil spill situations on the water by having appropriately equipped vessels.

Training of Surveillance and Enforcement Staff

By virtue of consistent training programs, the California Department of Fish and Game enforcement staff are adequately prepared to enforce regulations and operational procedures within the sanctuary. The Marine and Estuarine Management Division and Sanctuary Manager will assist the California Department of Fish and Game in the continuing development of these programs. Similar programs may be developed for National Park Service rangers once they become deputized to enforce sanctuary regulations.

Reporting and Analysis of Trends

Soon after the submission of this plan, surveillance and enforcement reporting procedures will be refined. The Sanctuary Manager, the State Sanctuary Warden, and the Southwest Regional Office of General Counsel will determine relevant summary statistics, a reporting format for the sanctuary, and reliable methods for monitoring the effectiveness of surveillance and enforcement of various activities in different parts of the sanctuary.

All violations of sanctuary regulations will be documented, with NOAA's Office of the General Counsel making the decision of whether to prosecute. Monthly, quarterly, and annual reports of all surveillance and enforcement activities (including the nature and number of incidents) in the sanctuary will be prepared by the California Department of Fish and Game and submitted to the Sanctuary Manager, Marine and Estuarine Management Division, and the Southwest Regional Office of General Counsel. The information in these summaries should be formatted such that trends in violations and the effectiveness of the overall surveillance and enforcement program can be assessed.

The Sanctuary Manager and the Sanctuary Warden maintain a record of all warnings, citations, and summary statistics. Significant violations will require consultation with the NOAA Office of General Counsel and the Marine and Estuarine Management Division, Washington, D.C. office.

Public Education and Information

The most effective measures in law enforcement are preventive. It is therefore essential that recreational visitors and users of the sanctuary be provided with complete and easily understood information about marine resource regulations, the reasons for them, and the shared government responsibility for their enforcement. In time, a directed information program could alleviate many resource management concerns such as disturbance of marine mammals and illegal discharges.

The first initiatives to be undertaken include: (1) developing and distributing a brochure or brochures explaining sanctuary regulations and their intent; (2) posting sanctuary regulations in appropriate locations (i.e., marinas, sailing clubs, local airports); and (3) establishing contact with industry, and recreational and commercial groups (i.e., fishing, shipping industry). Discussion with various groups will serve in determining appropriate educational materials for promoting compatible use of the sanctuary. This initiative will be administered by the Sanctuary Manager with the assistance of the National Park Service and the California Department of Fish and Game.

(D) Contingency Plans for Major Emergencies

The resources of the Gulf of the Farallones National Marine Sanctuary are vulnerable to changes from both natural and human-related events. Many of the changes are gradual and can be detected only through long-term monitoring of various environmental and biological indicators. Certain sudden changes in conditions, however (due to an accidental spill, for example) could seriously injure resources and present severe health and safety hazards. While major accidents adjacent to or within the sanctuary cannot be predicted, there is a need for a state of readiness to avoid long-term and widespread damage.

Measures and plans are currently in place within the region to respond to an offshore emergency such as a major accidental oil spill. The U.S. Coast Guard, in cooperation with the Environmental Protection Agency, administers the *National Oil and Hazardous Substances Pollution Contingency Plan*. This plan includes: 1) the duties and responsibilities of each Federal agency in coordination with state and local agencies; 2) a strike force (i.e., the Pacific Strike Team) of trained personnel available to provide the earliest possible alert to a discharge; 3) a system of surveillance to provide the earliest possible notice of a discharge; 4) a national center to coordinate the plan; 5) and procedures and techniques for identifying, containing, and removing the discharge or dispersing it.

In the San Francisco Bay region that includes the sanctuary, the Coast Guard Marine Safety Office is the Federal office designated to coordinate and direct Federal responses to oil spills. Decisions are coordinated with a Regional Response Team (RRT) that includes representatives from the Coast Guard, Environmental Protection Agency, the National Oceanic and Atmospheric Administration, the Department of the Interior, and the State of California (represented by the Department of Fish and Game). The RRT is responsible for responding to and planning courses of action in the event of environmental emergencies such as oil spills.

Clean Bay is a private oil spill cleanup cooperative that operates in the San Francisco Bay area. Other private non-profit organizations such as the International Bird Rescue Center and the Marine Mammal Center have facilities for rehabilitating oiled birds and marine mammals.

Emergency response to the T/V *Puerto Rican* incident in November, 1984 provided an opportunity to evaluate existing capabilities within the sanctuary. Approximately 25,000 to 35,000 barrels of petroleum products (mainly lubricating oils) were discharged on November 3, 1984 within the southern boundary of the sanctuary. The resulting oil slick traveled south and then northeast, reaching the Farallon Islands, the Point Reyes Peninsula, and washing ashore at Bodega Harbor. The NOAA report entitled, *Resource Damage Assessment of the T/V Puerto Rican Oil Spill Incident*, provides a detailed analysis of damages to natural resources and the associated costs and values. Based on this experience, the Marine and Estuarine Management Division has identified the need for:

- Closer coordination with the Coast Guard, the Regional Response Team, and local cooperatives
- Developing a set of response procedures applicable to Marine and Estuarine Management Division staff and on-site sanctuary staff

To meet these needs, an emergency response and contingency plan will be prepared for the sanctuary. The plan will:

- Streamline procedures for gaining emergency access to baseline information on sanctuary resources.
- Describe emergency response procedures for Marine and Estuarine Management Division staff and requirements for coordination with other members of the Regional Response Team.
- Offer procedures for emergency research and monitoring of affected resources.
- Provide damage assessment guidelines.

In addition to preparing the plan, the Marine and Estuarine Management Division will assess and monitor the emergency response capability within the sanctuary.

(E) Encouraging Compatible Use in the Sanctuary

Encouraging the public to use the sanctuary in ways that are compatible with the protection of resources is an important aspect of this program. Sanctuary management does not embrace direct management of activities (other than that provided through the regulations stated above) since this is a responsibility assigned to other state and Federal agencies. The Marine and Estuarine Management Division does, however, encourage compatible visitor use by undertaking the following:

- Monitoring commercial and recreational activities in the sanctuary and/or encouraging other agencies to do so to detect areas of particular management concern;
- Exchanging information on commercial and recreational activities in the sanctuary;
- Reviewing and consulting with other agencies such as the National Marine Fisheries Service, the Pacific Fisheries Management Council, the Environmental Protection Agency, Minerals Management Service, U.S. Army Corps of Engineers, the State Lands Commission, and the California Department of Fish and Game on policies or permit approvals for activities that affect sanctuary resources;
- Developing information brochures and other materials aimed at informing the public about potential disturbance of significant resources, and where and when the resources are vulnerable to disturbance.

RESEARCH

(A) General Context for Management

A well-designed research program at this sanctuary can improve our understanding of resources and point out species sensitive to disturbance. The information obtained from a directed research program can suggest improved or new regulations, and in time increase the capability for managing resources. Research results can help the Sanctuary Manager and staff detect changes in populations and understand the significance of these changes for the system. Research projects are a continuing source of information for interpretation and education activities within the sanctuary.

Research conducted within the sanctuary and funded by the Marine and Estuarine Management Division will continue to focus on management issues that relate to the protection of significant resources. Research will typically examine questions involving communities or

whole ecosystems though occasionally it may be species-specific. General directions and priorities for additional research are provided in this section as a guide for identifying and selecting future research projects.

(B) Topical Directions

Research projects at the sanctuary will be directed to three basic management questions as follows:

- What are the general characteristics and distributions of species and marine communities (baseline/characterization)?
- What are the short- and long-term changes in species' populations and marine communities (i.e., in abundance, distribution) and what are the influences of natural variability and human-caused disturbances on these changes (monitoring)?
- What are the possible cause-and-effect relationships accounting for changes observed in resource distribution, abundance, and diversity (experimental/predictive)?

Research in several categories has been undertaken in the sanctuary to date. A listing of past and ongoing research projects is provided in Appendix 2. Since the designation of the sanctuary, the emphasis has been on assessments of various populations including harbor seals and other pinnipeds, aquatic birds, and invertebrates. Future directions and known priorities falling under each of the three categories are described in more detail below.

Baseline Studies

Baseline studies are designed to obtain a basic understanding of the resources in the sanctuary. They generally refer to studies of the abundance, distribution, and movement of species. As described earlier in the plan, elementary characteristics of many important populations are still not known. This is generally true for cetaceans, fish, subtidal invertebrates, and algal flora. Inventories of selected species, particularly threatened or vulnerable species within these populations, represent an important direction for research. Some baseline studies will also focus on the inventory of habitats (as opposed to focus on populations). Over the long term, there may also be a need for a detailed inventory of the intertidal and subtidal habitats of the sanctuary that build on the surveys already conducted for other Federal agencies.

Monitoring

Monitoring studies are fundamental to the successful management of marine resources. By regularly recording the abundance of organisms or the diversity of a community, for example, it is possible to detect ecological change. A good monitoring data base can help detect normal or natural cycles and trends as well as unusual changes and possibly relate them to one or several sources of disturbance. Over the long term, a monitoring program should provide an indication of the health of the important populations within the sanctuary as well as the health of the overall system.

Marine resource monitoring programs are costly and their design can be complex. For these reasons, the selection of what to monitor is an important management and scientific question. The Marine and Estuarine Management Division will continue to work with other agencies carrying out monitoring in the ocean, providing technical and other support where possible. Additional monitoring programs may also be initiated for important species on habitats of special concern not covered by an existing program.

Analysis and Prediction

Analytical and predictive studies are needed to determine the causes of changes in the ecosystem or to predict the effects of change.

Examples of such studies undertaken for the sanctuary have been studies of premature pupping in northern sea lions on the Farallon Islands and a study of human disturbance on harbor seals. Such in-depth studies will continue to be a means of focusing on specific management issues with the aim of providing suggestions for improved regulations, surveillance, and public information. The following points should be considered when developing a scientific research plan:

- Develop or update a list of management concerns facing the sanctuary, together with supporting evidence or rationale. The management concerns should be prepared in accordance with sanctuary goals.
- Based on the list of management concerns, prepare a list of research priorities. Research priorities are established by the Sanctuary Manager, in cooperation with the Marine and Estuarine Management Division.

The most important factors to be considered in establishing annual research priorities will be the following:

- (1) immediate or evolving management issues that may be resolved through directed research projects;
 - (2) the prospects of research already in progress; and
 - (3) the availability of funds, instruments, and equipment for research support.
- Formulate general concepts for research projects. At this stage, the intent is to identify the type of research action that effectively addresses the management concern.



- Prepare and circulate a research announcement. The announcement discusses the management concerns, and summarizes past and ongoing research. The purpose is to solicit suggestions for research that can help resolve management issues. Research workshops will be held occasionally to facilitate the formulation of research problems.
- Based on research suggestions from the announcement, workshop or related means, a draft Sanctuary Research Plan (SRP) is prepared. The SRP lists the proposed research projects with a rationale. The list is priority-ranked by the Sanctuary Manager.
- The draft SRP is sent to the Marine and Estuarine Management Division and also circulated for review to selected reviewers.

- Prepare a final SRP. This SRP includes documentation of how each project meets national selection criteria. The final SRP is sent to the Marine and Estuarine Management Division where it is compiled into a National Sanctuary Research Plan. From the national SRP, the highest ranking research projects are selected and a procurement schedule is prepared.

The Sanctuary Research Coordinator, the Sanctuary Manager, and the Marine and Estuarine Management Division will adjust research priorities as new management issues emerge and existing ones are resolved. The formulation and ranking of specific research topics will be undertaken annually in accordance with national guidelines (see below).

(C) Guidelines for Management of the Research Program

To ensure that projects funded by the Marine and Estuarine Management Division are relevant and directed to the resolution of management questions and issues, the Sanctuary Manager will follow general procedures that have been developed to administer the research program at the national level. These procedures relate to: (1) preparing an annual Sanctuary Research Plan; (2) monitoring the progress of research in the sanctuary; and (3) maintaining an information management and exchange program.

Preparing an Annual Research Plan

A research plan will be prepared for the sanctuary each year and incorporated into a National Research Plan that includes the annual plans for each national marine sanctuary.

In summary, the criteria for including research projects in the final SRP for the sanctuary are:

- The topic clearly addresses one or several priorities for sanctuary management.
- The end products of the research can be used for several aspects of sanctuary management such as the preparation of education materials, contingency planning, and information exchange with other agencies.
- The research addresses an acknowledged information gap for the area.

The SRP is intended to meet several functions as follows:

- Provide the basis for establishing budget requests and annual plans.
- Structure research products along lines that will permit more effective sanctuary management decision making.

- Allow more complete analysis of significant regional issues in a schedule timely for decision making.
- Provide for contact with other information user groups and public participation in planning sanctuary activities.

Monitoring Progress

The Sanctuary Manager will monitor the performance of research projects and keep the Marine and Estuarine Management Division informed of progress. Progress reports and final reports will be required as outlined under the terms of each contract. Final reports may also be reviewed by recognized scientists and resource managers and approved by the Marine and Estuarine Management Division. Outstanding projects may be published by the Marine and Estuarine Management Division in its Technical Report Series. The Sanctuary Manager will also keep records of all research underway, sites in use, and progress to date. There will also be a systematic attempt on a regular basis (two to three years) to evaluate the performance of the overall research program to determine its effectiveness as a management tool.

The Marine and Estuarine Management Division will also receive requests for research permits. When proposed projects include activities that are prohibited by sanctuary regulations, it may be determined that all or part of the activity should be conducted outside the sanctuary. Areas containing special resources protected under state or Federal statutes (i.e., state ecological reserves, endangered species, marine mammals) may require additional research permits from other agencies.

(D) Additional Requirements of the Research Program

Direct Marine and Estuarine Management Division funding for research is relatively limited. To complement directly funding research, the Marine and Estuarine Management Division will encourage research funding from other sources, particularly where it complements sanctuary management. To achieve this objective, the Marine and Estuarine Management Division will make available to other agencies and private institutions current sanctuary resources data obtained from past and ongoing research projects. It may be possible to design a simple data storage system that would allow for rapid access of current and historical population data.

The Marine and Estuarine Management Division will also investigate the possibility of establishing an information network that would allow access to existing monitoring data bases that cover the sanctuary. The network could include:

- Mussel watch program data;
- National Ocean Service data on currents and marine weather;
- California Department of Fish and Game fisheries data;
- A variety of marine species distribution data bases maintained by the Point Reyes Bird Observatory, the University of California at Santa Cruz and Davis, and government agencies.

INTERPRETATION AND EDUCATION

(A) General Context for Management

As the National Marine Sanctuary Program gains a more prominent role as a marine resource protection program in the Gulf of the Farallones, the general public of the San Francisco Bay area will need more information about the site and what the Marine and Estuarine Management Division is doing to protect its resources. The Division can meet this growing need for information through a carefully planned education and interpretation program. As is currently required for research, educational activities for the sanctuary can be well integrated with other aspects of sanctuary management. Over time, such a directed program can lead to active public support of sanctuary goals, increased program coordination, and ultimately better management of the site.

In recognition of the role of interpretation and education in achieving resource protection goals, the Marine and Estuarine Management Division has initiated programs over the past three years in collaboration with the National Park Service and other agencies. Initiatives administered by the Division include:

- The design, production, and distribution of a sanctuary brochure;
- The design and production of sanctuary wayside signs;
- Contacts, coordination, and cooperative programming with local organizations offering interpretive activities;
- A lecture series and major symposia; and
- Ranger-naturalist orientation to the sanctuary.

Through a cooperative agreement with the National Park Service, the Marine and Estuarine Management Division has also undertaken joint initiatives with the National Park Service at the Point Reyes National Seashore and the Golden Gate National Recreation

Area. The sanctuary public office is located at the Fort Mason headquarters for the Golden Gate National Recreation Area. Sanctuary staff plan for and carry out most interpretive and educational and other management activities from this location. The Division has also funded ranger-naturalists from the Point Reyes National Seashore Area to give interpretive talks on the sanctuary at different locations overlooking the sanctuary.

The *Education and Interpretation Plan* (NOAA 1984c) prepared for the Marine and Estuarine Management Division by the Point Reyes Bird Observatory reviews and evaluates the broad range of educational opportunities available for the sanctuary. The plan includes a list of potential interpretive projects and is currently providing direction for the implementation of education activities for the sanctuary. Many of the projects can be undertaken jointly with organizations that have extensive community networks in Marin and Sonoma counties and the San Francisco Bay area.

The purpose of this section is to incorporate into the sanctuary's management plan the major recommendations of the *Education and Interpretation Plan*, highlight additional issues that relate to education, and propose a strategy that extends into the future.

(B) General Policies and Guidelines

In addition to general goals and objectives (Section 1), specific projects will follow general policies to ensure high quality of materials and programs (NOAA 1984c):

- Interpretation efforts should emphasize the entire sanctuary as a regional unit.
- Interpretive activities should be integrated with other aspects of sanctuary management and relate directly to resource protection activities and priorities.
- Interpretation should be balanced over the entire domain of the sanctuary where feasible, given limited funds and staff.
- Current issues in protection should be addressed as well as timeless principles of marine physical and biological processes and maritime cultural history.
- Collaboration among organizations should be encouraged in the implementation of interpretive projects to broaden sanctuary support and create a marine education network.
- Local residents and organizations should be actively considered and involved in education programs to encourage supportive relations and enthusiastic participation.

- Education should focus on developing widespread support for the sanctuary and the oceans; target audiences are public officials, educators, and environmental groups.
- Each interpretive effort is a showcase for the sanctuary and the entire National Marine Sanctuary Program; each must be carefully thought out, developed through cooperative efforts with a view to the objectives of the overall program.

(C) Strategy

Because the program is relatively new, interpretation and education projects will be phased as follows:

- First one to two years: Broad-level public outreach to develop basic awareness of the sanctuary, its ecological significance, current and planned resource protection activities, and the National Marine Sanctuary Program. The emphasis will be on orientation to the site, explaining the program, and characterizing sanctuary resources;
- Next three to five years: Specific activities and materials that address more specialized needs;
- Next six to ten years: Implementation of some large-scale projects and review and evaluation of the program as a whole to assess effectiveness and determine direction for the future.

Long-term Scope of the Interpretive and Education Program

At this time, the program is relatively small in scope with limited funds and staff. It is therefore critical to collaborate with agencies such as the National Park Service that have qualified staff, good facilities, and exhibit space. The development of joint programs is likely to continue, but there is a need to consider if and how the sanctuary's program can expand gradually over the next three to five years. The issue of expanding on-site educational services is considered important at the national level. The National Marine Sanctuary Program is shifting from an intensive period of planning and program design towards one of accelerated implementation of proposals that increase the prominence and identity of the sites.

Developments are occurring at other designated sites that illustrate some of the changes that could take place at the Gulf of the Farallones National Marine Sanctuary over the next decade. For example, proposals for various types of interpretive signs, exhibits, audio-visual presentations, and cooperative interpretive centers are being carried out at other sanctuaries.

While there are many direct benefits to these types of activities, there is a concern for not interfering with the primary focus of the program (resource protection)

by overextending limited funds and resources. The need to evaluate the real contribution of different types of educational services to resource protection is a related concern. Many experts are now stressing the evaluation component of visitor services and are calling for quantitative techniques to assess the value of interpretive activities and facilities as a management tool.

(D) Programs

Printed Materials

Printed materials address two important issues for the sanctuary: identity and compatible visitor use. Printed materials include brochures, posters, and newsletters. These are essential for the interpretation and education program because:

- They can be used during both on-site tours and off-site talks.
- They can be disseminated over large areas to reach a variety of regional or national audiences.
- Visitors can keep them for future reference.

Three additional notes need to be made about printed materials. First, brochures that deal with some aspect of the sanctuary are already available and new materials should stress the unique aspects of the program to support the National Oceanic and Atmospheric Administration's objective of avoiding duplication. Second, there should be some consistency in the appearance of printed materials. The design of printed materials for the sanctuary should follow the national-level graphic design guidelines for the use of the sanctuary logo, color, and sizes, etc. The "National Marine Sanctuaries: Industrial and Graphic Design Guidelines" (NOAA 1985b) should be kept on file at the Sanctuary Manager's office and used as a guideline for developing and updating the items discussed below. The visual continuity ensured by the standards can help promote the identity of both the sanctuary and the program. Third, the success of printed materials depends on effective distribution. An up-to-date mailing list and a network of local contacts needs to be maintained to help in distribution.

In the earlier years, priority will be placed on basic orientation materials. These will include:

- A general purpose sanctuary brochure with a good quality map of the site and an introduction to the concept of the entire sanctuary. A detailed map with keyed diagrams and photographs is most effective for orienting visitors without requiring that they read lengthy copy;
- High-quality sanctuary posters to be used for promotion;

- Updating of existing brochures being distributed by other agencies so that mention is made of the sanctuary (in preparation);
- A low-cost newsletter providing an update of sanctuary research activities, upcoming events and seminars;
- Stationery designed to include new sanctuary identity;
- Press packages (including brochures, articles);
- Training materials.

In the later years (after two to five years), the focus will shift to the development of specific purpose and specific topic materials such as:

- Resource-specific or habitat-specific brochures. A series of low-cost brochures dealing with significant sanctuary resources or habitats. Topics could include whales, seabirds, seals, and sea lions;
- School information packages on the sanctuary to be distributed to local schools and incorporated into the curriculum. The package could include a combination of brochures, as well as suggestions for school outings and experiments. This could be developed in collaboration with local universities and schools;
- Additional curriculum materials for teacher and guide training programs and local media;
- Guides relating to the marine environment to be used along existing coastal trails;
- Press releases, occasional announcements of special events in the sanctuary, or feature articles circulated to local media and nature club newsletters;

Personal Contact Interpretation

Personal contact involves the use of government and volunteer staff to undertake sanctuary walks and outreach talks. Staff time available for interpretive walks in the sanctuary is limited; however, such services will be expanded gradually over the next few years by training others including National Park Service Ranger-naturalists and county naturalists to conduct interpretive talks and work with visitor groups in a variety of locations. The Sanctuary Manager and Deputy Sanctuary Manager may give occasional talks and will assist with the training of the Service's staff and other collaborating agencies in sanctuary interpretation. The Sanctuary staff will also direct interpretive programs and work to establish a volunteer naturalist program.

Other personal contact projects recommended in the first one to two years are:

- Continuation of the "Lecture Series";
- Annual events including tours;
- Symposiums (professional training workshops) and appearances at other seminars organized by other agencies.

Recommended projects to be implemented at a later date include:

- Volunteer programs;
- School outreach programs;
- Site-specific support such as additional on-site tours and signage at the main vantage points overlooking the sanctuary.



Signage and Exhibits

These include indoor and outdoor exhibits and a variety of audio-visual presentations. The notes made concerning printed materials also apply in this case: (1) efforts should be made to avoid duplication; (2) designs should be consistent, of high quality and vandalism-proof; and (3) efforts should be made to use local resources to raise funds for, develop, and install exhibits.

The development of on-site outdoor signage (including wayside exhibits) is an important element of the interpretation program because it provides a clear indication of the sanctuary's geographic extent. Such signage is generally costly, however, and since it is subject to weather exposure and vandalism, it requires maintenance. Refer to the report "National Marine Sanctuaries: Industrial and Graphic Design Guidelines" (NOAA 1985b) for specific details regarding the approved National Marine Sanctuary Program standards for signage systems.

The development of signage and exhibits for the sanctuary will entail the following projects over the short term (NOAA 1984c):

- Basic sanctuary wayside exhibit and directional signs that identify the name of the sanctuary. Already located at Doran Beach, Drakes Beach, Limantour Beach, Cliff House, Point Reyes Headlands, and Stinson Beach. Recommendation that design be changed and additional signs sited at Muir Beach Overlook, Fort Point, Bodega Head, Fort Funston, and Half Moon Bay;
- Permanent indoor exhibits to be available for the Point Reyes National Seashore, Marin Headlands, and Cliff House areas of GGNRA;
- Sanctuary sign at the Fort Mason headquarters;
- A series of habitat-specific wayside exhibits each interpreting a different part of the sanctuary. These could be designed so as not to interfere with visual access and could be located at strategic points within and overlooking the sanctuary;
- Small portable exhibit for use at local conferences and fairs;
- A general traveling exhibit of the sanctuary with components of the exhibit devoted to the overall sanctuary. This could be developed at relatively low cost using the graphic art work and map designed for the sanctuary brochure;
- A slide/tape program on the sanctuary with text, slides, and narration for use in staff presentations or public outreach;
- A film on the Gulf of the Farallones available for both public television and education outreach;

- A series of brief video films focusing on the behavior of various significant sanctuary resources (e.g., pinnipeds, seabirds, whales). Need to determine if these would be undertaken as a research project and where they could be viewed;
- A collaborative interpretive plan to be implemented at the Point Bonita interpretive center.

Media

Local media coverage is an important and relatively inexpensive way of providing information to large numbers of people. Several local newspapers have already provided coverage on the sanctuary and this should continue and expand.

Ideas that can be implemented over the short term include (NOAA 1984c):

- Press package of information about the sanctuary;
- Detailed publicity for any program/lecture series;
- Developing ongoing relationships with local environmental reporters;
- News media tours of the sanctuary by boat on a systematic and regular basis;
- Involving legislators in sanctuary-related issues to build political support;
- Regular publicity of sanctuary-related events and topics through news articles, press releases, radio spots, and television coverage;
- Development of brief articles on the sanctuary for publication in local media;
- Sanctuary newsletter to interpret research and resource protection and provide a regular report on sanctuary activities; consistency in publication indicates commitment and stability in the organization;
- Encourage freelance writing by sending writers printed materials on the sanctuary;
- Short news articles for newsletters of organizations of marine interest groups;
- Public service radio and television spots featuring the sanctuary;
- Transit posters on city bus systems and ferries to promote the sanctuary;
- Development of promotional materials such as T-shirts, posters, bumperstickers, caps and decals using the approved National Marine Sanctuary Program logo.

(E) Facility Development

Sanctuary Headquarters

The general public, private organizations and special groups need one reliable contact point within the broad sanctuary “region” (i.e., San Francisco Bay, Marin County, Sonoma County) where they can visit and/or obtain more information about the sanctuary. A sanctuary headquarters is also required for the operation of an interpretive program. At this time and in the next few years, the headquarters will be an office with adequate space to store and distribute information materials, to display announcements concerning the sanctuary, to conduct meetings, to welcome visitors, and to administer the program.

The public contact role of the sanctuary headquarters presently is limited. The premises are used primarily as offices. Some of the recommendations that could be implemented in the next few years would be:

- Installing a sanctuary name sign outside the GGNRA headquarters office;
- Setting aside a room as a reference library;
- Having a permanent sanctuary exhibit installed at the headquarters.

Investigating the Need for a Visitor Facility

The *Final Environmental Impact Statement* (NOAA 1980) mentions the possibility of a visitor center for the sanctuary. To date, the sanctuary has had only wayside signs and the recommendation of permanent exhibits at the Point Reyes National Seashore and the Golden Gate National Recreation Area facilities. There is a need to investigate whether a building or part of a building devoted to sanctuary exhibits is warranted, and if so, the requirements of such a facility.

Several options could be considered including the following:

- Occupying a building or part of a building either at Fort Mason or another appropriate Golden Gate National Recreation Area location such as part of a facility at the Point Bonita Lighthouse;
- Occupying a building at the Point Reyes National Seashore. There is a small building near the Point Reyes Lighthouse that could be restored and modified to accommodate sanctuary exhibits (Sansing, pers. comm.);
- Reviving the “Marine Learning Center” proposal.

Factors that need to be considered in deciding if a facility is required include:

- Need for greater visibility in a coastal location adjacent to the site;
- Forecasted increases in contacts;
- Available staff to operate a satellite facility;
- Costs.